

BRIEF ON REDUCING NOISE, AIR AND WATER POLLUTION

NOISE POLLUTION

Noise is an unwanted, unpleasant and annoying sound caused by vibration of the matter. Vibrations impinge on the ear drum of a human or animal and setup a nervous disturbance, which we call sound. When the effects of sound are undesirable that it may be termed as "Noise". Noise from industry, traffic, homes and recreation can cause annoyance, disturb sleep and affect health. Thus, sound is a potentially serious pollutant and threat to environmental health. The response of the human ear to sound depends both on the sound frequency (measure in Hertz, Hz) and the sound pressure, measured in decibels (dB). A normal ear in healthy young person can detect sounds with frequencies from 20Hz to 20,000 Hz. Noise measurements are expressed by the term Sound Pressure Level (SPL) which is logarithmic ratio of the sound pressure to a reference pressure and is expressed as a dimensionless unit of power, the decibel (dB). The reference level is 0.0002 microbars, the threshold of human hearing.

Major Sources of Noise

Following are the major noise sources which need to be addressed for reduction of noise:

- ✓ Transport pressure horns, silencers, ratting noise engines
- ✓ Industry Boilers, lowers, forging, mechanical movement of machine parts and other unit operations
- ✓ Recreational activities, marriage halls, Club, Hotels, Musical Shows, Musical Shops, fairs/exhibitions, fireworks.
- ✓ Use of Loudspeakers, Public/religion gathering, commercial announcements.
- ✓ Airport and Railways Engines noise.
- ✓ Construction Mixers, Compressors, Compactors, drills.
- ✓ Workshop Denting, Mechanical processing.

Steps to reduce noise pollution

There is a dire need for legislation to control increasing noise pollution inside the city:

- Plantation plays important role in reduction of noise pollution as plants absorbs noise of high frequencies. A dense ever green hedge even reduces noise of microphones by 20dB.
- Industrial areas and workshops must be out of cities as they produce high frequency waves of noise.
- Railway tracks, aerodrome and highways must be located outside the cities.
- Vehicle must be free from pressure horn but having specific well performed vehicle silencers.
- Vehicle conditional checking made compulsory.
- Strict rules and regulation must be there as recently in Pakistan no specific legislation present to control noise; most important is if rules would make their application made strictly applicable.
- Public awareness is very essential and important for control of pollution of noise. For this television, radio, internet and newspapers should run campaigns for wide publicity.

NOISE STANDARDS IN PAKISTAN

The draft Noise standards were presented in 11th Pakistan Environmental Protection Council (PEPC) meeting held on March 27, 2010 and approved the same. The Standards are given in the table below: -

S. No.	Category of Area / Zone	Effective from 1 st July, 2010		Effect from 1 st July 2011	
		Limit in dB(A) Leq*			
		Day Time	Night Time	Day Time	Night Time
1.	Residential area (A)	65	50	55	45
2.	Commercial area (B)	70	60	65	55
3.	Industrial area (C)	80	75	75	65
4.	Silence Zone (D)	55	45	50	45

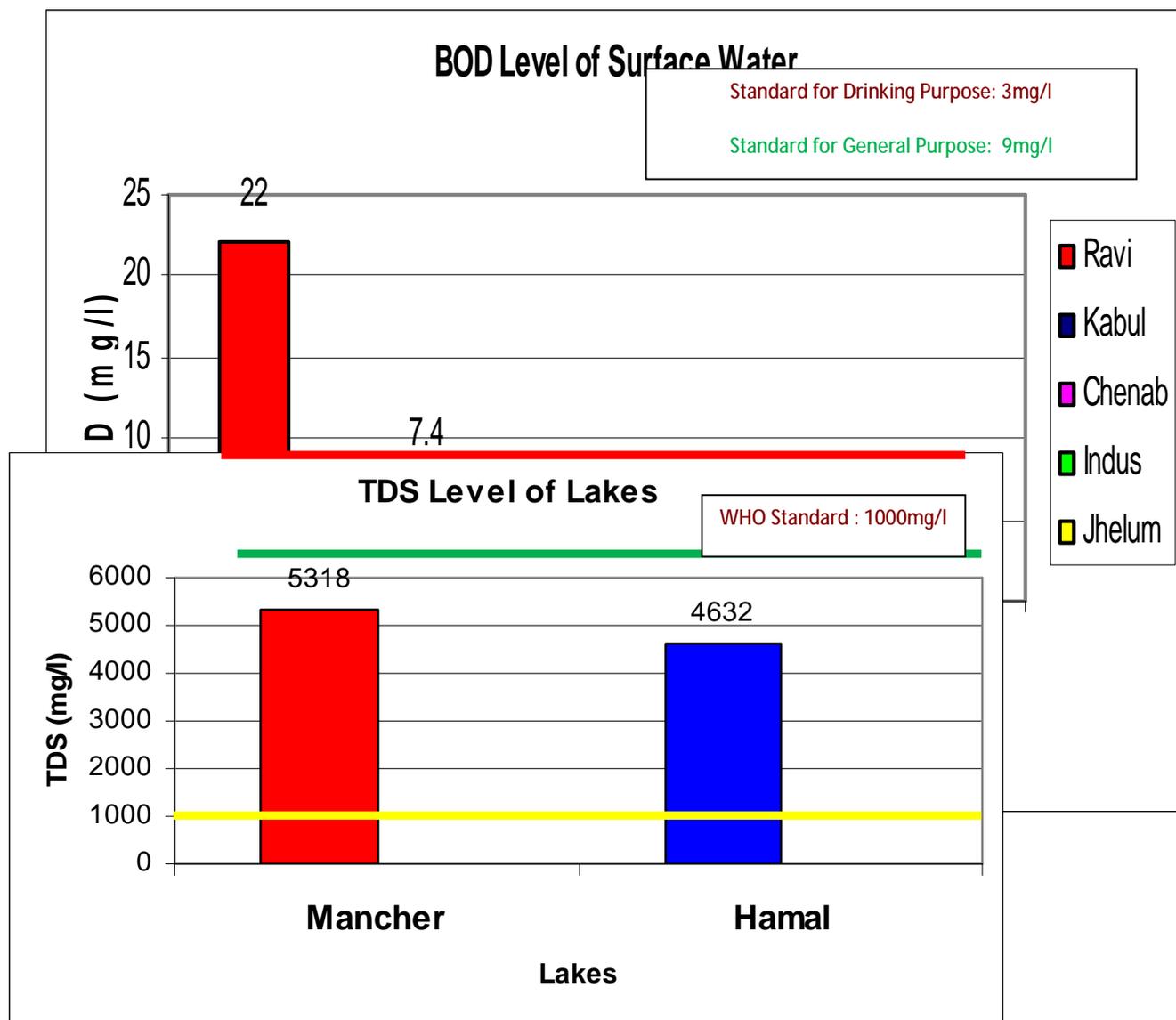
- Note: 1. Day time hours: 6.00 a. m to 10.00 p. m.
2. Night time hours: 10.00 p. m. to 6.00 a.m.
3. Silence zone: Zones which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.
4. Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.
- *dB(A) Leq: Time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

WATER POLLUTION

Water pollution has been steadily increasing over the years. The sources of this pollution include uncontrolled discharges of municipal as well as industrial wastes in water bodies, runoff from agriculture fields where agrochemical usage has been increasing, and other natural as well as anthropogenic activities which take place in the catchment areas.

The existing water resources in the country are under threat due to untreated discharge of municipal and industrial wastes to rivers and other surface water bodies. The majority of the population of Pakistan is exposed to the hazard of unsafe and polluted drinking water. Untreated sewage, industrial effluents, and agricultural runoff are usually released in streams or drains, ultimately drain the highly polluted water into the rivers and sea. Polluted water poses potential risk to public health. High incidence of water borne diseases can directly be attributed to polluted waters in our lakes. Other impacts of high contamination in the waters include loss of biodiversity and

ecosystems, reduction in fish population and damage to soils and crops in the irrigated areas.



National Drinking Water Policy:

Supply of safe drinking water and provision of sanitation are the most important contributing factors for improving the health of the people in any country. As per a World Health Organization (WHO) report 80 per cent of the diseases are due to unhygienic conditions and unsafe drinking water. Safe drinking water and proper sanitation are inseparable and critical to health.

In Pakistan, currently over 65% of population is considered to have access to safe drinking water. Inadequate water supply, resulted in high incidence of water related diseases which in turn increase morbidity and mortality rates and pose major threat to the survival and development of Pakistan children. It has been estimated that water, sanitation and hygiene related diseases cost Pakistan economy about Rs. 112 billion per year, over Rs. 300 million a day, in terms of health cost and lost earning. Out of this the cost associated with diarrheal diseases alone is estimated to the range from Rs. 55 to Rs. 80 billion per year.

National Environmental Quality Standards (NEQS) for Municipal and Industrial Effluents were notified in year 2000 to address the waste effluent discharges into the water bodies. To address this vital sector in holistic way the Cabinet approved The National Drinking Water Policy in September, 2009. The salient features of the Policy are:

- Ensure protection and conservation of water resources.
- Promote measures for treatment and safety of drinking water.
- Encourage community participation.
- Enhance capacity
- Promote public-private-partnership.
- Promote research and development.
- Promote inter-sectoral collaboration.

AIR POLLUTION

Air Pollution:

The most serious issue of air quality in Pakistan is the presence of excessive suspended particulate matter (SPM) present in the ambient air. The major sources of SPM are vehicles, industry, burning of solid waste, brick kilns and natural dust. Urban air particulate pollution is estimated to cause around 22,000 premature deaths among adults and 700 deaths among young children. The total health costs are between Rs 62-65 billion (The World Bank, 2006). Burning of municipal solid waste is another source of air pollution. Almost 48,000 tonnes of solid waste is generated each day, most of which is either dumped in low-lying areas or burnt (The World Bank, 2006). Incomplete combustion of solid waste leads to release of toxic and carcinogenic pollutants. The high sulphur content in diesel and furnace oil is a major contributor to vehicular pollution.

While government has taken right steps in improving air quality then cooperation and support of people in implementing government policies and plans is a must. The government imposed a ban on leaded gasoline in 2000. Government had reduced sulphur in diesel from 1% to 0.6%. Ministry of Petroleum has notified availability of low sulphur diesel (0.05 %) by 1st January, 2012. Ambient air quality is being monitored continuously through air monitoring stations established in major cities of Pakistan. This monitoring is helpful in assessing the air quality in order to take adequate mitigation measures. More than two million vehicles have been converted for use of CNG as fuel. NEQS for Industrial Gaseous Emission, 2000 are in place to control the industrial pollution. Furthermore, NEQS for ambient air have also been approved by the Council. NEQS for Motor Vehicle Exhaust & Noise (Amended), 2010 have been approved to control the vehicular emissions. Realizing the significant impact of poor Ambient Air quality, the Ministry of Environment (defunct) has developed Pakistan Clean Air Programme (PCAP) to gradually reduce air pollution through various activities. PCAP has been approved by Pakistan Environmental Protection Council on 29th March, 2010. The salient features of the Programme are given below:

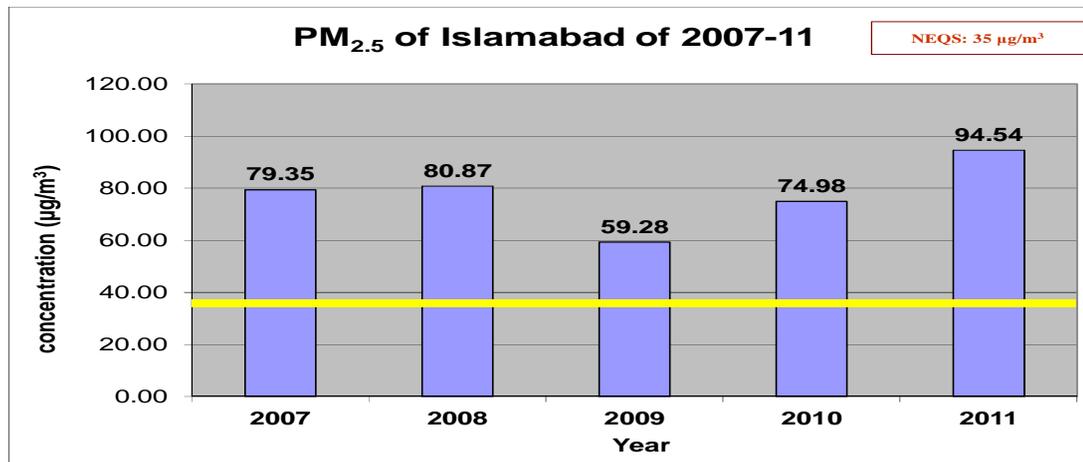
- Gradual exclusion of 2-strokes and diesel run vehicles from urban centers
- Establishment of Environmental Squad of Traffic Police in all major cities to control visible smoke
- Introduction of low sulphur diesel and furnace oil and promotion of alternate fuels in the country

- Encourage installation of pollution control devices and other technologies for vehicles and industry
- Relocation of brick Kilns and adoption of alternate technology for brick manufacturing
- Optimum use of pesticides
- Establishment of Indoor Air Quality Standards
- Urban tree plantation, forestation in deserts and sand dune stabilization
- Proper disposal of solid waste

The Climate Change Division, with the support of M/o Petroleum & Natural Resources and automobile manufacturers in the country have been successful in introducing Euro –II compliant models both in gasoline vehicles and motorcycles. Efforts are under way to ensure availability of Euro-II diesel enabling to introduce Euro-II compliant diesel vehicles.

Apart from this the successful launching of Metro Bus System (MBS) in Lahore and launching of Rawalpindi-Islamabad MBS is setting the trend for an efficient, decent and affordable mass transport system in the country. This would certainly have positive impact on air quality of major urban cities in the country.

The concentration of Particulate Matter 2.5 (PM_{2.5}) which is mainly emitted during combustion in Islamabad show that it is high then the permissible levels:



THREAT TO THE ENVIRONMENT OF THE CAPITAL (ISLAMABAD) –

ACTION TAKEN BY CDA.

- Pak EPA is the regularity agency for controlling pollution in the Capital city, empowered under the Pakistan Environmental Protection Act 1997, however CDA is activity involved in protection of Environment of the city from pollution.
- CDA has taken various measures to preserve the environment of the capital. Complaints received and necessary action in the form of prosecution in fines is undertaken under the following legal instruments.
 - The Capital Development Authority Ordinance, 1960.
 - The Islamabad Building Regulations, 1963.
 - The Islamabad (Preservation of Landscape) Ordinance, 1966.
 - The Islamabad (Preservation of Landscape) Rules, 1967.
 - The Islamabad Capital Territory Municipal by Laws, 1969.

- The Islamabad Wildlife (protection, Preservation, Conservation and Management) Rules, 1983.

- Promulgated **CDA Environmental Protection Regulation 2008** for quick action against day to day offences.
- Plantation and landscaping along the roads and avenues has been done to reduce visual air pollution.
- Margallah Hills notified as National Part in 1980 by the Federal Government (Under section 21 of Islamabad Wildlife Ordinance 1979). Extends over an area of 39,244 Acres.
- Prior to Islamabad Margallah Hills forests were managed by the Punjab Forest Department and Military for (Grazing of livestock, collection of fire wood, collection of hay).
- To provide healthy environment in the city CDA has developed 183 major parks, children parks and play fields in the capital city.
- Massive a forestation, plantation, soil conservation, wildlife conservation has been taken up.
- CDA enhanced it's plantation targets from 0.800 M to 1.000 M per annum.
- Plantation of indigenous trees has been promoted.
- Launched a campaign for the protection of historical sites and monumental trees.
- Plantation and landscaping has been made an integral part of CDA master plan.
- Developed 7th, 9th Avenues Zero point Interchange and flyovers at Jinnah Avenue to smoothen the traffic to reduce vehicular pollution.
- Prepared a negative list in consultation with M/o Climate Change and Islamabad Chamber of Commerce an Industry and decided that those industry create pollution has banned their further establishment in the capital city.
- Encouraging change of trade from pollution to non polluting industrial units without charging trade change fees.
- Anti-littering campaign started to the keep capital clean.
- Built an independent sewage treatment plant in sector I-9 in year 2007. Treatment capacity is of 17 Million gallons of municipal sewage. Presently receive 6-7 MGD of sewage, covers 25 sectors. Sewage is treated before discharging in to the natural water body.
- Undertaken 20 rainwater harvesting projects. Inverted recharge wells have been installed near Faisal Mosque.