# Correspondence

## Free school meals to alleviate global hunger

Food-price inflation triggered by the war in Ukraine is magnifying setbacks in the battle against poverty and malnutrition worldwide (S. Osendarp *et al. Nature* **604**, 620–624; 2022). Governments and aid donors should act now to protect children from this crisis by expanding the reach of school-meals programmes (go.nature.com/3uvy7ag).

Millions of children now returning to classrooms closed by the COVID-19 pandemic are carrying the triple burden of lost learning, poverty and intense hunger. Free and nutritious school meals for these children would improve their learning prospects and produce far-reaching benefits (see, for example, S. Chakrabarti *et al. Nature Commun.* **12**, 4248; 2021).

Much of the infrastructure for delivery is already in place. Governments across Africa and in low-income countries elsewhere are seeking to expand coverage, despite economic slowdown and a worsening debt crisis. Relatively small investments could yield extensive results (L. J. Drake *et al. Front. Public Health* **8**, 530176; 2020): roughly US$6 billion annually would extend food and health interventions to about 73 million children.

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## Small lakes at risk from extensive solar-panel coverage

Rafael Almeida and his colleagues estimate that floating solar panels on 5–10% of the area of large reservoirs could help the world to reach electricity decarbonization targets by 2050 (R. M. Almeida *et al. Nature* **606**, 246–249; 2022). On small lakes in Europe and Asia, however, the existing coverage is significantly higher (averaging 50%, according to our unpublished data), with potentially greater ecological impact (G. Exley *et al. Solar Energy* **219**, 24–33; 2021).

Floating photovoltaic (FPV) power plants on small lakes could be disproportionately disruptive because of the abundance of such small bodies of water, their high biodiversity and the multiple ecosystem services they support (J. Biggs *et al. Hydrobiologia* **793**, 3–39; 2017). The risk to these ecosystems should therefore be investigated urgently. The results could also guide future developments at large reservoirs.

Faced with the rapid rise of FPV installations, we highlight the pressing need for empirical studies on existing FPV plants in small bodies of water, to ensure that lakes do not suffer in the trade-off between decarbonization and environmental sustainability across all freshwater ecosystems.

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## Could the oceans host floating solar power plants?

Solar panels are being floated on water reservoirs as an energy source ('floatovoltaics') to help achieve carbon-reduction goals and mitigate climate change (R. M. Almeida *et al. Nature* **606**, 246–249; 2022). Oceans offer another option — one with a theoretical global photovoltaic capacity of around 4,000 gigawatts.

Solar panels installed on lakes and reservoirs risk impeding water discharge for consumers or flood control (see go.nature.com/3l2yg; in Chinese). China is therefore using its long coastline to develop offshore marine photovoltaics with floating solar panels in relatively deep waters. Design and construction must incorporate resistance to waves and storm surges and anti-corrosion measures against high salt concentrations. The energy generated could be combined with tidal power output for use by coastal aquaculture installations, for example.

More than 60 countries worldwide are promoting the construction of floatovoltaic power plants. However, the technology is not yet ready for large-scale commercialization. Technical, ecological and policy issues still need to be resolved.

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## Brazil: heed price of marine mining for an alternative fertilizer

Brazil's government risks fuelling the climate and biodiversity crisis by offsetting the fertilizer shortage resulting from Russia's invasion of Ukraine this year (J. Liu *et al. Nature* **604**, 425 (2022); S. Osendarp *et al. Nature* **604**, 620–624; 2022). To produce an alternative fertilizer, it plans to mine up to 12 million tonnes annually of rhodoliths taken from an area in the South Atlantic that is roughly the size of the United Kingdom (see go.nature.com/3yhiyio).

Rhodolith beds are extended calcareous formations composed of crustose marine red algae that resemble coral. They are slow-growing (by just millimetres per year) and harbour a wealth of associated organisms. They are therefore vulnerable ecosystems and a non-renewable resource. Moreover, adding raw rhodolith material to Brazilian acidic soils would release large, unpredictable amounts of carbon dioxide from algal carbonates to the atmosphere.

The Brazilian government's intended widespread and rapid exploitation of rhodolith formations is inconsistent with international pledges to achieve sustainable development goals regarding underwater life, among others, and to minimize emissions. The consequences will adversely affect both biodiversity in the Atlantic and the planetary climate system.

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*On behalf of 8 signatories. See go.nature.com/3hggpys