

# Measuring Downside Risks: Lessons from Health Risk Measurement and Evaluation

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Downside risk is a crucial concept in human security. This section introduces recent efforts to measure and assess downside risks to health, with the aim of providing perspectives that contribute to the measurement and evaluation of human security.

The global COVID-19 pandemic starkly demonstrated that infectious diseases pose significant downside risks to both health and socioeconomic conditions, thereby accelerating initiatives to measure and assess the risks associated with the emergence and spread of pandemics. A prominent example is the Global Pandemic Monitoring Board (GPMB). Established under the joint stewardship of the WHO and the World Bank, the GPMB succeeded the UN Global Health Crisis Task Force, which had been formed in response to the Ebola outbreak beginning in 2014. The GPMB conducts pandemic-risk analysis using its monitoring and assessment tool, the GPMB Monitoring Framework (GPMB Framework).

The GPMB Framework identifies 15 drivers of pandemic risk across five domains: social, technological, economic, environmental, and political (Table 1). These risk factors are evaluated using a four-tier scale ranging from “very high” to “low.” Although internationally comparative indicators are linked to each factor, the final assessments are determined through consultations among GPMB members, WHO specialists, and selected experts from around the world.

While the GPMB Framework captures downside risks at the group or population level, the framework for measuring the social determinants of health (SDH), or the social determinants of health equity (SDHE), provides a useful reference for assessing risks to the health of individuals. The

**Table 1 GPMB Framework**

|                                                                                   |
|-----------------------------------------------------------------------------------|
| <b>Social:</b> Social Inequality, Individualism, Global Movement                  |
| <b>Technological:</b> Digital Connectivity, Misinformation, Biomedical Innovation |
| <b>Economic:</b> Economic Development, Economic Inequality, Social Programs       |
| <b>Environmental:</b> Climate Change, Agricultural Practices and Farming, Cities  |
| <b>Political:</b> Governance, Trust, Conflict and Instability                     |

Source: Adapted by the author from GPMB (2024).

**Table 2 SDHE Framework (Number of indicators shown in parentheses)**

|                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Economic Security and Equality:</b> Employment (7), Food Insecurity (2), Income Inequality (2), Poverty (6)                                                                                                                           |
| <b>Education:</b> Education Access (3), Education Quality (2), Education Outcomes (5)                                                                                                                                                    |
| <b>Physical Environment:</b> Air Quality and Climate (2), Disasters (1), Energy, Fuels and Technology (2), Housing (5), Land Tenure (1), Road Safety (1), Water, Sanitation and Hygiene (WASH) (6), Urbanization (5)                     |
| <b>Social and Community Context:</b> Conflict, Crime and Violence (5), Discrimination (1), Forced Displacement and Migration (4), Gender Equality and Women's Empowerment (3), Healthy Ageing (1), Incarceration (1), Social Support (1) |
| <b>Health Behaviors:</b> Alcohol (1), Physical Activity (1), Tobacco (1), Nutrition (5)                                                                                                                                                  |
| <b>Health Care:</b> Health Care Access and Affordability (6), Health Systems (6)                                                                                                                                                         |

Source: Adapted by the author from WHO (2024).

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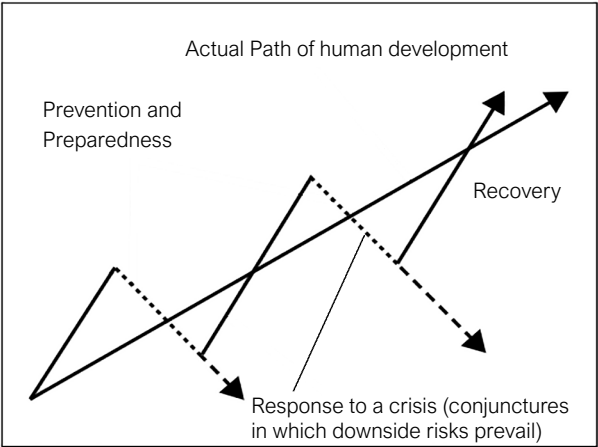
concept of SDH emerged from growing concerns over health disparities, with conceptual clarification presented in a 2008 report by a WHO commission. The COVID-19 pandemic further exposed and amplified existing health inequalities, renewing global attention to SDHE and prompting the development of the WHO's measurement and evaluation framework for SDHE (the SDHE Framework). The SDHE Framework comprises 86 indicators across six domains: economic security and equality, education, physical environment, social and community context, health behaviors, and health care (Table 2).

These works offer important insights for measuring and assessing downside risks to human security. To begin with, it is important to recognize that the impact of downside risks, as manifested during the pandemic, can be both substantial and long-lasting. While advanced economies demonstrated strong resilience, IMF analyses indicate that many low- and middle-income countries continue to experience persistent setbacks in their economic growth trajectories (Figure 1). UNDP similarly reports delays in the recovery of human development.

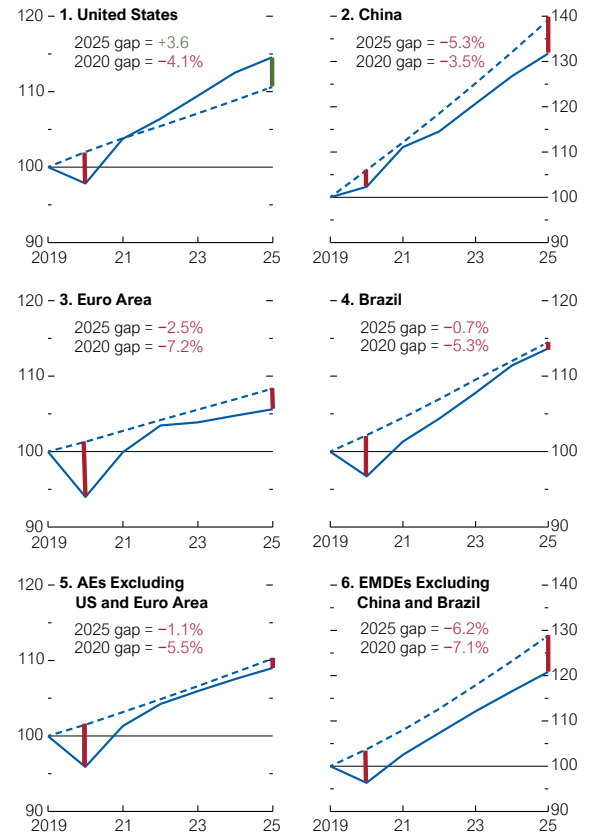
The first implication is the necessity of adopting a whole-of-society perspective. The GPMB Framework comprehensively captures the risks faced by societies by organizing pandemic-related risks into 15 items across five domains, while the SDHE Framework categorizes factors affecting the health of individuals into 86 indicators across six domains. Health is a core component of human security. Given its strong interlinkages with other SDGs, the diversity of downside risks to health substantially overlaps with the diversity of downside risks to human security.

Second, attention must be paid to risks arising from human activities. In the modern era, human actions, particularly market-driven, profit-oriented activities and their resulting externalities, have themselves become sources of risk for society and the planet. For example, within the GPMB Framework, global movement, agricultural practices and farming, cities, and climate change fall into this category. Similarly, alcohol and tobacco, captured within the SDHE Framework, illustrate how market forces can threaten health. This perspective also resonates with the UNDP's concept of Human Security in the Anthropocene.

Third, it is essential to emphasize human connections



**Figure 1.8. Real GDP versus Prepandemic Trend**  
(Index, 2019 = 100)



Source: IMF staff calculations.  
Note: Solid-line data are from April 2025 *World Economic Outlook* (WEO). Dashed lines denote prepandemic trend based on January 2020 WEO *Update*. AEs = advanced economies; EMDEs = emerging market and developing economies.

**Figure 1 Comparison between the conceptual illustration of the impact of downside risks (top) and actual post-COVID-19 economic growth rates (difference from the pre-pandemic trend; bottom)**

Source: JICA Ogata Sadako Research Institute for Peace and Development (2024, 9); IMF (2025, 5)

and social cohesion as key factors in shaping resilience to downside risks. This corresponds to the GPMB Framework's focus on (non-)individualism and trust. Although such qualities are intangible and difficult to evaluate objectively, they constitute foundational elements of resilience. Effectively addressing downside risks to human security relies on our capacity to cooperate across individual, community, and national boundaries. It is also important to recognize that some factors carry both benefits and risks, making it impossible to evaluate them solely by their numerical magnitude; comprehensive judgment is therefore required. This applies particularly to science- and technology-related elements in the GPMB Framework, such as digital connectivity and biomedical innovation.

Downside risks that impede or reverse progress toward human security are diverse, and some stem directly from human activities. Moreover, resilience to these risks is shaped by interpersonal relationships and social cohesion. Recent efforts to measure and evaluate downside risks to health offer valuable lessons for understanding and assessing resilience more broadly.

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