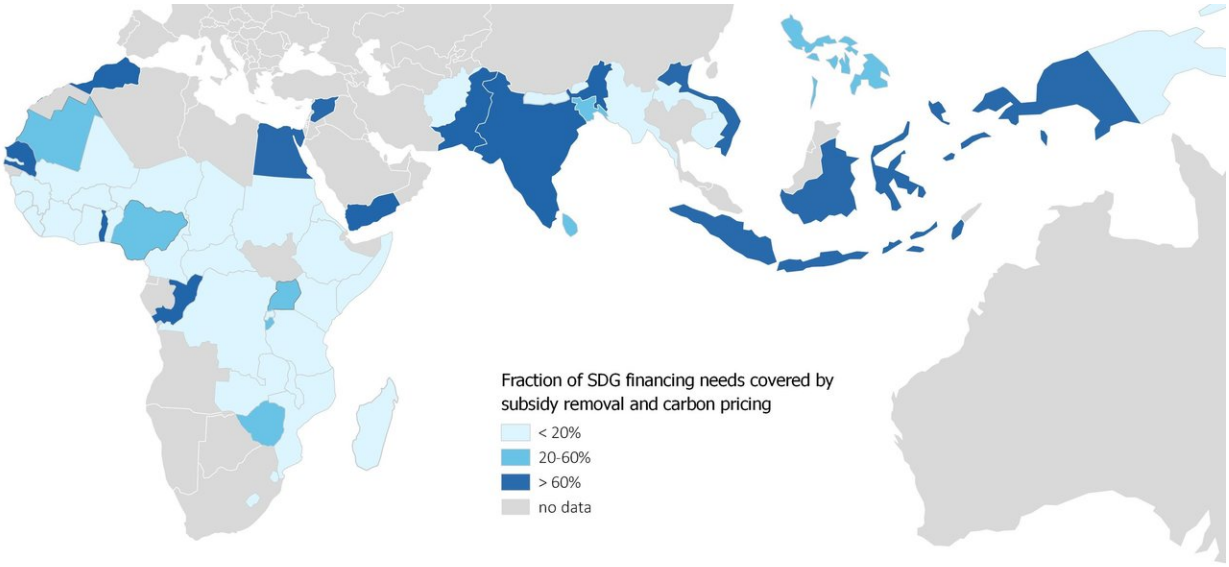
Flipping the switch: Making use of carbon price dollars for health and education

July 16 2018



Color shades indicate the percentage of public financing needs for the Sustainable Development Goals (SDGs) that could be covered by a switch from subsidizing fossil fuel to pricing carbon emissions. Financing needs include the investment areas of public health, education, social protection, food security, infrastructure, ecosystems services, biodiversity and humanitarian aid. Light blue countries could cover up to about 20 percent of their SDG financing needs, medium blue countries up to about 60 percent, dark blue countries more than 60 percent. For example, Kenya, with a population of about 50 million people, could cover roughly 10 percent of its SDG agenda; Nigeria, with a population of 186 million people roughly 20 percent; India, with a population of 1.3 billion people, probably more than 90 percent. Graphic: Franks/PIK

Fraction of SDG financing needs covered by subsidy removal and carbon pricing. Credit: PIK/Franks

A switch from subsidizing fossil fuel to pricing CO2-emissions would

not only help to meet global climate targets but also create additional domestic public revenues. These revenues could finance expenses toward sustainable development, improving health-care, education and infrastructure for energy, transportation or clean water. India could cover more than 90 percent of its needs to finance progress toward these sustainability goals. This could also be an attractive option for countries like Nigeria, Burundi and Senegal.

While health systems, clean water and education are a given in many parts of the world, millions of people still do not have sufficient access to these basic public goods. In fact, carbon prices could make substantial financial resources available for succeeding with the global Sustainable Development Goals (SDGs) set by the United Nations, a team of scientists now finds. At the same time, carbon pricing could be a central contribution to meet global climate targets and limit global warming to well below 2 degrees C until the end of the century.

"Currently we have a two-fold problem," explains lead author Max Franks from the Potsdam Institute for Climate Impact Research (PIK): "There is a huge underprovision of basic necessary public goods such as public health systems, access to schools and clean water. On the other hand greenhouse gas emissions are still rising and there is an overuse of the atmosphere, a global common good, as a disposal space for these emissions". So far, the two problems have mostly been dealt with separately. "But if you look at both climate and sustainable development policies at the same time, it turns out that carbon pricing could indeed address both problems simultaneously and effectively," Franks says.

A switch from today's fossil fuel subsidies to carbon prices for carbon dioxide emissions could generate additional revenue for governments to finance progress toward sustainable development, the scientists find in their study published in *Nature Sustainability*. Redirecting fossil fuel subsidies alone could completely cover public financing needs for the

SDGs in Egypt, and to a large extent in other lower and lower-middle income countries in Sub-Saharan Africa, like Togo, the Republic of Congo and Senegal, the researchers show. "Moreover, revenues of a combined fiscal reform that removes subsidies and replaces them with a substantial carbon price could provide more than two thirds of the public funds required for the SDG agenda for several countries in South- and Southeast Asia", Franks explains. "In India, more than 90 percent of the entire public financing needs for the SDGs could be covered, as our study shows, so there really is a huge potential of making use of carbon price dollars for health, education, and other public goods."

Fossil fuel subsidies: a burden for both the environment and the public budget

In the least developed countries of Sub-Saharan Africa, however, the financing potential of carbon revenues is often outweighed by the especially strong development needs. Nonetheless, the study identifies countries in which carbon pricing could contribute more than a fifth of the required public funds for reaching the SDGs—countries like Burundi, Mauritania, Nigeria, the Republic of Congo, Senegal, Swaziland, Togo, Uganda and Zimbabwe.

"Currently, governments subsidize fossil fuel in support of certain industries or to keep fuel prices low for consumers. This is not only a burden for the environment but also for national budgets. To give an idea, in the countries we've analyzed, the total amount spent on fossil fuel subsidies would have been enough to finance 20 percent of the estimated total public financing needs for the SDGs," Kai Lessmann from PIK says. "Removing these subsidies would free substantial domestic public funds for other urgent uses, like alleviating extreme poverty. National carbon prices instead of subsidies on fuels would, of course, generate still more public funds. At the same time this could be

an efficient way to reduce carbon dioxide emissions throughout the economy."

Development aid should focus on capacity building, in particular for establishing tax administrations

The scientists compared the potential to mobilize domestic resources with a removal of all subsidies on fossil fuels and, in a second step, combined this with a carbon price consistent with the United Nation's 2 degrees C limit for global warming. Based on the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), the study assumes that price to start at US $40 per ton of CO_2 in the year 2020 and to rise to US $175 in 2030. To put these prices in perspective, the UK was able to take a first important step in mitigating climate change by introducing a carbon price of £18 (US $25) per ton of CO_2 in 2013, which was already enough to phase out coal. Interaction effects such as reduced income of fossil fuel exporting countries, or positive growth effects due to better health, education and infrastructure could not be taken into account—hence the results should be taken with a grain of salt and are supposed to provide information on the magnitude of the potential rather than exact numbers. However, it still becomes clear that the additional revenues that become available for public finance are quite substantial, particularly with carbon pricing.

"Switching from fossil fuel subsidies to carbon pricing could make a key contribution to sustainable development in Asia and Africa by covering a significant part of the required public funds", Ottmar Edenhofer concludes, Chief Economist and designated Director of the Potsdam Institute for Climate Impact Research and Director or the Mercator Research Institute on Global Commons and Climate Change (MCC). "It turns out that carbon pricing could balance the scales of climate policy and sustainable development agenda and help achieve global climate

goals and progress toward sustainable development at the same time. Public support for carbon prices could also increase with the knowledge that recycling carbon pricing revenues to finance SDGs yields huge benefits for the broad population. An important take-away message of our paper is that development policies should focus on building local capacities for strengthening tax administrations, in particular with the aim of implementing carbon pricing."

More information: Max Franks et al, Mobilizing domestic resources for the Agenda 2030 via carbon pricing, *Nature Sustainability* (2018). DOI: 10.1038/s41893-018-0083-3

Provided by Potsdam Institute for Climate Impact Research