

3 Recommendation Proposal on Air Pollution Control

4-1 Meaning of establishment on the Environmental Air Quality Standard

4-1.1 What is the meaning of establishment on the Air Quality Standard by Local Authorities

Needless to say, the purpose of the establishment on the Air Quality Standard is to prevent the citizens health from the air pollution damage.

However, for the situation of an implementation by the Environmental authority has the same meaning of establishment on the Quality Standard, and also, it have to be taken an action in informing what levels of the air quality in the area where the citizens are breathing, no matter how in case of the large cities or the living circumstances near by industrial area in Pakistan.

4-2 The most high priority to be taken immediately by Pak-EPA

To install the minimum necessary numbers of Air Monitoring Stations, and also, establishment of an analytical laboratory which directly belong to Pak-EPA after setting up the effective Air Quality Standards.

4-2.1 Factors concerning necessary number of Air Monitoring Station

In considering to decide the numbers of monitoring station, usually to be checked on the important factors such as a population, and a numbers of cars in case of a residential city and a commercial city.

Taking the example in case of Saudi Arabia, Riyadh and Jeddah cities are reaching 2 millions population, and also those cities have increasing a population ratio in keeping at a rather high level.

On the other hand, the number of cars in 2 cities has rapidly increasing recently. The question is not only a number of cars, but also the quality of an emission gas is a most important factor, because in case of Tokyo has about 4.6 million cars in 1994, but air pollution level had already gained somehow in clean air condition after 1982.

Because, all cars are obligated to be installed the catalytic converters since 1982 in Japan.

Those improving countermeasures on the air pollution had been taken by Tokyo Metropolitan Government based on the environmental air quality data which being brought from the roads side of Air Monitoring Stations. And also, those monitoring data can easily show us what is going on the control measures have been done in successfully or not.

This is a very important information for MEPA in Saudi Arabia and Pak- EPA people, because nobody knows what's going on the air pollution conditions are worsening rapidly year by year, or still in keeping some level of air pollution with a stable condition in a few years.

It is necessary to make a reaching goal to achieve by taking an action of enforcement to improve the Environmental quality for keeping the citizens healthy life,

but, without any scientific measuring proof, it is something like a same situation of a navigation in the ocean without using any compass.

When I stayed in Saudi Arabia, I recommended to the MEPA people for training a good Environmental officer, it is much shorter way to give him a chance to go to an Air Monitoring Station or visit a factory, and to read the air quality data in ambient air or a stack gas concentrations of pollutant, and then, in consequence of being studied and discussed with emission side and the person who belongs to installation on control devices, after having those experiences in several years, the person can easily understand what a specified countermeasures has more effectively and also economically.

On the other hand, in any country, if the Environmental Air Quality measured levels went down sharply, it should have been taken some adequate E.A.Q. countermeasures for improving the quality of emission sources, for instance, introducing all imported new cars obligated with the installation of catalytic converters. And also, changing the fuel quality which including 3% of Sulphur compounds in it to reduce Sulphur containing less than 0.4% or using a different type of fuel such as changing from a heavy oil to a natural gas and CNG.

These fundamental control procedures usually make the air quality improving rather rapidly, in the cases of Mexico and Santiago cities, they have been taken all countermeasures that the mentioned above, it took only 2 to 3 years that the levels of air pollutants began to reduce, then since 4 or 5 years passed, these levels dramatically went down which were showed the graphs on my presentation on MEPA or I am going to introduce Fig-6 shows the case of SO₂, and Fig-7 shows the case of CO to Pak-EPA people.

Therefore, if there is no measurement tools, the authority can not prove his efforts to take an action of enforcements and an improving implementation coordinating with concerned authorities.

4-2.2 Factors concerning a number of Air Monitoring Stations (Industrial area or Residential City).

i) Industrial City

Stationary sources of air pollution have gradually been increasing in Pakistan recently, and also, industrialized areas concerning a petroleum refinery, a petrochemical, a cement, a fertilizer and a iron steel industry are enlarging their activities where they are located in Karachi and Lahore areas and another cities.

ii) Residential city

Those areas are also emitting big quantity of air pollutants as well as the public service facilities in usage for cities and industrial daily consumption such as a power plant and other emission sources, according to their fuel consumption. Because, those source facilities have not any countermeasures equipment or improving process yet at present, so it is considered that the fuel consumption is almost equivalent to the emission quantity of air pollutants (SO₂ etc.)

iii) Proposal on the number of Air Monitoring Station

In the background of those social and economical progresses, air pollution conditions must be gradually increasing year by year. Therefore, the necessity of investigation for grasping on the actual air contamination data is surely required by the Environmental Authorities. That means it is necessary to be installed several adequate numbers of Air Monitoring Stations in big city area.

Concerning the number of a monitoring station, it is recommended that 5 stations are minimum required at first stage in a bigger city like Lahore.

Because 1 station is necessary to be installed in suburb area to know the background air quality level, 2 stations must be set up in the Central (downtown) area, and 1 station in the leeward of a main wind direction in the middle of the city, the last one is set up near by the industrial area but is not set it up inside of the industrial area, because the main purpose of an installation of this is to know the breathing air quality by the citizens living area.

4-2.3 Experts meeting on decision of air monitoring installation site

i) 3 categories of Air Monitoring Station

Air monitoring installation site has generally 3 meanings on the designated classification.

The first, general contaminated area by an unspecified air pollution source, the second, contaminated area by the emission gas from motor vehicle source (the road side station), the third, a background monitoring station is usually near by the target

contaminated city or area where is not any air contaminated substance, or a rather clean air condition there.

ii) Experts Discussion meeting

To decide on the monitoring location, this meeting has a very important role, because if it is not set it up an adequate or a representative location in the target observing area, or the city. These measured data bring us an insufficient estimation on air pollution condition, or sometimes making a wrong judgement to be taken an enforcement action by the authorities.

Therefore, the meeting members must be consisted of the experts on a micrometeorological, a topographical, a well experience of air monitoring study and an expert on data analysis specialist. And also, the members should be studied on concerning technical references and taking a visit on observation tour where has already installed on the well arrangement for these distributions.

4-3 Setting up air pollution measurement laboratory belongs to Pak-EPA

It is very important enforcement tools to inspect the emission gas quality in order to check the level with the emission Standard or (regulations), by provincial EPA's, before or after the establishment of the Air Quality Standard.

At same time, an analytical ability is required for achievement of 2 purposes, the one is to take a sample at the place where the residential people has a complaint of the air pollution influence to them.

The second, it is also important to take a sample at the emission source (a chimney) to analyze what is an air quality where occurs the area of the complaint. Then those analytical data show where the origin of a polluted substance comes, and the next information is also very important to inform us to take a progressive step for taking the countermeasures in the emission processes.

In any developed country, the speed of taking an adequate enforcement procedure by the authority, there is a much different response time and the quality of technical implementation before the installation of using the measurement tools or after that.

The final recommendation to the Environmental authority is to be determined the level up of officers technologies who has how long being experienced on the field survey and the knowledge of emission process etc., because the measurement data and to take an inspection on the process of the emission, and take an implementation of enforcement is surely required.

4-4 Discussed Parameters of Pollutant in the Future

4-4.1 Necessary Toxic Heavy Metals Cd, Cl₂, HCl, F, Pb

Table-15: Toxic Gas Emission Standard at National Level

Unit: mg/Nm³

Substances	Emission Standard	
Cadmium and its compounds	1.0	
Chlorine	30	
Hydrogen Chloride {	refuge incinerator	700
	chlorine	80
Fluorine and its compounds {	ceramic process etc.	10
	electrolyzing	1.0
	phosphatic acid fertilizerreaction process	15
furnace	20
Lead and its compounds {	ceramic process	20
	copper and lead refining furnace etc.	10
	etc.	30