INTRODUCTION

Pollution is one of the major challenges of our time, affecting human health, damaging the environment and leading to significant socio-economic costs. Preventing and addressing pollution and associated health impacts is central to the 2030 Agenda for Sustainable Development and is reflected in several Sustainable Development Goals (SDGs) including SDG 3.9 which strives to reduce the number of deaths and illnesses from hazardous chemicals, air, water and soil pollution and SDG 12.4 which seeks to achieve environmentally sound management of chemicals and wastes.

A comprehensive mix of policies and measures are needed to address and reduce pollution. Fiscal policies are among the most cost-effective approaches to reduce pollution and can help accelerate efforts towards a pollution-free planet. Taxes, charges and targeted subsidies can create incentives to discourage polluting activities/products and encourage the uptake of less polluting alternatives. Removing price distortions, such as environmentally harmful subsidies, can trigger a shift in behaviour that reduces pollution and improves health outcomes (UNEP 2018). At the same time, such fiscal instruments generate public revenues which can be used for different purposes from supporting investments in infrastructure, health and education, to compensating affected groups, among other options. Fiscal policies can be designed to target different types of pollution (i.e. air, chemicals, waste, water), from various sources (e.g. industry, transport, agriculture) at different levels (local, national, regional and global).

FISCAL POLICIES TO ADDRESS AIR POLLUTION

Air pollution is among the deadliest sources of pollution. According to the World Health Organisation (2019), the combined effects of outdoor and indoor air pollution cause around seven million premature deaths every year. Air pollution also has economic costs linked to effects on labour productivity, health expenditures, crop yield losses and ecosystem damage among others. Air pollution-related premature death, illness and health expenditures negatively affect a country’s GDP with a disproportionate effect on the poor and vulnerable. According to WHO estimates, the economic cost of premature deaths from air pollution in 54 European countries in 2005 and 2010 amounted to as much as 29.5 percent of GDP in Bulgaria and 33.5 percent in Serbia (WHO 2015).
Fiscal instruments can play an important role in the policy mix to address air pollution, contributing to investment needs, supporting clean technologies, shifting investment decisions and consumer behaviour. The role of fiscal instruments in supporting action on air pollution is increasingly recognized with several countries and cities taking innovative action in this area (UNEP, 2019).

**Box 1: Congestion charging in Stockholm, Sweden**

A congestion pricing zone (CPZ) was introduced in Stockholm in 2007 to reduce traffic congestion in the city centre. The congestion charge has reduced traffic levels, congestion and emissions with ambient air pollution falling by 5-15 percent. This has resulted in a significant decrease in acute asthma attacks among young children with the number of asthma cases in young children in the CPZ falling by 47 percent. The congestion charge is also expected to lead to 20-25 fewer premature deaths per year in the inner city and 25-30 less premature deaths annually in the metropolitan area. Furthermore, as the emissions reductions are concentrated in the most densely populated areas, the effects of the congestion charge are approximately three times larger than what could be achieved from a more general policy measure to reduce emissions of a similar magnitude.

Sources: Simeonova et al., 2018; Forsberg et al., 2006; Eliasson and Hugosson, 2006.

**Box 2: Taxing local pollution in Chile**

A General Tax Reform Bill adopted in September 2014 introduced a tax on local pollutants (Particulate Matter (PM), Nitrogen Oxide (NOx) and Sulphur dioxide (SO2) from stationary sources with boilers or turbines. The tax is set at a variable rate based on a formula that tries to capture the environmental damage associated with emissions in a specific locality or municipality. The legislation set a per capita rate for each contaminant and calculates the tax rate based on a formula dependent on the per capita rate, the number of inhabitants in the local municipality, and a coefficient for carrying capacity in each zone. Thus, the tax reflects environmental costs of local pollution and creates an economic incentive to reduce pollution. Given the recent introduction of the tax, further research is needed to evaluate its impact, nonetheless, together with other pollution taxes introduced at the same time, it has had an important signalling effect in the economy, stimulating efficiency, technological innovation and encouraging a shift in business behaviour, for example with facilities introducing abatement equipment to reduce emissions.

Sources: Britlebank 2014; Chile, Ministry of Environment 2017a, 2017b, 2017c; Pizarro, 2019a, 2019b.

Traditionally, subsidies have been used to incentivise activities that generate pollution. This is still the case today, with many countries subsidising the use of certain fuels and harmful pollutants. For example, in 2014, G20 governments spent US$ 444 billion subsidising fossil fuel companies, while the use of fossil fuels resulted in estimated health costs of at least US$ 2.76 trillion (see Figure 1). Removing such harmful subsidies would be a major step towards ensuring fiscal policy supports pollution reduction and improves health outcomes. According to IMF estimates, removing fossil fuel subsidies and adopting efficient fossil fuel pricing would increase government revenue by US$2.8 trillion while reducing global carbon emissions by 28 percent and air pollution related deaths by 46 percent (Coady, Parry, Le, Shang 2019). These resource savings could be used to benefit public health. For example, in Indonesia, savings from fossil fuel subsidy reforms have supported investments in infrastructure (including improved drinking water) and social welfare programmes (including improved health care).
Chemical pollution poses a major public health risk through multiple exposure pathways. In the agriculture sector, the over- and misuse of chemical fertilizers and pesticides can have adverse effects on the environment and human health. The WHO (2016) estimates that three million cases of pesticide poisoning occur every year, causing as many as 250,000 deaths. Moreover, inappropriate use of chemical fertilizers and pesticides leads to chemical run-off and leaching, resulting in water contamination, which can also have consequences on health with corresponding economic costs.

Fiscal policies can affect the over- and misuse of certain pesticides and fertilizers (see UNEP 2020). Subsidies to agricultural inputs such as pesticides and fertilizers lower the cost of such inputs and create incentives for increasing intensity. Overall, subsidies for fertilizers have been found to increase nitrogen runoff at farm level and lead to subsequent deterioration of water quality and increases in GHG emissions at the national level (Henderson and Lankoski 2019). Poorly designed input subsidies can also lead to wider socio-economic impacts. Available evidence suggests subsidy programs benefit larger farms (often headed by men) more than small farmers which are often owned by women and landless tenants, have limited effect on reducing poverty among smallholder farm households, and have generally failed to accomplish widespread distributional benefits. Other policy instruments, such as investments in R&D and infrastructure may be more effective in reaching poverty reduction objectives (Ricker-Gilbert et al. 2011). Furthermore, input subsidies account for a large share of public resources. Reforming such ineffective and unsustainable agricultural input subsidies would lead to significant fiscal savings and opportunities to repurpose such agricultural subsidies to support a transition to a more sustainable and resilient food system.

Some countries apply taxes on the use of pesticides and fertilizers which can help correct certain market failures and reduce the use of the most harmful pesticides and fertilizers. For example, a banded pesticide tax system in Norway is considered effective as it encourages the more conservative use of pesticides and provides an incentive to use less harmful
products. Similarly, a pesticide tax in Denmark has led to a significant reduction in the sales of pesticides and a reduction in pesticide load on human health, nature and groundwater. Such taxes also raise revenues which can be used to mitigate negative environmental impacts, support more sustainable agriculture practices or reduce other taxes on the agriculture sector among other options. How revenues are used can determine the political acceptability of a measure. For example, in Denmark, revenues from the pesticide tax are reimbursed to the agricultural sector which has helped reduce resistance to the tax among farmers. Some countries also use fiscal incentives such as tax reductions and exemptions for organic fertilizers and/or pesticide products applicable under organic practices to encourage use of less polluting products.

**INSIGHTS FROM GOOD PRACTICES ON USING FISCAL INSTRUMENTS TO ADDRESS POLLUTION**

Fiscal instruments are among the most cost-effective and efficient tools available to reduce pollution and should be considered an essential part of the policy toolbox to address pollution. There are various fiscal instruments which can be used to address different types of pollution. The impacts of these instruments depend on several factors, including elasticity of demand, substitution effect, availability of alternatives and political economy considerations (see Table 1). Well designed fiscal instruments can help to accelerate progress towards a pollution free planet (UNEP 2019a).

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Potential environmental and health impact</th>
<th>Fiscal and administrative costs</th>
<th>Political feasibility/public acceptance</th>
<th>Overall assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pollution tax</strong></td>
<td>Can lead to significant behavioural changes, with potential impacts on environment and health</td>
<td>Generates public revenue that can be used for various purposes including to further environmental and health benefits</td>
<td>Can be difficult to sell given perceived costs to consumers and aversion to new taxes</td>
<td>Most cost effective and efficient fiscal instrument Requires effort in building public support</td>
</tr>
<tr>
<td><strong>Subsidies for alternatives</strong></td>
<td>Can help switch preferences with impacts dependent on size of subsidy and precision in targeting beneficiaries</td>
<td>Entails spending from government budget</td>
<td>Enjoys public support and normally reviewed yearly with Government budget</td>
<td>Can alter market prices and drive innovation in certain sectors Requires additional government spending</td>
</tr>
<tr>
<td><strong>Tax expenditures</strong></td>
<td>Renders cleaner alternatives cheaper</td>
<td>Entails foregone revenue</td>
<td>Regarded positively by the public</td>
<td>Reasonable public acceptance Best used as part of a policy package</td>
</tr>
<tr>
<td><strong>Reform harmful subsidies</strong></td>
<td>Eliminates distortionary/perverse incentives to pollute</td>
<td>Frees up fiscal space for other priorities</td>
<td>Can be politically challenging to implement</td>
<td>Eliminates perverse incentives to pollute and frees limited public resources Stakeholder consultation crucial to gain public support</td>
</tr>
</tbody>
</table>

Source: UNEP, 2019a.
UNEP'S WORK ON FISCAL POLICIES TO ADDRESS POLLUTION AND IMPROVE HEALTH

UNEP undertakes global research and country analysis to assess the role of fiscal policies in addressing pollution and associated health impacts. This has included global research on the effects of taxes and subsidies on pesticides and fertilizers, an assessment of good practices with the use of fiscal policy instruments to reduce pollution and country analysis in Indonesia on fiscal policies to address air pollution and health impacts. UNEP is also leading a global initiative on fiscal reform for sustainable agriculture which explores the impacts of agricultural support on nature, health, nutrition, climate change and equity, in collaboration with partners including UNDP, FAO, IMF, IFPRI and WHO. UNEP is supporting countries in this process through policy analysis, advice and capacity building on how to repurpose agricultural subsidies and align fiscal incentives with sustainability to support the transition to sustainable, resilient and healthy food systems. UNEP delivers this work in collaboration with partners through existing networks and partnerships such as the Green Fiscal Policy Network, Partnership for Action on Green Economy (PAGE), One Planet Network, and others.

Further reading


Eliasson, Jonas and Muriel Beser Hugosson (2006), The Stockholm congestion charging system – an overview of the effects after six months

HEAL (2017), Hidden price tags– How ending fossil fuel subsidies would benefit our health

Henderson, B. and J. Lankoski (2019), OECD Food, Agriculture and Fisheries Papers No.130: Evaluating the environmental impacts of agricultural policies


WHO Regional Office for Europe and OECD (2015), Economic cost of the health impact of air pollution in Europe: Clean air, health and wealth

WHO (2016), The Public Health Impact of Chemicals: Knows and Unknowns

UNEP (2018), Implementation plan “Towards a Pollution-Free Planet” UNEP/EA.4/3

UNEP (2019), Global Chemicals Outlook II

UNEP (2019a), Reducing pollution and health impacts through fiscal policies – A selection of good practices, Working Paper, December 2019

UNEP (2019b), Fiscal policies to address air pollution from road transport in cities and improve health - Insights from country experiences and lessons for Indonesia, Working Paper, December 2019

UNEP (2020), Study on the effects of taxes and subsidies on pesticides and fertilizers, Background document to UNEA-5 Review Report on the Environmental and Health Effects of Pesticides and Fertilizers, April 2020