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Environmental Law and Air Pollution in U. A. E.

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Introduction:

The serious impact of air pollution is of great concern to both citizens and authorities of all communities in the world(1). Everybody hopes to breathe clean air, and every government wishes to keep its country as environmentally pure as possible, free from any kind of pollution, with a healthy clear atmosphere.

However, industrial processes, power generation, motor vehicles, burning of wastes and other sources of pollution tend to pollute the air to which the general population is exposed in almost all countries.

This brief study is concerned with air pollution in the United Arab Emirates (U.A.E.), particularly in the Emirate of Abu Dhabi. Its objective is to define present conditions of air protection, to state whether or not a problem relating to the air in the country exists, and to focus the attitude of environmental law towards the question.

The existence of an adequate legislation, supported by regulatory standards or guidelines became indispensable for air protection and control of environmental pollution in any state in the world.

The U.A.E. like many other countries, lacks basic legislation and regulatory standards, applicable throughout all its territories. There is no federal act that provides for an integrated approach for tackling environmental problems relating to either the whole environment or the only air pollution in the country(2).

Many governmental activities reveal the environmental concerns and commitments to the protection of the air as well as the other elements of the environment by the authorities of the U.A.E. However much is being done for keeping public health and developing general welfare; it rests inextricable to enact an effective air pollution legislation to protect the atmosphere of the country. It may be separated or incorporated in a whole environmental law.

(1) Pollution emissions cause widespread damage across national and continental boundaries. David Hughes, Environmental law, p. 279.

(2) It is necessary to have clear vision of all conflicting values in the society before enacting environmental legislation. This vision - called policy - is translatable into a legal framework which is the law. Paras diwan, Environment protection, p. 113.
As late as 1991 the Emirates of Dubai promulgate an environmental legislation including a specified section for air protection. It tries to provide for an integrated approach for tackling environmental problems relating to pollution; but it is applicable only in in the Emirate of Dubai(1).

Air pollution is defined by the ordinance of Dubai as well as by many legislations as "The presence in the air of any substance in quantities, characteristics mechanism, or duration causing any change in the physical, chemical or biological constituents which would bring harm to human, animal, or vegetation life or buildings and adversely affect life or property"(2).

**Air pollution sources:**

Sources of air pollution can be generally divided into three categories. The approach to pollution control, problems of implementation and success of enforcement vary from one source to another(3). These three categories are industries, vehicles and domestic sources.

In the atmosphere of the U.A.E. there are various important air pollutants such as sulphur dioxide, suspended particulate matter, carbon monoxide, nitrogen oxide and lead. Industrial activities, vehicular traffic and combustion of fuels contribute to creation or activation of these pollutants(4). But the more important sources of pollution are:

- Vehicular traffic.
- Industrial activities.

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(1) Dubai is the active commercial centre of the U.A.E. Its location on a vital part of the Gulf and its famous creek enhanced its commercial activity. Therefore, keeping its environment clean and unpolluted represents a major priority for its government.


Vehicular traffic:

Most vehicles running on the roads of U.A.E. are, fortunately new or recently manufactured. Recently pollution due to vehicles is primarily intended to be controlled at the time of manufacture, though some changes in the design and installation of suitable appliances. However, intensive vehicle exhaust can be strongly felt within certain at high traffic times.

Emissions from motor vehicles are considered the main source of pollution affecting people in Abu Dhabi city, because of the close road vehicles to pedestrians, carbon monoxide, nitrogen oxides and lead are pollutants largely associated with motor vehicles exhaust, especially at the roadside as well as away from busy roads.

Smoke emissions from diesel vehicles, including buses, were observed as a potential nuisance and a likely contributor to the soilings and clothes in the city(1).

Unfortunately, there are no legislative rules for controlling motor vehicle emission in the U.A.E. Hence, consideration must be given to the setting of motor vehicle emission limits, along the lines already used in many other countries. The licence of vehicle should not be issued by competent authorities if its emission does not meet the set standards. Decisive prosecution should be available in case of non-compliance with adopted emission standards by any vehicle, even if it is a public one.

Traffic organization should be based on a study of traffic flow statistics relating to density, speed and vehicle types, in order to reduce the impact of traffic emission. Lead mixed with petrol could be banned or minimized.

In the more polluted and high traffic intensity areas pollution due to vehicles can be controlled by restricting the use of certain types of

fuel. A ban on petrol-driven or diesel-driven vehicles may be imposed. Running of tankers may be also prohibited on certain roads.

The federal government would predicate emission standards and give necessary instructions to regional transport authorities, in order to bind every vehicle possessor over to keep his vehicle safe and in compliance with emission standards and all other conditions.

**Industrial Activities:**

Petroleum industries in the U.A.E. are supposed to be the major air polluting source which comprehensive and individual pollution practicable control measures. Rapid growth in development of energy-based industries are testing the ability of the state Pollution Control Commission to keep the air clean.

But till now pollution control in such industries is almost voluntary. It appears that the responsible behaviour of many organizations, especially in the petroleum industry, has prevented any widespread deterioration of the atmosphere. May be these organizations wish to introduce self-environmental control before, rather than after, serious pollution problems occur and incite the authorities to take compulsory measures or enforce legislative rules.

Industrial sources account for more than 99% of the total sulphur dioxide emissions. These are principally associated with offshore sources notably flare stack emissions. The two flare stacks on Das Island comprise collectively the largest source of sulphur dioxide emissions in the Emirate. This situation is likely to continue until 1993 when a new desulphurization plant comes until operation(1). The fractionate plant at the Ruwais Industrial Complex is the second largest sulphur dioxide emitter in the Emirates(2).

In oil producing areas of Abu Dhabi, large volumes of gas produced in association with oil have been disposed of by burning, be-

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(1) Environmental Protection Study, op. cit., n. 17 & 50.
cause it seemed that there is no use for it. This gas was one of the most important pollutants of the atmosphere in the state.

In 1972, the Das Island gas liquefaction project was established(1). Its plant was officially inaugurated on 4th October 1977, and it was equipped with latest developments in gas technology in the world. It remains the only one of its kind in the Gulf region. It harnesses this gas and transforms it from a valueless product into a precious clean source of energy, in a totally safe and reliable manner.

On one occasion a small amount of associated das product was flared due the late arrival of a vessel. But this problem was minimised with the continual adjustment of the shipping programme according to changes in the production programme. Additionally, the capacity of the storage tanks to contain the product stocks has been fully utilized.

The ordinance or the environmental protection of Dubai obliges the owner of any industrial establishment to use the best practicable means to prevent the emission of noxious or offensive substances from the site, either directly or indirectly. He should also render harmless or inoffensive such substances whenever necessarily discharged(2).

Subject to this ordinance dark smoke should not be emitted from the chimney of any building, or from any industrial or trade premises, or from any other site. But the emission of dark smoke caused by the starting or industrial plant or by the burning of any prescribed matter is exempted during a permitted period, under control of the municipality(3).

"Owners of industrial premises, whose licenced economic activities require the discharge of waste to the atmosphere, shall take into con-

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(1) Das Island is a remote location, 100 miles off the northwest coast of the U.A.E. accessible only by air and sea. In this Island an advanced gas liquefaction technology works constantly to liquefy, store and export liquefied natural gas which is found in gas reservoirs that are totally independent from oil, and associated gases which arise naturally in the course of crude oil production.

(2) Article 29.

(3) Article 30.
sideration that grit, dust or gases from chimneys of other outlets must not exceed, at any time, the limits prescribed in the executive regulation"(1). They shall record measurements, make modifications to any chimney, maintain apparatus, and take the best practicable methods to prevent and minimize the emission of these pollutants from any controlled outlets or other sources(2). The height and design of the chimney shall be approved by the municipality and must be adequate to prevent the emitted pollutants(3).

**Air quality standards:**

Neither federal in the U.A.E. nor local or emirate legislation laid down standards for the air quality in the entire country or any emirate.

It is irrational at the end of the 20th century to still have imperfect knowledge of the state of the major components of the air we breathe in spite of its dangerous impact on our life and health. Therefore continuous air monitoring is an essential part of air pollution control. The air pollution monitoring stations established in U.A.E. may form a national network on the federal level, and some of these stations may perhaps be included in the Global Environmental Monitoring System (GEMS) of the United Nations Environment Programme (UNEP).

The collected data indicates the ambient air quality and provides valuable insights into the environmental impact of industrialisation and urbanisation in the country. It gives a good idea regarding the degree of success of the air pollution control. It would be used as a baseline for the development of air pollution standards in the U.A.E.(4).

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(1) Article 31.
(2) Article 32.
(3) Article 24.

The network will monitor trends, provide an early warning in the event of a deterioration in the air quality, and to identify the most significant sources of air pollution. Monitoring should be carried out for all pollutants according to local circumstances.
Information on existing criteria from a variety of national and international sources has been critically assessed and applied to the Emirate of Abu Dhabi in order to examine and develop its air quality criteria. Two kinds of criteria have been proposed:

1. Air quality standards that should be legally enforceable. It is proposed for pollutants which are widespread in the environment, and for which there is a reasonable base of information on their effects, such as nitrogen dioxide, sulphur dioxide, ozone, carbon monoxide, and airborne lead. If it is exceeded the enforcing authority must draw up a plan to take corrective action to meet the standards.

2. Air quality Guidelines that should be considered as a long-term objective. If air pollution levels are below the guideline value there is probably no significant pollution problem. Guidelines have been drawn mainly from criteria published by the World Health Organization, taking into account particular circumstances which are relevant to the Emirate. Guidelines have been proposed for a number of pollutants and the general basis for it has been the annual mean concentration.

**Air emission standards:**

Standards for emission of air pollutants into the atmosphere from different sources, especially industries and automobiles, should be legislatively stipulated and easily enforceable.

There is no federal emission standards applicable over the entire country, and every source of pollution has to comply with wherever it might be located in the U.A.E. But emission standards locally applicable on emirates level and according to its circumstances exist only in Dubai.

Article 31 of the Environmental Protection Ordinance of Dubai stipulates that grit, dust of gases from chimneys or other outlets must not exceed, at any time the limits prescribed in the executive regulations.

The laid down emission limits need to be regularly revised, in order to be more effective in protection the atmosphere.
Public Health inspectors are authorised to enter and inspect any industrial premises engaged in and industrial activities that create the emission of smoke or gases. They must examine any process causing the emission, ascertain the quantities of substances discharged into the atmosphere, conduct any such tests necessary for the implementation of these regulations, call for any relevant information, and take samples for examination(1).

Violation of any of the provisions of the environmental ordinance or regulations of Dubsi has been made punishable with fine, provisional closure of premises or annulment of license(2).

Conclusion:

There is need for more rigorous air pollution control measures, not only to protect human health but also to safeguard natural resources from the detrimental influences of human activities.

A central legal instrument for air quality policy is a federal clean air law. Lack of such a law represents a main reason of atmospheric pollution in the Emirates. Therefore a federal clean air legislation should be issued either independently or incorporated in an integrated environmental law. A more effective control of air pollution necessitates severe dealing with contraventions of its rules.

The suggested environmental law must include:
1 - Environmental protective rules relating to all sources of pollution.
2 - The delegation of powers to specified agencies such as Ministry of Health, specialised authorities and municipalities.
3 - Distribution of environmental competences between the federal the federal government and Emirate authorities.
4 - Air quality standards and emission standards.

(1) Article 35.

(2) Imprisonment is used as a more effective punishment for violation of environmental law in advanced countries. India also adopted the same orientation. M.N. Rao & H.V.N. Rao, Air pollution, 1989, p. 287.
The Supreme Environmental Protection Committee, as a central board in the U.A.E., can play an important role in the prescription of the air quality standards.

The country can be classified into four main categories as indicated below:
1 - Industrial area.
2 - Traffic area.
3 - Residential area.
4 - Sensitive area.

Major parameters shall be prescribed for the air quality standards, and shall be stringent in Category 2 more than in Category 1........ etc.

Industrial activities, particularly in the field of petroleum, and vehicular traffic are the most important sources of air pollution in the U.A.E.

Air pollution regulations will predicate that air pollution control ought to be done by industries through a proper process technology together with pollution control equipment and permissible limits of emission:
1 - It would determine the safer and less pollutive processes technology to be followed.
2 - It must specify any appliance to be installed and operated or prohibited from being operated especially the requirement in respect of stack heights and dimensions.
3 - It should prescribe the permissible limits of emission.

Relating to vehicular pollution reductions in the lead content of petrol should be dictated in order to reduce airborne lead levels. Intensive vehicle exhaust can be minimized by controlling motor vehicle emission in order to annul the licence of any vehicle if its emission exceeds the limits that will be legislatively set.