The Coalition of Finance Ministers for Climate Action

The health co-benefits of climate change mitigation: why climate leadership by Ministries of Finance can help them to deliver on their core objectives of economic development and responsible management of public finances

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It is widely recognized that climate change poses major threats to health, and it is increasingly possible to attribute health effects to human-induced climate change. Conversely, there are also major benefits to health from climate action: both adaptation and mitigation. The health benefits from mitigation include reductions in adverse climate change impacts on health, e.g., heat-related mortality, which is projected to increase dramatically later this century, particularly under high emissions scenarios (Bressler, 2021). There are also large near-term co-benefits of climate mitigation policies, including those from: reduced air pollution as combustion of fossil fuels are replaced with clean renewable energy, increased consumption of healthy and more sustainable diets, and increased physical activity from more sustainable transportation policies, as well as other pathways (Whitmee et al., 2023).[1]

Fossil fuel-related ambient (outdoor) air pollution has been estimated to cause over 5 million premature deaths worldwide annually, including from coronary heart disease, stroke, chronic obstructive pulmonary disease, diabetes, and lung cancer (Lelieveld et al., 2023). Coal combustion contributes to over half of these deaths. Transition from fossil fuels to affordable clean energy from renewables has the potential to prevent such deaths and additional deaths from household air pollution, largely from domestic burning of solid fuels in low-income settings. Benefits to health can also result from better insulated homes, reducing fuel costs and cold exposure, providing effective ventilation is employed to prevent increased exposure to air pollutants indoors. According to World Bank estimates, the global health cost of mortality and morbidity caused by exposure to PM2.5 air pollution in 2019 was US$8.1 trillion, ranging from an equivalent of 1.7% of GDP in North America, to 9.3% in East Asia and Pacific countries, and 10.3% in South Asia (World Bank, 2022). Several studies have estimated the economic benefits arising from the health co-benefits of reduced air pollution from climate change mitigation policies. For example, a Global Modeling study using the value of statistical life showed that the value of health co- benefits substantially outweighed the policy cost of achieving the target for all of the scenarios analyzed. The ratio of health co-benefit to mitigation cost ranged from 1.4 to 2.45, depending on the scenario. For China and India, the costs of reducing greenhouse gas emissions could be compensated by the health co-benefits alone. The proportion of co-benefits covered varied substantially in the European Union (7%–84%) and U.S. (10%–41%), depending on the scenario (Markandya et al., 2018).

The food system is responsible for about one-third of greenhouse gas emissions globally (Crippa et al., 2021) and a major driver of biodiversity loss, freshwater use, water pollution, and other environmental impacts. There is a double burden of malnutrition in which undernutrition co-exists with obesity, overweight and diet-related noncommunicable diseases (NCDs). Inadequate consumption of fruit, vegetables, nuts, and seeds is an important risk factor for NCDs. The Food Systems Economics Commission has estimated the economic value of the damage caused by current food systems to human health and the planet at well over US$10 trillion annually, more than they contribute to global GDP (Ruggeri Laderchi et al., 2024). The annual health costs alone are estimated at over US$10 trillion based on the effects of overweight and obesity, as well as undernutrition, on labor productivity.

The Commission proposes "a nearly universal increase in the consumption of whole grains, fruits, vegetables and nuts; less consumption of ultra-processed foods; and regional changes in the consumption of animal-sourced food, with consumption significantly reducing in high-income countries and rising in low-income countries to ensure the adequate consumption of essential nutrients in all regions". Implementing the Commission's proposed Food System Transformation pathway worldwide is projected to require annual investments and transfers averaging US$500 billion between the time of writing and 2050. The projected benefits, estimated as reductions in the unaccounted costs of food systems outlined in the report, amount to at least US$5 trillion per year and could reach US$10 trillion.

A diverse diet high in plant-based foods and low in animal products could prevent about 11 million premature deaths annually by 2050 according to the EAT-Lancet Commission (Willett et al., 2019). However, according to this analysis, global consumption of fruits, vegetables, nuts, and legumes will

1 See also https://climatehealthevidence.org/.

have to double, and consumption of high emission foods such as red meat will have to be reduced by more than one-half, with a focus on high consuming adult populations, combined with a reduction in food loss and waste by over one-half. Such a diet would greatly reduce the environmental impact of the food system, including by reducing methane emissions from ruminant animals. Affordability and cultural acceptability will be crucial factors in determining the uptake of such diets. Addressing childhood undernutrition, largely in low-income settings, requires a systems approach, including access to diverse diets containing fruit, vegetables, and animal products.

Under future climate change, Africa and Southeast Asia are projected to experience the highest increases in child mortality, stunting, and wasting but the projections are strongly dependent on the emissions trajectory and socioeconomic trends. The (co-)benefits to children of achieving low emission targets under the Paris Agreement are substantial, particularly when combined with poverty reduction strategies (Dasgupta and Robinson, 2024). Child growth is affected by several factors, including nutrition and diarrheal disease. There is increasing evidence that exposure to ambient and household air pollution can increase stunting, including by affecting placental function and fetal growth. Children in countries such as India are exposed to high levels of both ambient and household air pollution, affecting their growth. Targeted ambient air pollution reductions and/or subsidized access to clean cooking could yield reductions in stunting (Dimitrova et al., 2022).

According to a recent WHO report, nearly about 31% of the population were not meeting WHO-recommended levels of physical activity in 2020, approximately 1.8 billion adults (Bull et al., 2024). In 32 countries, more than 40% of the population were classified as physically inactive. Physical inactivity is a risk factor for at least seven common NCDs such as diabetes, coronary heart disease, and stroke and it has been estimated that 7.6% of all-cause and cardiovascular disease deaths worldwide were attributable to physical inactivity (Costa Santos et al., 2022). Nearly 500 million new cases of preventable major NCDs are projected globally between 2020 and 2030 in the absence of changes in the prevalence of physical inactivity. More sustainable transportation systems that provide opportunities for walking and cycling in relative safety and equitable access to public transportation offer the prospect of reducing greenhouse gas emissions and improving health (Whitmee et al., 2022). Including an economic valuation of health benefits can substantially increase estimates of their cost-effectiveness (Brown et al., 2016).

In 2019, use of safe water, sanitation, and hygiene services (WASH) services could have prevented the loss of at least 1.4 million lives from causes such as diarrhea, acute respiratory infections (ARIs), and undernutrition (protein–energy malnutrition) (WHO, 2019). Provision of safe drinking water, sanitation, and hand hygiene are important to support climate change adaptation strategies but could also contribute to mitigation actions, particularly for methane. One report estimated that every $1 invested in climate-resilient water and sanitation yields returns of at least $7 for African economies. Sub-Saharan Africa could gain more than 5% of its GDP, equivalent to US$200 billion annually if sufficient investments in water and sanitation are made.[2]

There is growing evidence that exposure to green and blue space can have a range of physical and mental health benefits. Green space in cities can help to reduce the urban heat island effect. The protection and restoration of natural systems can help climate adaptation and mitigation efforts. The magnitude of the benefits is context-specific and more evidence is needed of the features of green space that are optimal for health, but estimates indicate that the public values improvements in local environments to gain the health benefits of undertaking leisure activities in green and blue spaces (Lynch et al., 2020). Exposure to green space will likely reduce health care costs—for example it has been estimated that £2.1 billion per year could be saved in health costs as a result of increased physical activity, if the population of England had good access to green space (Public Health England, 2020).

There are many health co-benefits of climate change mitigation policies across a range of sectors. The magnitude of the benefits depends on context, including the specific policy, the baseline exposure

2 https://impact.economist.com/perspectives/sites/default/files/ei_swa_africa_wash_investment_final.pdf

of the population to air pollution, the sources of the pollution, and the prevailing patterns of physical activity and food consumption. Countries should capitalize on local data sources where available to estimate the economic value of climate mitigation policies, taking into account their health and other co-benefits.

Capitalizing on the health co-benefits of climate change mitigation actions is a win-win strategy that can improve public health while addressing the climate change crisis. The potential health co-benefits from climate mitigation actions are well documented and offer strong arguments for transformative changes. However, achieving these benefits requires improving the interaction between health and other sectors as well as environmental authorities, ensuring the health benefits and effects of climate change policies are taken into consideration in their development, and policies with potential health co-benefits are prioritized.

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