Integrated climate change and air pollution strategies: a winning combination

Combining policies that tackle local air pollution and global climate change will deliver enhanced benefits for climate change mitigation, according to researchers. Medium-term efforts to control air pollution will provide additional benefits to long-term strategies that aim to curb climate change.

Modern consumption patterns and energy production contribute significantly to both climate change and air pollution. Instead of tackling these problems separately, there are technological solutions that address both concerns at the same time: for example, switching from fossil fuels to renewable forms of energy cuts down on air pollution emissions, (e.g. particulate matter (PM), sulfur dioxide and nitrous oxides), whilst simultaneously reducing emissions of the greenhouse gas, carbon dioxide (CO$_2$).

This study compared the costs and benefits of separate strategies for global climate change mitigation (GCC) and reductions in local air pollution (LAP), in addition to the impacts from combining these two sets of policies. Benefits of LAP policy focused on avoided early deaths from long-term exposure to PM pollution produced by fossil fuel combustion, while benefits of GCC policy focused on the avoided loss of GDP as a result of CO$_2$ emissions.

Overall, the study found that environmental policies that mitigate CO$_2$ emissions and PM pollution, either alone or combined, provide greater benefits than the costs of the policies.

In addition, the study found:

- Combined GCC and LAP policies bring about greater CO$_2$ reductions than either strategy alone. For example, combined GCC and LAP policies generate an extra 15 per cent reduction in CO$_2$ emissions in Western Europe. However, combined GCC and LAP policies have little effect on further reducing PM emissions compared with LAP policies alone.
- GCC policies provide additional welfare benefits (co-benefits) to those delivered by LAP policies. For example, carbon-free technologies, such as renewable energy also reduce PM emissions. LAP policies deliver significant welfare gains from local improvements in air quality but provide almost no GCC benefits.
- Integrated GCC and LAP policies deliver greater welfare gains than the total gains from both policies acting independently.

Although the researchers suggest priority should be given to reducing LAP over GCC, due to related air quality and health benefits, climate change policies should not be postponed. Combining both sets of policies provides a win-win situation whereby medium-term efforts to control air pollution will support long-term strategies that aim to curb climate change.


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