

GOVERNMENT OF PAKISTAN
MINISTRY OF ENVIRONMENT LOCAL GOVERNMENT
AND RURAL DEVELOPMENT

PAKISTAN CLEAN AIR PROGRAMME

P_{CAP}

PROPOSAL

PAKISTAN CLEAN AIR PROGRAMME (PCAP)

Pollution control/abatement is one of the core areas of the Pakistan National Conservation Strategy. Air pollution is considered as the major emerging issue of the country, which requires immediate attention of policy makers. Test results indicate that majority of urban population in Pakistan is exposed to the risk of air pollution.

2. In Pakistan, oil/petroleum consumption increased from 4.3 million tonnes in 1980 to 15.6 million tonnes in 1997 showing an overall increase of 263% (Economic Survey of Pakistan 1997-98). The maximum rise has been realized in the power sector where consumption has jumped from 0.183 million tonnes in 1980-81 to 5.11 million tonnes in 1996-97. Oil/petroleum consumption in the transport and industrial sectors has also increased by 188% from the levels of 1980-81. The allowable limits of lead and sulphur contents in fuels are much higher than other countries of the region. Gasoline available in the market contains high lead contents i.e. 0.42-0.84 mg/litre and diesel and furnace oil contains sulphur contents 1% and 3.5% respectively. Gradual increase in consumption of low quality fuels is generating excessive pollution in urban centers and degrading ambient air quality.

3. No city in Pakistan has continuous monitoring facility, which could be used to monitor ambient air quality and assess public exposure to pollution. Punjab EPA and PCSIR have mobile laboratories which intermittently record ambient air quality in different cities. Random tests from mobile laboratories shows presence of high suspended particulate matters (SPM) and soot over 24 hours average while very high concentration of hydrocarbon, carbon monoxide, oxides of nitrogen and lead was recorded in the ambient air over short interval (1 hr and 8hr basis). In Punjab, SPM were found as high as 2-4 times higher than WHO guidelines. One study carried out by SUPARCO in 1989, showed lead exceeding upper limit of WHO by 9 times. Pakistan EPA carried out air quality study in Islamabad during high smog time in winter 1998, which recorded SPM in the range of 800-900 ug/m³ with considerable contents of soot in the air.

Presence of particulate matter in air not only causing poor visibility but leading to increased cases of asthma, allergy and lungs diseases.

4. A study of Pakistan Medical Association revealed high Blood Lead Levels in school children ranging 41-50 ug/dl exceeding the safe limit of 15 ug/dl. Mean Blood Lead Levels in Police constable were found 47.7 ug/dl.

5. The major sources of air pollution that need to be addressed are:

⇒ **Emissions from vehicles**

⇒ **Emission from industry**

⇒ **Burning of solid waste**

⇒ **Natural dust**

Emission from Vehicles

6. Experts consider that 60-70% cause of urban air quality degradation is due to vehicles. In Pakistan vehicles population has shown a sharp increase over the last two decades. In 1980, the numbers of vehicles on the road were 0.681million which rose to 3.83 million in 1998, showing an overall increase of 462% (Economic Survey of Pakistan 1997-98). The annual average growth of vehicle stood around 11.76% which means addition of 0.44 million vehicles each year. With this pace vehicle population will exceed to 4.5 million by year 2000. The category-wise increase in vehicles is as follow:

<u>Type of vehicle</u>	<u>Nos (000)</u>		<u>% increase</u>
	<u>1980</u>	<u>1997</u>	
Motorcycles	287	1712	495
Motor cars	148	635	328
Jeeps	16	53	219
Rickshaws	32	62	95
Delivery vans	8	92	983
Buses	25	75	198
Trucks	34	127	273

Source: Economic Survey of Pakistan 1997-98

The above statistics show considerable growth of delivery vans, motorcycles and rickshaws, which are mostly two strokes. Diesel driven buses and trucks have also increased significantly over time. According to a study carried out by GIK Institute, diesel vehicles are responsible for 88% Nox emission comes out of Poorly tuned and weak engine vehicles particularly diesel driven trucks, buses and vans emit excessive visible smoke. These sources also add soot and particulate matters in the air in addition to other harmful gases. Owners of vehicles complain about adulteration in fuel oil and poor quality of lubricating oil available in the market.

Industrial Emissions

7. The industrial sector in Pakistan though is small in size if compared with other economic sectors, but it is rapidly expanding due to liberal government policy. Almost all metropolitan City has its industrial estate where cluster of industries of different types exists. Majority of cement, fertilizer and sugar units, power plants and steel furnaces located in the vicinity of towns cause air pollution. Brick kilns are another source of pollution in many areas. Use of low-grade fuels in brick kilns generates dense black soot and other kind of emissions.

Burning of solid waste

8. Pakistan generates 47,920 tonnes of solid waste per day, 19,190 tonnes in urban and 28,730 tonnes in rural areas (Pakistan NCS 1992). Since none of the city has proper waste disposal

system, the waste collected is either dumped in the low lying areas or along the road sides and set on fire. Burning of solid waste at low temperature not only generate particulate matters but produce dioxin- a persistent organic pollutant.

Natural dust

9. There is general aridity in the country with average annual rain fall ranging 90-300mm in the south to 1000-1600 mm in the north. Due to high temperature in summer (40-50C), fine dust rise up with the hot air and form “dust clouds” over many cities of southern Punjab and upper Sindh. Dust storms are also generated from deserts (Thal, Cholistanin and Thar) particularly in summer season and adversely affect air quality in the cities of Punjab and Sindh. Hydrocarbon having good affinity with dust particles form aerosols of inhalable sizes which cause allergy and asthma.

Suggested Programme

10. A detailed integrated programme “Pakistan Clean Air Programme” (**PCAP**) can be drawn up in consultation with other ministries, provinces and non-governmental organizations which may identify measures and set bench marks to be achieved to improve ambient air quality. It may also identify projects and their sources of fundings..
11. Some of the short-terms and long-terms measures to be consider for PCAP could be as follows:

Short-terms Measures

- i) Establishment of Environmental Squad in all major cities (**Provincial Governments**)
- ii) Campaign against excessive mixing of lubricating oil in fuel of two stroke vehicles (**M/O ELG&RD, Federal and Provincial EPAs**)

- iii) Stop import and local manufacturing of two strokes vehicles without separate lubricating system **(M/O Commerce and M/O Industry)**
- iv) Restriction on conversion of vehicles from gasoline engine to secondhand diesel engines **(Provincial Governments)**
- v) Launch effective awareness campaign against smoke emitting vehicles **(M/O ELG&RD, Federal and Provincial EPAs)**
- vi) High pollution spots in cities may be off set through traffic management **(Provincial Governments)**
- vii) Capacity building of EPAs, Environmental Squads and Motor Vehicle Examiners. **(Provincial Governments)**
- viii) Regular checking of quality of fuel and lubricating oils sold in the market **(M/O PNR)**
- ix) Token Tax on diesel vehicles be enhanced **(Federal and Provincial Governments)**
- x) Regulations on measures to be taken by owner including covering of buildings/site during renovation and construction to avoid air pollution **(Provincial Governments)**
- xi) Base line data collection on ambient air quality through diffusion techniques and using fixed and mobile laboratories **(Federal and Provincial EPAs)**

Long-term Measures

- i) Introduction of clean fuels and promotion of alternate fuels in the country **(M/O PNR)**
- ii) Identify pollution control devices for vehicles and encourage their use **(Federal and Provincial EPAs)**
- iii) Promotion of waste minimization, waste exchange and pollution control technology in industry **(Federal and Provincial EPAs, FPCCI, SDPI, and M/O I&P)**
- iv) Setting up continuous monitoring stations in cities to record pollution levels in ambient air **(Federal and Provincial EPAs)**

- v) Improvement of energy efficiency in vehicles and industry (**ENERCON**)
- vi) Creation of public awareness and education (**M/O ELG&RD, Federal and Provincial EPAs**)
- vii) Review existing policies, legislation and standards (**M/O ELG&RD and Federal EPA**)
- viii) Afforestation in desert areas (**M/O ELG&RD and Provincial Forest Departments**)
- ix) Shoulders along roads should be mettled (**M/O Communication and Provincial Governments**)
- x) Proper disposal of solid waste in cities provinces (**Capital Development Authority Division and Provincial Governments**)