



# TAXING POLLUTION IN PAKISTAN: POLICY OPTIONS FOR A GREEN TAX

SEED (Sustainable Energy and Economic Development)  
*Improved Economic and Urban Planning in KP*



# TAXING POLLUTION IN PAKISTAN: POLICY OPTIONS FOR A GREEN TAX

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*Cover & Back Photo Credit: Awais Yaqub / Alamy*

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# Acronyms

<b>BRT</b>	Bus Rapid Transit
<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>COPD</b>	Chronic Obstructive Pulmonary Disease
<b>DALY</b>	Disability Adjusted Life Year
<b>EU</b>	European Union
<b>FCDO</b>	Foreign, Commonwealth and Development Office
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>HAP</b>	Household Air Pollution
<b>KPRA</b>	Khyber Pakhtunkhwa Revenue Authority
<b>MOT</b>	Ministry of Transport
<b>NFC</b>	National Finance Commission
<b>OMC</b>	Oil Marketing Company
<b>SC</b>	Supreme Court
<b>SEED</b>	Sustainable Energy and Economic Development
<b>SDG</b>	Sustainable Development Goal
<b>SME</b>	Small to Medium Enterprise
<b>STS</b>	Sales Tax on Services
<b>TfL</b>	Transport for London
<b>UK</b>	United Kingdom
<b>ULEZ</b>	Ultra-Low Emission Zone
<b>WHO</b>	World Health Organization

# Foreword

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*Photo credits: Doulat Khan*

# Team Leader, Sustainable Energy and Economic Development (SEED) Programme

**S**EED's longer-term outcomes include generating higher levels of public and private investments, enhancing public investment management efficiency and ensuring that investments made produce greater economic, social and environmental returns. These outcomes can be achieved through increasing fiscal space to enable greater public investment, leveraging private sector finance through public-private partnerships improving the investment climate to unlock private investment, and strengthening government capacity for enhancing the efficiency of public investments.

SEED is also helping the Government of Khyber Pakhtunkhwa in a number of cutting-edge policy reforms, reshaping the way government has approached these areas in the past. One of these areas include introduction of a green tax.

Pakistan is one of the countries most vulnerable to the impact of climate change and environmental degradation. Governments at national, regional and local levels need to raise revenue from a variety of sources to finance the costs of climate change and pollution. Environmental taxes present options for governments to influence behaviour by levying taxes against practices or products which harm the environment.

SEED initiated a broad-based policy dialogue on the option and feasibility of levying carbon/fuel tax at the request of the Government of Khyber Pakhtunkhwa. This policy note explores 'green tax' options available to the federal and, in turn, provincial governments and proposes use of tax as an anti-pollution measure with the collection earmarked specifically to finance part of the costs of pollution in each province.

Introducing a green tax gives salience to the issue of emissions/pollution and creates a common ground for all the provinces to implement or cause to implement the anti-emission/pollution measures, possibly through institutional support from the federal government. SEED is providing support to the Government of Khyber Pakhtunkhwa in continued engagement with other provinces and at the federal level to see scope for potential alignment in approaches for joint advocacy to introduce an anti-pollution measure and culminate this into a sustainable reform.



**Hasaan Khawar**

# Summary

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**W**hile Pakistan's carbon emissions are very low in comparison to the rest of the world, it is among the most polluted countries in terms of ambient air pollution and water contamination. According to one published estimate, Pakistan is ranked the second most polluted country in the world after Bangladesh in terms of air quality, as measured by levels of PM2.5.<sup>1</sup>

The country's main cities are among the ones with the worst air quality in the world, with Lahore alternating with New Delhi as the top-ranked city globally between November and February each year with least-safe or outright hazardous air quality. Such high levels of ambient (outdoor) air pollution impose significant costs to society and the economy.

To address the issue of pollution, a "green" tax or levy is one option among several available on the policy menu. Such a levy is recommended to be one of several multi-pronged policy instruments used. The *first-best* option identified is a fixed per-litre tax on motor fuels, which would be both targeted as well as an 'efficient' tax with low compliance and administrative costs.

Since petroleum pricing is a federal subject under the constitution, it is recommended that the pricing structure for petroleum products is changed by the Federal Government by introducing a 'green' tax or environment levy as a fixed, per-litre add-on to the existing pricing formula. However, since pollution, especially ambient air pollution, occurs mainly in the major urban centres of the country, and the costs are borne by sub-national governments, it is recommended further that the proceeds from the green tax should be treated as a straight transfer to

each province under the National Finance Commission (NFC) award, based on the actual documented sale of motor spirit and high speed diesel in its territorial limits.

The green tax (or pollution levy or charge) will have 'saliency' as an anti-pollution measure, with the monies so collected earmarked and accounted for separately in each province's budget. In terms of following best practice, the amount collected should be earmarked specifically for defraying the costs of pollution in each province, as well as to allow sub-national governments to make appropriate investments and incur expenditures to reduce ambient air pollution levels in conjunction with adopting adaptation measures.

The benefits of such a move for Pakistan include making further progress towards meeting its Sustainable Development Goals-related climate change commitments, the facilitation of provincial governments by the Centre in generating revenues to tackle the effects of severe pollution and taking a serious as well as concrete step towards targeting the parlous state of air quality across the country. A levy of this nature will also generate saliency for the issue of pollution at the national level and elevate the public discourse.

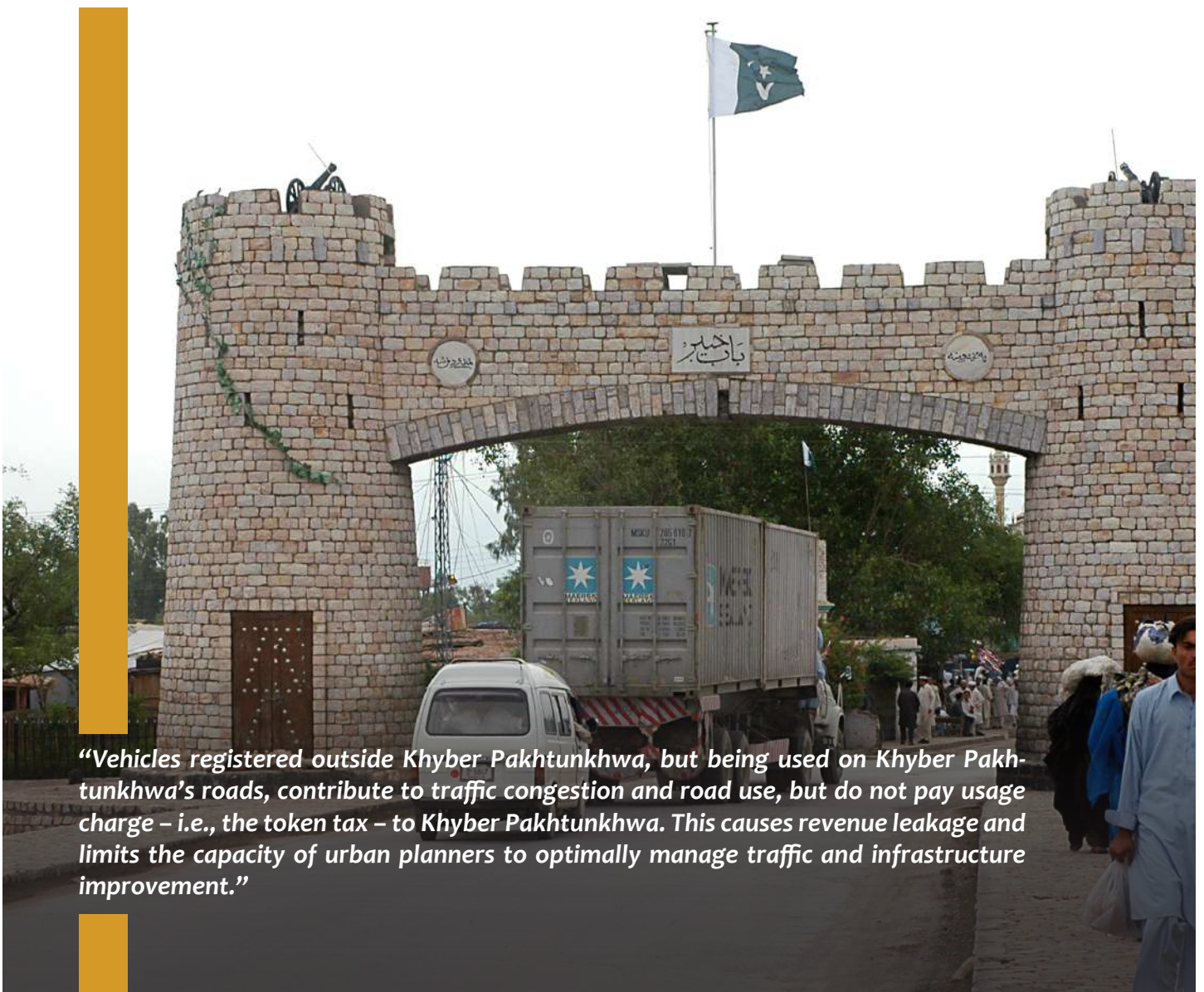
This note outlines the prevalence, cause and effect of air pollution in Pakistan. It outlines several policy options that are available to Government to address the significant health and development challenges posed by Pakistan's pollution problem and deep dives into one option in particular- a national green tax.

<sup>1</sup> Source: <https://www.iqair.com/us/world-most-polluted-countries>.



# 1. Prevalence of pollution in Pakistan

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*“Vehicles registered outside Khyber Pakhtunkhwa, but being used on Khyber Pakhtunkhwa’s roads, contribute to traffic congestion and road use, but do not pay usage charge – i.e., the token tax – to Khyber Pakhtunkhwa. This causes revenue leakage and limits the capacity of urban planners to optimally manage traffic and infrastructure improvement.”*

Photo credits: Jono Photography

While Pakistan’s carbon emissions are very low in comparison to the rest of the world, it is among the most polluted countries in terms of ambient (outdoor) air pollution and water contamination. According to rankings compiled by IQAir, Pakistan was the world’s

second most polluted country in the world in both 2018 as well as 2019, behind Bangladesh, with air quality characterised as “unhealthy” as measured by levels of PM2.5 (see table below).<sup>2</sup>

**Table 1.** World's most polluted countries- 2019

Rank	Country	PM2.5 levels - annual average:		Unit $\mu\text{g}/\text{m}^3$
		2018	2019	Status
1	Bangladesh	97.10	83.30	Unhealthy
2	Pakistan	74.27	65.81	Unhealthy
3	Mongolia	58.50	62.00	Unhealthy
4	Afghanistan	61.80	58.80	Unhealthy
5	India	72.54	58.08	Unhealthy
6	Indonesia	42.01	51.71	UFSG
7	Bahrain	59.80	46.80	UFSG
8	Nepal	54.15	44.45	UFSG
9	Uzbekistan	34.30	41.20	UFSG
10	Iraq	n.a.	39.60	UFSG
UFSG: Unhealthy for Sensitive Groups				

Source: IQAir

The annual average concentration of PM2.5 recorded for the country as a whole was *seven times* higher than the World Health Organisation’s

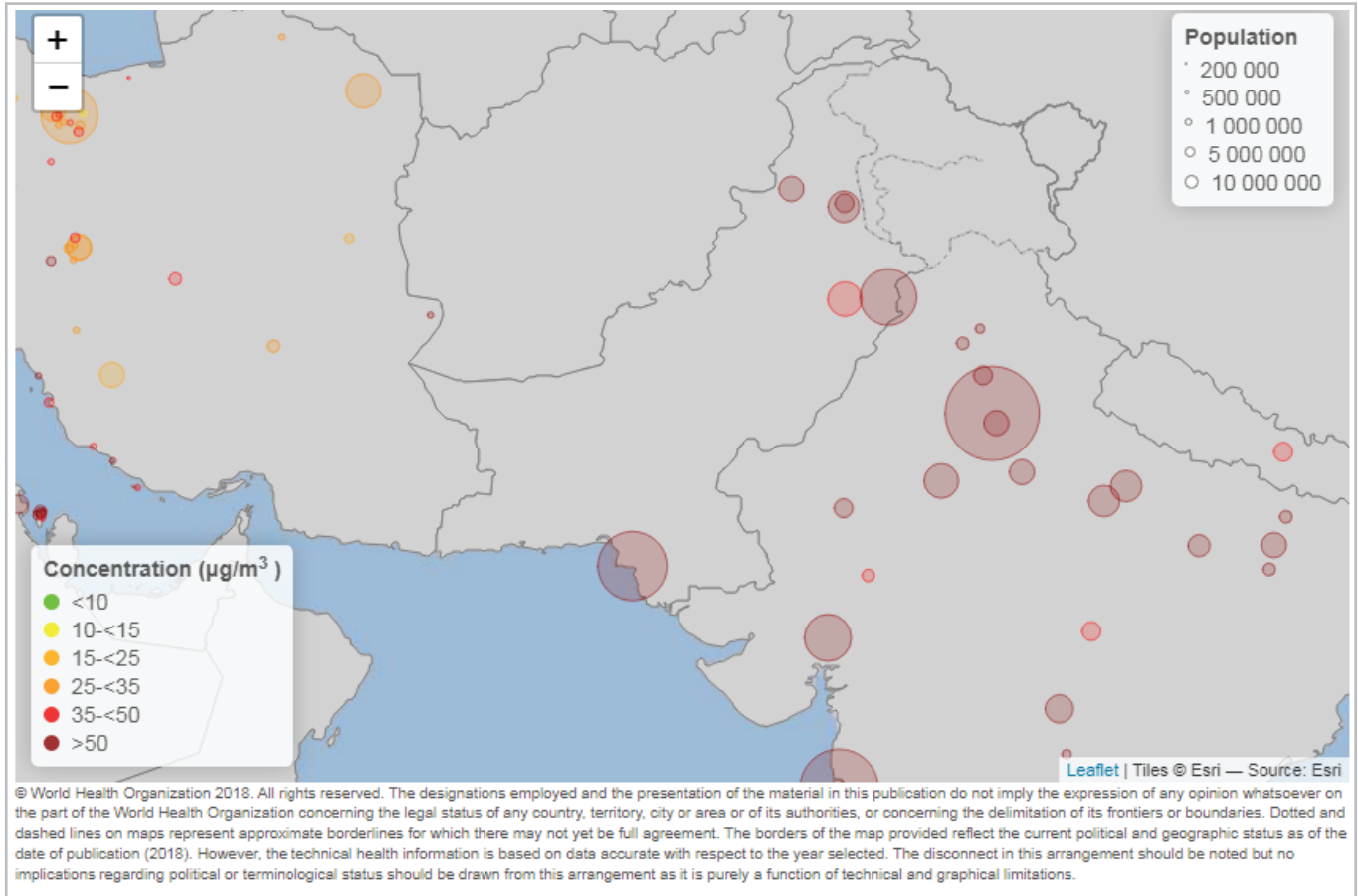
(WHO) recommended air quality guideline. It is important to note that the values in the foregoing table are average values for the entire year.

<sup>2</sup>Particulate Matter (PM) is a mixture of solid and liquid particles that are suspended in the air. PM2.5 refers to particles that have a diameter less than 2.5 micrometres and remain suspended for longer.

For several months of the year, Pakistan's main urban centres – Lahore, Karachi, Faisalabad, Islamabad and Peshawar – are ranked among the cities with the least-safe air quality in

the world, ranging from unhealthy to outright hazardous, with Lahore alternating with New Delhi as the top-ranked city globally between November and February each year.<sup>3</sup>

**Figure 1.** Cities in Pakistan with unsafe levels of PM2.5 air pollution



Source: *Global Air Quality Database App: App for exploring air quality in countries. WHO Global Air Quality Database (update 2018) edition. Version 1.0. Geneva, World Health Organization, 2018.*

<sup>3</sup>According to the International Association for Medical Assistance to Travellers (IAMAT): "In accordance with the World Health Organization's guidelines, the air quality in Pakistan is considered unsafe - the most recent data indicates the country's annual mean concentration of PM2.5 is 58  $\mu\text{g}/\text{m}^3$ , exceeding the recommended maximum of 10  $\mu\text{g}/\text{m}^3$ ."

## 2. Effects on health

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**"Air pollution exposures, including exposure to outdoor particulate matter (PM<sub>2.5</sub>) and household air pollution (HAP), have been linked to increased hospitalizations, disability, and early death from respiratory diseases, heart disease, stroke, lung cancer, and diabetes."**

Photo Credit: Reuters

Exposure to high levels of air pollution can cause a variety of adverse health outcomes. **WHO estimates that ambient air pollution accounts for an estimated 4.2 million deaths per year worldwide.**

The estimates for the number of premature deaths caused annually by pollution in Pakistan vary from 22,600 in the mid-2000s, to well over 300,000 as of 2015 (see table below).

**Table 2.** Estimates of annual premature deaths in Pakistan due to pollution

Source	Deaths	Year
World Bank	22,600	2005
WHO Global Health Observatory	55,000	N/A
World Air Quality Report	113,500	2019
Global Alliance on Health and Pollution	224,000	2019
State of Global Air	236,000	2019
The Lancet study <sup>4</sup>	324,000	2015 <sup>1</sup>

Based on data for more recent years, air pollution is the sixth leading risk factor for mortality in Pakistan (see figure below). The health costs attributable to ambient air pollution are substantial. A 2014 study by the World Bank estimated that Pakistan’s annual burden of

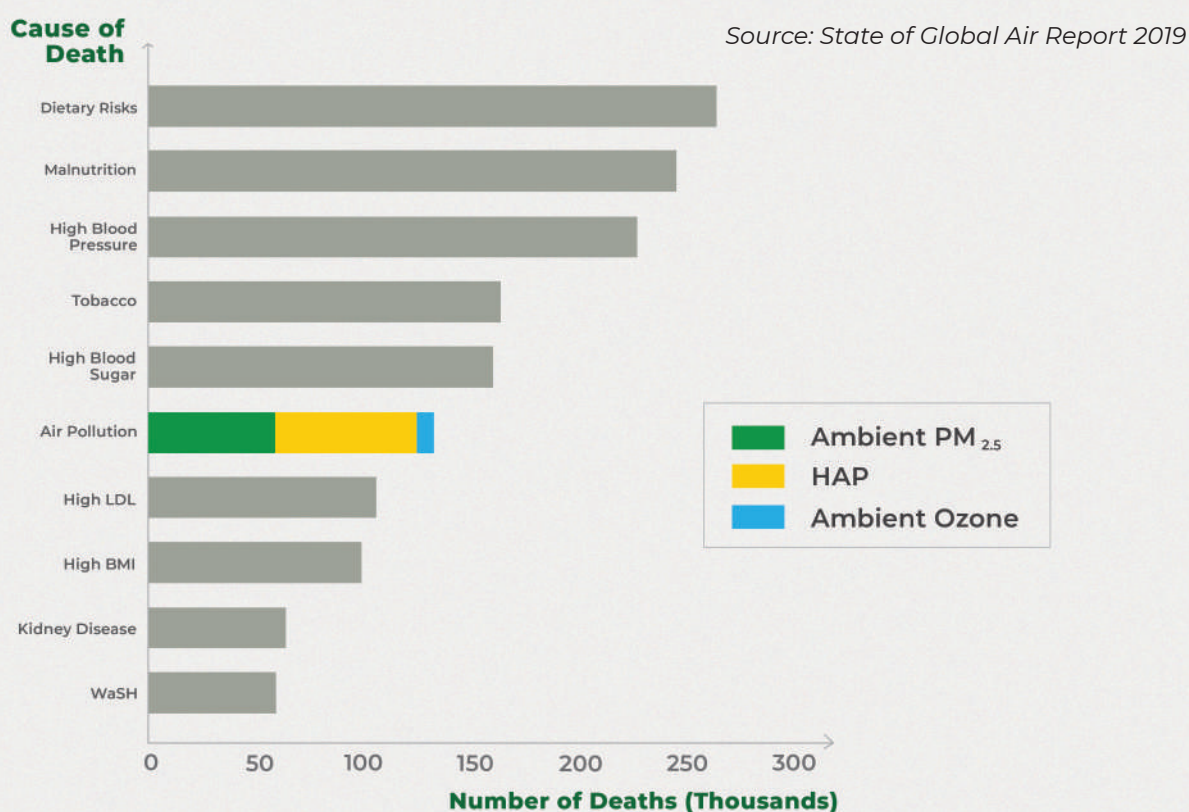
disease due to outdoor air pollution accounted for 163,432 disability-adjusted life years (DALYs) lost.<sup>5</sup>

The State of Global Air 2019 report found that “Exposure to outdoor PM2.5 accounted for a loss of 1 year and 7 months in life expectancy”.

<sup>4</sup> Study finding of 22 per cent attributable deaths adjusted to 2019 estimated population.

<sup>5</sup> One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of the years of life lost due to premature mortality (YLLs) and the years lived with a disability (YLDs) due to prevalent cases of the disease or health condition in a population.

**Figure 2.** Leading factors for death and disability in Pakistan for 2017



According to the State of Global Air Report 2019: “Air pollution exposures, including exposure to outdoor particulate matter (PM<sub>2.5</sub>) and household air pollution (HAP), have been linked to increased hospitalizations, disability, and early death from

respiratory diseases, heart disease, stroke, lung cancer, and diabetes. Exposure to ambient ozone is linked to chronic obstructive pulmonary disease (COPD).” The table below shows the percentage of deaths by cause that is attributable to air pollution in Pakistan.

**Table 3.** Percentage of deaths attributable to air pollution in Pakistan

Disease	Percentage
Chronic obstructive pulmonary disease (COPD)	47%
Lung cancer	32%
Diabetes	22%
Ischemic heart disease	22%
Stroke	14%

### 3. Air pollution is a significant development challenge

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*Photo credits: SA Khan Photography*

**H**igh levels of ambient air pollution impose significant costs to society and the economy. According to a World Bank assessment of the overall costs associated with environmental damage: <sup>6</sup>

*“[...] at a global level, the cost associated with health damage from ambient air pollution is estimated to be \$5.7 trillion, equivalent to 4.8% of global Gross Domestic Product (GDP). In individual countries, the economic burden of pollution associated with premature mortality and morbidity is also significant, equivalent to 5 to 14% of countries' GDPs. Individual country studies, for **Argentina, Bangladesh, Bolivia, Brazil, China, Colombia, India, Lao PDR, Morocco, Nepal, Pakistan, Peru and Zambia, at national & subnational levels, suggest that the costs of pollution-related disease are mainly due to outdoor and household air pollution; lead exposure; noise pollution; and inadequate water supply, sanitation and hygiene.**”*

The costs associated with pollution are both direct as well as indirect, and include:

- **Health and social costs**, including increased medical expenditures of households as well as different levels of government and income loss due to productivity impairment, premature mortality, increased morbidity, and degradation of quality of life.
- **Fiscal costs** to government incurred in tackling the effects on the environment (including the cost of any subsidies, grants and loan guarantees).

- **Economic costs** incurred by households as well as firms due to loss of income and livelihood caused by productivity loss, deprivation of economic assets, increased expenditures, rise in the cost of doing business, any decrease in crop yields, the opportunity cost of any potential diversion of investment from the country, and migration of human capital.
- **Environmental costs** such as loss of habitat and contamination of clean water sources.

According to an estimate by the World Bank, as cited by the Ministry of Climate Change, Government of Pakistan, the annual costs from pollution incurred by Pakistan amount to approximately US\$12.5 billion.

In recognition of the impact of ambient air pollution and deteriorating air quality on the lives of citizens, world leaders adopted the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development at a historic United Nations summit in 2015, that included specific commitments pertaining to air quality.

<sup>6</sup> <https://www.worldbank.org/en/topic/pollution>



The commitments which countries, including Pakistan, signed up to in this regard are given in the box below.

**Box 1.** : Pakistan's Sustainable Development Goals (SDG) commitments

***SDG Goal 3. Ensure healthy lives and promote well-being for all, at all ages.***

By 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination (target 3.9).

- Mortality rate attributed to household and ambient air pollution (indicator 3.9.1).

***SDG Goal 11. Make cities and human settlements inclusive, safe, resilient, and sustainable.***

By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management (target 11.6).

- Annual mean levels of fine particulate matter (e.g., PM2.5 and PM10) in cities (population weighted) (indicator 11.6.2).

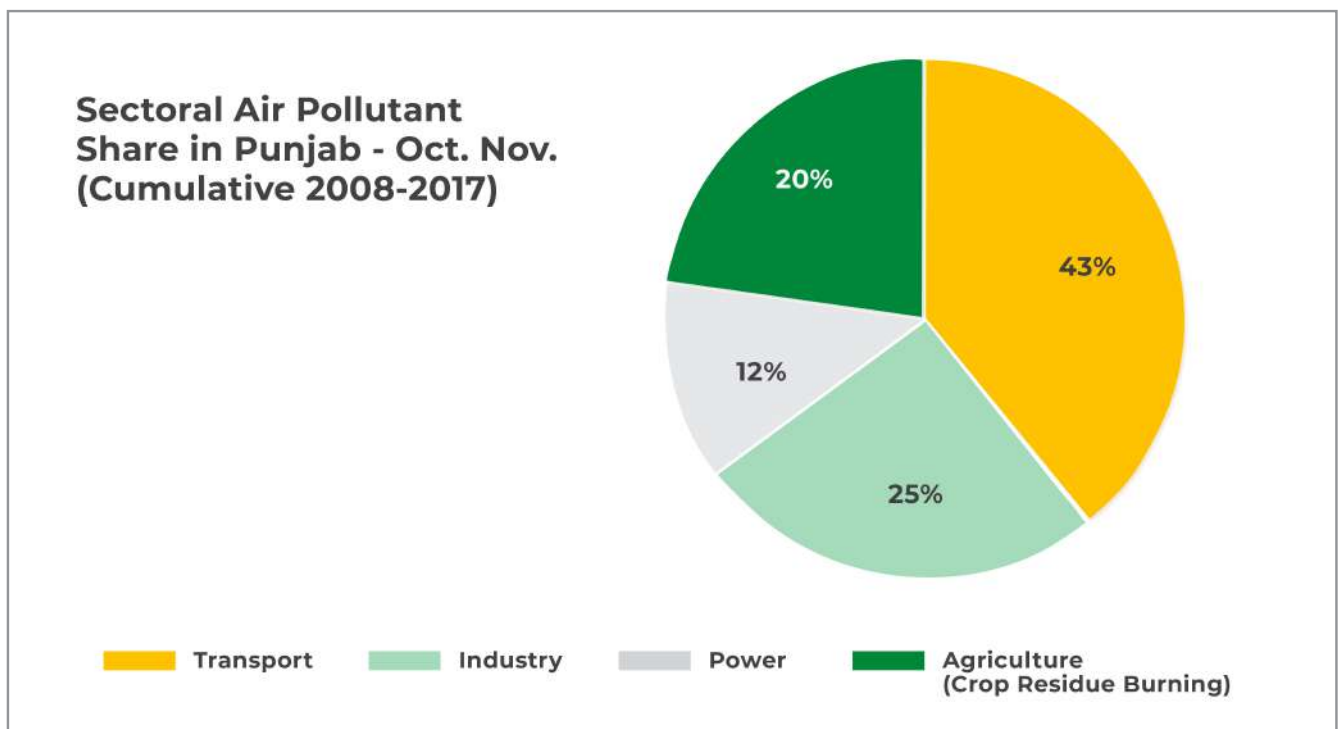
## Targeting a major source of air pollution

According to WHO, major sources of ambient air pollution worldwide include inefficient modes of transport (polluting fuels and vehicles), inefficient combustion of household fuels for cooking, lighting and heating, coal-fired power plants, agriculture, and waste burning.

In Pakistan's case, with a rapid increase

in the number of motor vehicles on roads from approximately 4.5 million in 2001 to a provisional estimated 29.5 million by 2020, vehicular emissions are estimated to account for over 40% of ambient air pollution. With the rapid pace of motorization, the contribution to ambient air pollution by motor vehicles is projected to continue to rise in the urban centres of the country. The figure below shows that in Punjab, for example, transport accounts for 43% of air pollution.

**Figure 3.** Sectoral air pollutant share in Punjab- Oct, Nov (Cumulative 2008-2017)



Source: R-SMOG Report, FAO (2019)

# Policy options

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***“In the case of a tax or pollution charge/levy, the well-established ‘polluter pays principle’ is applied, whereby, the economic agent responsible for the pollution pays for the damage to the environment.”***

Photo credits: Shahbaz Butt

**T**o address the issue of pollution, potential offsetting strategies/policy instruments in Pakistan's context can include anyone, or a combination of, the following:

- A pollution levy/green or environment tax levied on:
  - Motor fuels
  - Vehicle purchase/ownership
  - Polluter industries
- Clean-air legislation, tighter regulation and greater enforcement with regards to emission standards and safeguards
- Introduction of cleaner fuels (e.g., Compressed Natural Gas for public transport, Euro-V, Regasified Liquefied Natural Gas and renewable energy for power generation)
- Provision of subsidy and/or grants for the adoption of cleaner fuels and newer technology, including government or central bank-provided credit guarantees on loans
- Subsidy and/or grants for carbon sequestration and off-setting measures (such as mass tree plantation, for example)
- Mandating greenhouse gas (GHG)/pollutants emissions reduction measures in corporate social responsibility
- Mass awareness campaigns
- Use of behavioural 'nudges' to alter pollution-contributing behaviour

### **A green tax or pollution levy: A closer look**

In the case of a tax or pollution charge/levy, the well-established 'polluter pays principle' is applied, whereby, the economic agent responsible for the pollution pays for the damage to the environment. Specific to vehicular emissions of Carbon Dioxide (CO<sub>2</sub>), countries have adopted a broad range of measures which include inter alia:

- A tax on registration/purchase of internal combustion engine cars
- Annual/periodic tax on vehicle ownership
- Tax on tailpipe CO<sub>2</sub> emissions
- Fiscal incentives for purchase of electric/hybrid cars
- Mandating the sale of electric and hybrid cars only
- Congestion tax
- Mandating standards and setting up an emissions testing regime
- Taxing fossil fuel via a fuel tax

All, or almost all, European Union (EU)-28 countries have a fuel tax in place (see table 4).

**Table 4.** Passenger car taxation in select EU28 countries + Norway, Switzerland (CO<sub>2</sub> and fuel consumption related taxes highlighted)

Country	VAT	Registration/Purchase	Ownership	Use of company car (taxable benefit)
Austria	20%	Price, CO <sub>2</sub> emissions, fuel type, CO <sub>2</sub> -based malus	Engine power	18% (per year) of cost price (24% for cars above CO <sub>2</sub> threshold); maximum rates apply
Belgium	21%	CO <sub>2</sub> emissions, Cylinder capacity, age, regions	CO <sub>2</sub> emissions, cylinder capacity	4-18% (per year) of list price depending on CO <sub>2</sub> and fuel type times 6/7 and age-based correction; CO <sub>2</sub> -based "solidarity contribution"
Bulgaria	20%	-	Engine power	Taxed as a benefit or companies pay 10% of related costs
Croatia	25%	CO <sub>2</sub> emissions, fuel type	Engine power, age	No information
Cyprus	19%	CO <sub>2</sub> emissions, cylinder capacity	CO <sub>2</sub> emissions	No information
Czech Republic	21%	-	Engine size	12% (per year) of the actual purchase price
Denmark	25%	Fuel consumption, safety equipment	Fuel consumption, weight	25% (per year) of the value of the car price up to DKK 300,000; 20% of the rest; environmental fee equivalent to the car's green owner's tax based on fuel consumption
Estonia	20%	-	-	From 2018, benefit based on vehicle capacity and age (regular rate 1.96€/kW, 1.47€/kW for vehicles older than 5 years)
Finland	24%	CO <sub>2</sub> emissions, price	CO <sub>2</sub> emissions, weight x days	10.8-16.8% (per year) of cost price or 17-19 cent/km depending on year of first registration
France	20%	CO <sub>2</sub> based Bonus-Malus system	CO <sub>2</sub> emissions	9% (per year) of cost price; 12% if employer pays fuel; the rate is reduced by 3% points if the car is older than 5y
Germany	19%	-	CO <sub>2</sub> emissions and cylinder capacity	12% (per year) of list price plus factor based on commuting distance
Greece	24%	CO <sub>2</sub> emissions, price	CO <sub>2</sub> emissions or cylinder capacity	4%-22% (per year) of net retail price (rate increases with price)
Hungary	27%	Age, cylinder capacity	Age	Taxable benefit based on engine power (in kW); motor vehicle tax is deductible
Ireland	23%	CO <sub>2</sub> emissions, price	CO <sub>2</sub> emissions	6-40% (per year) of original market value depending on CO <sub>2</sub> thresholds and business mileage (not yet operational)
United Kingdom	20%	-(CO <sub>2</sub> -based 'first year rate' of ownership tax)	By fuel since 2018; CO <sub>2</sub> emissions, cylinder capacity until 2017	37% (per year) of list price if income is >£8,500 per annum; discounts based on CO <sub>2</sub> emissions and fuel type
Norway	25%	CO <sub>2</sub> emissions, weight, exhaust emissions, fuel type	Motor vehicle tax replaced by "Traffic insurance tax" in 2018	30% (per year) of list price; reductions for electric cars
Switzerland	7,7% +4% <sup>1</sup>	-	Engine power, cylinder capacity, weight, fuel	9.6% (per year) of cost price excl. VAT

Source: based on ACEA (2016), ACEA (2017a), complementary information from 1Office (2017), Corporate Vehicle Observatory (2016), Deloitte (2016), Harding (2014), Kuljus (2017), Trafikkforsikringsforeningen (2017)

<sup>1</sup> The Swiss car tax amounts to 4% of the imported car value (ACEA 2017a). It is a tax on the acquisition of a car, but is more similar to VAT than other registration/purchase taxes in all other countries.

In Pakistan's case, while a combination of measures is recommended, the levy of a 'green tax' on motor fuels is regarded as the *first-best* option. This is because:

- A motor fuel tax is an efficient tax, with low administrative and compliance costs.
- It is fairly well-targeted in terms of the income distribution, i.e., vehicle ownership is generally associated with income strata that can afford to pay the tax. However, its incidence will also fall on middle- to lower-income users such as motorcycle owners, auto-rickshaws, and public taxis. Motor vehicles are a major cause of emissions; the per-litre levy will be commensurate with use, i.e., the incidence of the tax shall fall proportionately on those using more fossil fuel and being responsible for greater CO<sub>2</sub>/PM<sub>2.5</sub> emissions. However, a uniform tax on each litre of motor fuel will be discriminatory to vehicles that have more efficient engines and have lower emissions. It also has in-built scalability, with revenue raised being commensurate with consumption of petroleum products in the country.
- The tax is unlikely to be distortionary, especially given the proposed moderate fixed levy per-litre addition to the existing price structure for motor fuels.

***“While registration taxes, ownership taxes, etc., address efficiency of the vehicle itself, fuel taxes address the demand for fuel directly and, thus, actual CO<sub>2</sub> emissions. Every litre of fossil fuel contains a certain amount of carbon dioxide, and a tax puts a price on every gram emitted. Fuel***

***taxes are, hence, most suitable to internalize climate costs.”*** - Forum Ökologisch-Soziale Marktwirtschaft / Green Budget Germany (FÖS/GBG)

A review of the potential alternatives available to government with regards to the green tax/pollution levy is presented below, along with the merits and demerits of each option.

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### **Options for a pollution levy or green tax in Pakistan**

Essentially, the federal, as well as provincial governments, have the following six options.

#### ***Option 1: Taxing vehicle emissions via the annual token tax or an emissions testing regime***

An option is to tax – and hence discourage – vehicle emissions via the annual token tax or an emissions-cum-roadworthiness testing regime (such as the United Kingdom's (UK) MOT regime under the Ministry of Transport).

Under this regime, all registered vehicles across the country will be required to undergo and pass an annual roadworthiness test at designated workshops or testing centres. The test will encompass both road safety features of the vehicle as well as whether it meets emission standards. Vehicles pay a (usually nominal) fee to undergo the test, but in case they do not meet the roadworthiness/safety or emissions standards, they pay a 'fee' based on age and type of vehicle, engine capacity, type of fuel used, and so on – or on a simple calculation of the deviation from the emission standards.

While on paper, this is an appealing option in that it targets road safety elements in addition to vehicular emissions, there are a number of important caveats associated with it. Firstly, the tax base to be targeted is reduced significantly by the fact that a substantial number of commercial and transport vehicles plying the roads in the country are non-registered (such as auto-rickshaws, for example). Only a part of the potential tax base will be covered, with considerable upfront capital expenditure being incurred in setting up the testing regime.

In addition to the capital cost required on infrastructure (testing centres, emissions measurement equipment, staffing and training of personnel), potential leakages through collusive and under-hand practices in the operation of the MOT-type testing regime, as well as informal payment to bypass the certification requirement, are likely to reduce its efficacy.

***Option 2: A 'congestion tax' on main arteries within urban centres during peak hours***

A second option to control vehicular emissions in the main urban centres of the country is to introduce a congestion tax for vehicular traffic during peak hours on the city's main arteries. On paper, or as practised in some large cities around the world (London being amongst the first to introduce this measure – see box below), cars entering the inner city or other designated areas must pay a daily charge for entering the Congestion Charge Zone. Payment can be made either in advance or via an automated payment system where the vehicle is “tagged” electronically and the number of charging days a vehicle travels within the charging zone each

month is recorded. Payment is automatically taken from the driver's debit card, credit card or via direct debit. However, other payment options are also available.

**Box 2 : London's congestion charge**

A congestion charge was introduced for a designated Congestion Charge Zone in London in 2003. The charge covers a 21km<sup>2</sup> area in London. If a vehicle enters the zone between 7am and 10 pm on any day of the week, it is charged a flat daily rate. The charge has risen gradually from £5 in 2003 to £15 currently. Residents receive a 90% discount and registered people with disabilities can travel for free.

In addition to the Congestion Charge, if the vehicle does not meet the Ultra-Low Emission Zone (ULEZ) standards, it will also need to pay the ULEZ charge. To help improve air quality, an ULEZ operates 24 hours a day, 7 days a week, every day of the year, except Christmas Day, within the same area of central London as the Congestion Charge. Most vehicles, including cars and vans, need to meet the ULEZ emissions standards or their drivers must pay a daily charge to drive within the zone.

▶ Vehicle owners have several options to pay the congestion charge. These include:

- An automated payment system
- Payment up to 90 days in advance
- By midnight of the third charging day after travel
- Via the free, official Transport for London (TfL) Pay to drive in London application
- Via a London Road User Charging account

- This account with TfL allows vehicle owners to:
  - Set up Auto Pay for up to five vehicles to pay the Congestion Charge automatically
  - Make faster payments by storing driver's contact, vehicle and payment details
  - Allow up to five people access to a driver's London Road User Charging

Source: Transport for London [www.tfl.gov.uk](http://www.tfl.gov.uk)

The appeal of a congestion tax in designated high traffic-intensity axes of the major cities (Karachi, Lahore, Rawalpindi, Peshawar, Faisalabad) is enhanced by the fact that vehicle users in most cities now have, or are likely to have, in the near future, mass transit systems such as the Bus Rapid Transit (BRT) systems operating in Lahore, Peshawar, Islamabad and Multan.

According to the *Peshawar Sustainable Bus Rapid Transit Corridor Project Environmental Impact Assessment*, conducted by the Peshawar Development Authority [February 2017]:

BRT is an effective way to use space to move people in the city. One BRT lane of 3.5 meters can move up to 10,000 passengers per hour in one direction, whereas 3 car lanes of 10 meters width can only move a total of 4,500 to 6,000 people per hour in one direction.

[...] Furthermore, the BRT project will play a key role in the reduction of CO<sub>2</sub> emissions from vehicular movement in Peshawar city with almost 31,000 tons of reduction in CO<sub>2</sub> emissions expected in the first year of operation and 62,000 tons of reduction in CO<sub>2</sub> emissions expected by the year 2026.

Despite the clear advantages of imposing a congestion charge or tax, there are important caveats and potential demerits. These include:

- Unlike London or Singapore, where the “congestion charge zone” is clearly delineated and consists primarily of upper-income neighbourhoods, the structure of Pakistan’s cities is different. Areas along the east-west and north-south traffic corridors are mixed neighbourhoods, and vehicles plying these corridors belong to different income strata, including from middle income as well as poorer households (auto-rickshaws and taxis, for example).
- Implementation is likely to require considerable preparation and a degree of physical infrastructure.
- BRT capacity currently may not be geared to absorb a potential shift from private vehicle users.

### **Option 3: Levy of sales tax (STS) on petrol stations**

A potential option is to bring petrol stations under the ambit of the provincial sales tax on services (STS). However, there are two issues with this approach. First and foremost, according to the Khyber Pakhtunkhwa Revenue Authority (KPRA), Oil Marketing Company (OMC)-owned petrol stations are not taxable under the STS regime as their sale is under ambit of supply of goods. Independently owned petrol stations in the provinces can be brought under the STS regime, but as the majority of the petrol stations are OMC-owned and operated, the tax base is reduced substantially.



In addition, this would be a pure revenue measure, and would defeat key tenets of the pollution tax: salience as well as transparency and budgetary accountability (see box regarding important considerations at the end of the document).

#### ***Option 4: Levy of 'pollution tax/charge' on polluter-industries***

A pollution tax levied on industries causing ambient air pollution in and around the major urban centres, can be considered. Given the structure of industry, however, with around 85 per cent of firms small and medium enterprises (SMEs) in the informal sector, even an effective implementation may pose a problem. In addition, provincial governments may be hesitant to increase the regulatory and tax burden on industries in their jurisdiction, especially since uniform enforcement by all provinces may be uncertain.

A better alternative could be to provide incentives to firms in high-emissions industries for adopting emissions-reducing technology and production processes, or to treat effluents and solid waste, in conjunction with more stringent regulations.

#### ***Option 5: Levy of an infrastructure cess on petrol stations***

Imposition of an infrastructure cess on petrol stations is yet another option to collect revenue and defray in part the costs of air pollution from vehicular exhaust emissions. However, the caveat here is that such a cess will be a fixed levy that may not be commensurate to actual petrol sale. More importantly, the incidence of such a cess will be on the service provider and not the consumer given that it cannot be passed on via the

final price. This will reduce the profit margins of petrol stations and may disincentivise further investment in the downstream sector, in addition to being challengeable in the courts as an 'unfair' levy.

#### ***Option 6: A levy on motor fuels [Recommended option]***

A fixed (specific) tax on motor fuels is the recommended policy option from the tax/levy choices available to government, to discourage pollution-causing vehicular emissions and to partially defray the significant costs associated with ambient air pollution. The motor fuel tax is an appealing option due to low deadweight costs and high efficiency. This measure is targeted and "captures" a large part of the potential tax base.

There are essentially two different approaches that can be adopted in the case of taxing motor fuels, which have inelastic demand:

#### **Set a high rate of tax to discourage consumption.**

A sufficiently high tax rate on each litre of motor fuel would serve to discourage consumption at the margin and would be an environment-friendly measure aimed at achieving air pollution mitigation. A high rate of taxation on motor fuel can be justified in the case of Pakistan since both, the government-set retail price and the amount of tax levied per litre are lower than the norm in the region, despite a steep increase in pump prices over the past year.

As an illustration, total taxes levied by the government on each litre of motor spirit sold (consisting of the petroleum levy and the general sales tax), account for 41.3 per cent of the final retail price

currently. In India, taxes and levies account for 62-69 per cent of the average prevailing price.

However, the downside of this approach is that it will be inflationary and is likely to hurt low-income and poorer segments of society disproportionately. The government will be required to offset the inflationary impact by inter alia increasing direct cash transfers to the affected or increasing the allocation for food subsidies. Achieving targeting and proper coverage is likely to be a challenge in any of the offsetting measures.

### **Tax at a low rate and use revenue for mitigation as well as adaptation measures.**

Since the government is unlikely to be keen to levy a rate of tax on motor fuel that will be high enough to discourage consumption, given its inflationary impact and distributional effects, a more feasible option would be to set a low rate of fixed tax on each litre of

motor fuel (motor spirit/petrol and high speed diesel) and earmark the revenue generated specifically for mitigation and adaptation measures related to ambient air pollution caused by vehicular emissions. In effect, by default and not by design, this becomes a revenue measure.

At the suggested upper-bound of less than one Rupee per litre of motor spirit and high speed diesel, the proposed levy will amount to a nominal increase in the retail fixed price and is unlikely to be inflationary or politically challenging.

At the same time, the levy/tax on motor fuels can generate a significant revenue stream. As the table below illustrates, based on country-wide sale of motor spirit and high speed diesel for 2018-19, the total national collection can amount to between Rs 8.12 and Rs 12.2 billion. (At the rate of Rs 1 per litre, the green tax would have generated over Rs 20 billion based on motor fuel sales for 2018-19).

**Table 5.** Potential total tax collection from proposed pollution tax

Proposed Pollution tax	Collection (Rs mn.)	Provincial shares (Rs mn.)			
		Punjab	Sindh	KP	Balochistan
<b>Rs per litre</b>	<b>All Pakistan</b>				
@ Rs 0.40	8,116	5,201	1,815	771	113
@ Rs 0.50	10,145	6,501	2,269	964	141
@ Rs 0.60	12,174	7,801	2,722	1,157	170

Estimated values based on motor spirit + high speed diesel sales for 2018-19. Provincial shares worked out on basis of sales of motor fuel in each province for 2018-19. Data source: OCAC

## **Institutional arrangement for levy/ collection of green tax**

The setting of the price of petroleum products sold in the country is a federal subject under the constitution. This includes the final retail price as well as the different sub-components such as the distributors' margin, the dealers' margin, the inland freight equalisation margin, the petroleum levy and the general sales tax. The federal government aims to set a uniform price across the country.

Since petroleum pricing is a federal subject under the constitution, while the costs of pollution and environment degradation are borne by the provinces, one via media to levy a green tax on motor fuels is for the pricing structure for petroleum products to be changed by the Federal Government by introducing a tax as a fixed, per-litre add-on to the existing pricing formula. The proceeds from this tax should be treated as a straight transfer to each province under the National Finance Commission (NFC) Award, based on the actual documented sale of motor spirit and high speed diesel in the respective territorial limits. This will be an equitable and judicious treatment of the tax revenue generated.

From a budgetary perspective, a *specific* (fixed) tax per litre of motor fuel sold is more desirable than an *ad valorem* tax rate. This is due to the potential volatility in domestic retail petrol prices caused by sharp swings in the international oil price. A specific tax with a fixed pre-determined rate will insulate budgetary revenues from a significant decline in petroleum prices, while an *ad valorem* tax will expose the budget to substantial variation.

## **Use of proceeds:**

Since the green tax is meant specifically to mitigate the effects of vehicular emissions on ambient air pollution, and to finance adaptation initiatives by provincial and (ideally) by local governments, its implementation should be accompanied by the following budgetary accountability and transparency measures.

- There should be budgetary earmarking/hypothecation of the receipts under the green tax on motor fuels, instead of the monies being absorbed directly into the provincial consolidated fund.
- There should be a separate budget line to show the receipts of the green tax transferred from the federal government under the NFC Award each year.
- Similarly, a separate budget line will need to be introduced to show allocations versus actual spending for pollution-mitigation and adaptation measures.

Specifically, the proceeds from the green tax on motor fuels can be used by the provinces for mitigation and adaptation measures that could include inter alia the following:

- The design and implementation of air quality monitoring infrastructure in the major urban centres of each province.
- Preparation of pollution/smog control strategies and action plans by each province.
- Implementation of a comprehensive vehicle inspections regime that includes emissions-testing for major

pollutants such as PM2.5, CO<sub>2</sub> etc. as well as incorporates road-worthiness and safety testing.

Should the federal government decide to introduce an environment or a green tax or a pollution charge (whatever form and nomenclature the new tax takes), there are some important considerations it will need to bear in mind. See box below.

**Box 3:** Important considerations for implementation of a green tax in Pakistan

**Nomenclature is important.** In light of the Supreme Court (SC) of Pakistan's judgement of 2009, in a suo moto case against the conversion by the Ministry of Finance of the erstwhile Petroleum Development Levy into a "Carbon Tax", the levy by the government cannot be a "carbon" tax per se.

This is so because the SC held in its afore-mentioned judgement that a carbon tax can only be imposed to defray/offset the effects of greenhouse gases and cannot be a fungible revenue measure imposed by the Ministry of Finance and absorbed into the budget.

According to the referenced SC judgement if the government was indeed intending to combat the effects of carbon emissions, rather than introduce a new open-ended revenue measure, then the Ministry of Environment should propose this levy. In addition, and importantly, the SC judgement held that the amount so raised will be used exclusively and transparently by the Ministry of Environment and will not be available to the Ministry of Finance for budgetary purposes.

Hence, the following important considerations/implications for the government flow from this judgement:

**The 'carbon tax' or 'pollution charge/cess' cannot be a pure revenue measure**

**It should have transparency as well as accountability.** This will come from transparency in the budgeting of the revenue collected as well as in its use, i.e., the expenditure heads the money is allotted to. Ideally, there should be complete earmarking/ring-fencing of the amounts collected under this head, and these should be used to defray the direct costs of pollution as well as for its mitigation.

**There should be 'salience',** i.e., the pollution tax should ideally be collected as a separate levy, rather than piggy-backed or lumped into any existing tax/levy/cess. This is deemed important for visibility of the government's commitment to combating the effects of pollution, as well as for citizen-accountability.

**The measure should be targeted** – i.e., the incidence of the tax/levy should fall proportionately on those using more fossil fuel and/or responsible for greater CO<sub>2</sub>/PM2.5 emissions.

**Ideally, there should be a viable alternative available** to the behaviour being discouraged via taxation (such as mass transit/public transportation systems in the major urban centres).

**Finally, an assessment of the overall cost of pollution – environmental, economic, fiscal, health and social – should be conducted** to complement the consideration of a 'carbon' or anti-pollution tax.

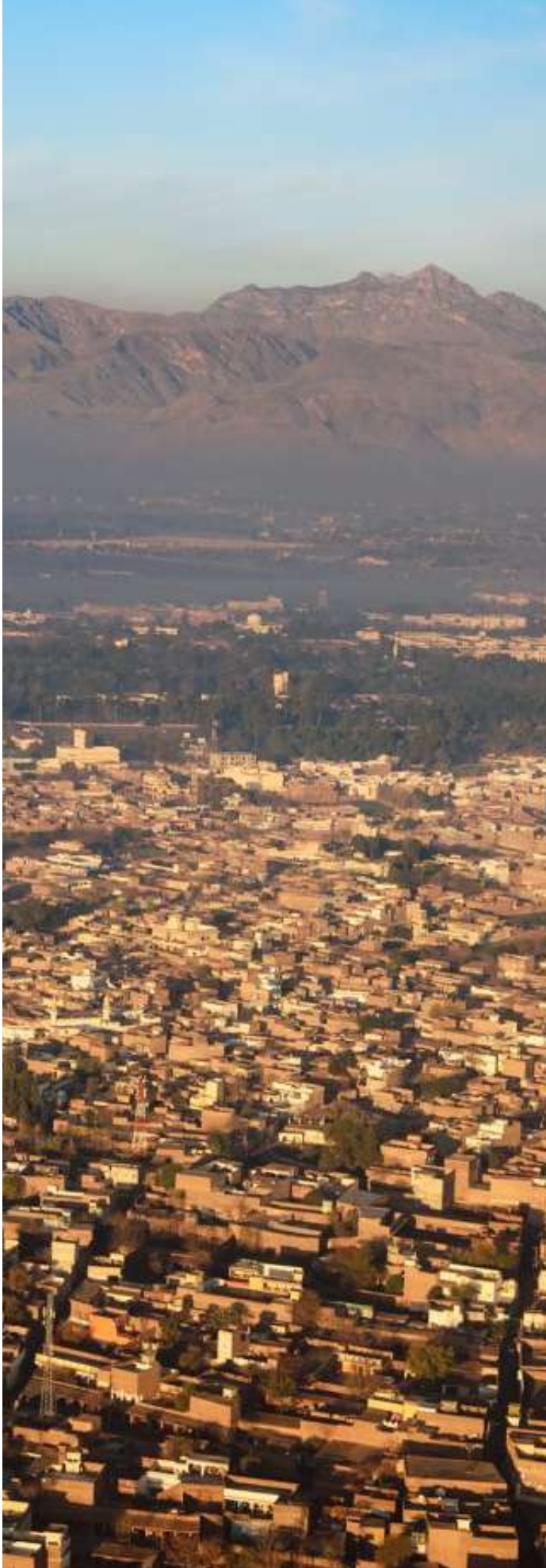


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## Conclusion

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Pakistan has a serious pollution problem. With rapid urbanisation as well as motorisation, its poor air quality is deteriorating further, posing very significant health risks for its population as well as its economic trajectory.

While significant concerted policy action is required on a wide front to deal with the challenge of air pollution, one potent instrument is a tax on motor fuel consumption. This tax has several advantages, including low administrative as well as compliance costs, targeting, in-built scalability, salience, and budgetary accountability.

The revenue raised can be used to partially defray the substantial economic and health costs incurred as a result of air pollution, as well as build sub-national governments' fiscal capacity to make appropriate investments and incur expenditures to reduce ambient pollution levels. Equally important, the tax on motor fuels will also discourage the consumption of petroleum products at the margin, which is a leading cause.

However, since pricing of petroleum products is a federal subject under the constitution, and the resources required to defray the costs of pollution are at the provincial level, an appropriate via media appears to be to introduce a specific tax on motor fuels and pass on the revenue to provinces as a straight transfer under the NFC Award.



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## ABOUT SEED

Sustainable Energy and Economic Development (SEED) Programme is a Foreign, Commonwealth, and Development Office (FCDO) funded project supporting the Government of Khyber Pakhtunkhwa's public financial management and energy sector reforms.

One element of the tax reform that SEED is advising the Government of Khyber Pakhtunkhwa on is expanding its fiscal resources to combat the significant health, economic as well as fiscal costs associated with pollution. This policy brief is part of SEED's advocacy effort to persuade the federal government to tackle the unsafe and dangerous level of ambient air pollution in the country via a pollution tax, while at the same time expanding the fiscal resource envelope of provinces to combat the significant costs attributable to pollution and environment degradation.



