

TOURISM BETWEEN ENVIRONMENTAL CONDITIONS and POLLUTION IN EGYPT

Tourism is considered a main source of national income in foreign currency to the government. Tourists are attracted to visit a country, not only by the site-seecings, but also by other factors including safety measures for their lives, cost of the trip and most important the level of sanitation in respect to safety of food and drinks and to avoid the risk of exposing themselves to local polluttional problems.

It is estimated that 25 million tourists will visit Egypt by 1990 for many purposes including: recreational, cultural, medical, and to enjoy leisure time along the Egyptian coasts and beaches at the Mediterranean and Red Seas.

Most important is to visit our historical sites in Luxor and Aswan and to spend few nights in floating hotels crossing the River Nile.

It is anticipated that about one million tourists from different nationalities will visit Aswan and Luxor by 1990, 40% of them prefer the Nile as a means of transportation.⁽¹⁾

To attract tourists to our country, the government should provide the basic sanitary measures (safe water supply, proper and sanitary disposal of human excreta and proper and sanitary disposal of solid wastes).

In addition, the government should control pollution problems of air and water and protect the tourists from high noise levels and the risk of swimming in polluted beaches.

(1) The Five Year Plan 1986/87 - 1991/92 of Ministry of Tourism, Cairo.

EXISTING ENVIRONMENTAL CONDITIONS:

1. Water in Egypt

Since ancient times, man exploited the natural resources to obtain his needs for his existence. In doing so he adversely affected the natural balance that was previously present. He became, himself, a victim of his own activities and doings.

Although development is based on exploitation of the natural resources, yet the side effect and/or products may affect man and hinder the process of development itself. It is now agreed upon that a natural balance should exist while developing a country in order to maintain a proper quality of the environment.

Now Egypt suffers from the limited quantity of water required for various uses, the increased population, and limited area of cultivated land. All are indicators of a fact that is, development is a must to overcome the scarcity of our natural resources.

1. WATER SUPPLY IN EGYPT:

There are two sources of water supply:

- a) the River Nile
- b) underground water

Many provinces depend on surface water as a source of drinking water, such as Cairo, Alexandria, Canal cities, Behera, Kafr El Sheikh and Dakahliya. The water is treated and chlorinated.

Other provinces depend on underground water such as Sinai, the New Valley and rural areas in general.

These sources are meeting the Egyptian drinking water standards which are set by the Government and according to the recommendation of the World Health Organization.

The daily per capita consumption of water varies from 300 litres in Cairo and Alexandria to 40 - 120 in other provinces.

Due to the fact that many of the network are old and the poor quality of sanitary fittings in dwellings, this amount of water produced for drinking purposes is not enough. It is estimated that 50% of the water produced is lost. The government has to overcome this problem since the amount lost finds its way to the sewers and causes flooding of streets by sewage.

The present production of water is 3 million cu.m. per day for Cairo, 1 million cu.m. per day for Alexandria and it increases during the summer, and 3 million cu.m. per day for the other provinces.

It is noticed that, with the exception of Alexandria which is the principal summer resort area for Egyptians and tourists, other areas that attract tourists are not well supplied with water.

El-Arish depends on underground supply which has a high salt content, the Red Sea resort areas are supplied partly from Qena and partly by limited supply from local small desalination units.

The North-West coast and Mersi Matrouh are supplied by water transported by a pipe from Alexandria and from small local desalination units and by water transported by means of trains.

All these areas are attractive to tourists because of their natural beauty and quietness, but because of the limited water supply and sanitary purposes, tourists prefer to purchase bottled water for drinking.

This behaviour gives an impression that our locally produced water is not fit for human consumption. A false belief of this act is imitated by some of the Egyptians who carry in their hands the bottles of waters and add to the erroneous impression that our water is not suitable for drinking.

To overcome this problem, the government should give priority to supply these areas with enough water in quantity and in good quality.⁽¹⁾

The River Nile: (as the main source of water)

The most important sources of pollution of the Nile are:

1. Industry:

There are many industries located along the river from Aswan to Delta region. Most of these industries belong to the government. They discharge many types of pollutants including toxic chemical substances, organic materials, coloring materials and floating substances such as oils.

All these affect the quality of our natural water and give poor sight-seeing to tourists who prefer spending their leisure time in activities linked to water in the River Nile. Such activities include water skiing, sailing, swimming in International and local competitions.

In a recent study, it was found that the major industrial polluters are food, textile, chemical and metal industries. The study covered 234 factories and it was found that only 7 factories provide treatment for their wastes

(1) National Report on Environment In Egypt, Submitted to the Environmental Affairs Council, Dec. 1985.

before they are discharged into the receiving water channels, 57 factories provide partial treatment and 170 factories provided no treatment at all.

The government should take drastic measures in order to prevent such procedures because the River Nile is the main source of water in Egypt. Cruising hotels and restaurants, travelling through the Nile making various round trips from Cairo to upper Egypt and returning again to Cairo, are a great source of pollution although they are considered one of the important features of tourism.

These cruising restaurants get rid of their wastes in the River Nile, thus saving a lot of money by using an easy method instead of using the right and correct way to get rid of their wastes.

A lot of diseases are carried by the water also, specially by the still water. These diseases spread as a result of urinating in the River Nile and then swimming from one person to the other.

Another kind of pollution is in the country-side where people wash their utensils, clothes and even their cattle in the River Nile.

2. Agricultural Drains:

Agricultural drains were originally used to receive the agricultural waste water from cultivated lands. Now the drains receive sewage from different cities and villages in urban and rural areas ; in addition to pesticides used in agriculture.

In a recent study done by the Minister of Health, it was found that 67 drains discharge into the river course from Aswan to Cairo. The total amount of wastes are 2882 million cu.m. per year, of them 312 million cu.m. per year of industrial origin and the remaining from agricultural drainage.

3. Insecticides & Chemical Fertilizers:

After the construction of the High Dam, the river does not receive much of the clay which add a fertile layers year after year to our cultivated land.

As a result, the fertility, crop production and yield of land decreased.

To overcome this problem, and to maintain the level of productivity to satisfy the ever increasing population needs, chemical fertilizer and insecticides were used.

The overuse of these chemicals reaches our surface water in the rivers and canals which we use and undoubtedly these materials affect not only the quality of water but also they are considered toxic to man, animal and fish.

4. Navigation:

Vessels crossing the Nile and its branches pollute them by the discharge of oils and organic wastes of human origin.

There are 65 floating tourist hotels operating mainly from Luxor to Aswan. The capacity of each varies from 80 to 200 passengers. They discharge human wastes directly into the river. According to law no. 48 for 1982, they were ordered to treat wastes, and 45 of them complied with the order.

This co-operative step from the part of the owners of these floating hotels has improved very much the level of sanitation inside the vessels and protected the river from their wastes.

There are also 500 passenger ships for non tourist citizens of a capacity varying from 10 to 300 passengers, 1600 cargo boats and 4000 small sailing boats that never treat their wastes⁽¹⁾

We should take utmost care of the River Nile as it is the main source of water as we depend on it in every thing.

Many developed countries have set laws forbidding throwing anything in their rivers, and the government in Egypt should start taking some steps in order to prevent this disaster and take proper measures to put the law no.48 1982 into active effect.

(1) Dr. Ali Ahmed S.: Assesment of compliance of industry and sewage works with law 48/1982 for the protection of River Nile and water ways. A master thesis submitted to Ain Shams University, Faculty of Medicine, March, 1986.

2. Solid Wastes (Garbage)

Solid wastes include garbage from homes and refuse from streets. In each of Cairo and Guiza cities, there are specialized organizations for the cleansing of streets, collection and transportation of solid wastes (Cairo/Guiza Organization for General Cleansing And Beautification). About 5500 tons of wastes are generated from Cairo city, of them 2000 are collected by the private sector (Zabbalin), 2000 by the Organization and the remaining 1500 are remains of construction materials are also removed by the Organization.

The Organization canceled the temporary collection sites (2000 sites) which were scattered in many populous areas and now using large metal containers to store the wastes and are evacuated mechanically into special trucks which carry the wastes to the final disposal sites. Also the Organization built a factory producing 150,000 plastic bags and sells them to the people to store their wastes in a sanitary way in their homes and for easy and sanitary handling by garbage collectors. One way of final disposal of wastes is by sanitary land fill in Nasr City, Doweqa, Abu El Soud and at km4.5 along Suez road.

A second method is the conversion of the wastes into fertilizers used in cultivated land. Two fertilizer plants were constructed, one at Shoubra with a capacity of 80 tons per day and the second in Salam city.

Other important functions of the organization include beautification of the city and planting trees in the streets to attract tourists and expand the green area.

About 1204 feddan were reclaimed into public gardens for children and people in 12 districts of Cairo. In 1985, 138349 trees were planted and in 1986 more were planted. Despite the effort made by the organization to clean and beautify the city, yet the individuals are the most important factor of making our streets dirty because they throw everything and their wastes into the streets not caring to place them in the containers put for this purpose.

Moreover, the dust blown by wind action from the surrounding mountains and desert make the city's street always dusty. Excavation work in the street represents also an important factor.

In Alexandria, collection of waste is done by zabbalin and garbage collectors employed by the local city council. The number of workers are not enough because of low salary, that is why community based organization are assisting the local council in this function.

Again individual behaviour is responsible for the unsatisfactory level of cleansing in the city especially during the summer in the beaches and streets.

Other cities, the responsibility of waste collection and disposal is in the hands of local councils and the service given is not satisfactory.⁽¹⁾

All these factors give poor sight-seeing to tourists, and make them hesitate to visit Cairo in their leisure time.

(1) Report on general Sanitation and Environmental problems in Egypt, Submitted to the Senate council by the public service committee, 1983/1984.

3. SEWAGE DISPOSAL FACILITIES

The effect of the Sewerage System on tourism:

Human excreta contain causative agents of diseases and they are composed of organic materials which must be disposed in a sanitary way otherwise they will contaminate water, soil, food, leading to the spreading of diseases such as cholera, typhoid and paratyphoid and diarrhoea diseases.

If they pollute rivers and canals, they will exhaust the oxygen content from the water channel and result in fish kill.

In urban communities, the human wastes are collected in sewerage system and then transported by gravity and lifting pumps to the sewage treatment plants before it is finally discharged into the agricultural drainage system.

The anti-pollution law number 82 for the year 1982 for the protection of River Nile and other water channels, prohibits the discharge of sewage whether treated or untreated from being discharged into the fresh water (Nile, Nasser lake and fresh water canals). It allows the discharge of such wastes into brackish water system provided, it is treated and the final effluent meets the standards set by the law (drains, brackish lakes). The law does not include the seas.

Among 170 cities, towns and urban communities in Egypt only 21 cities are served by public sewerage system and treatment plants (as shown from the following table) while the remaining cities are not served and dispose their wastes in unsanitary way.

Even the cities served only 50 to 70% of their population have their homes connected to the public sewerage system.⁽¹⁾

Cities Served with Public Sewerage System and Population Served as of 1976

CITIES	Number of Population			Type or Receiving
	Total	Served (millions)	% served	
Greater Cairo	7.5	4.8	64	Drain, Farm
Alexandria	2.5	1.3	52	Sea, Lake
Port-Said	0.3	.195	65	Lake
Ismailia	0.17	0.085	50	Drain, Lake
Suez	0.15	0.075	50	Bay
Zagazig	0.19	0.057	30	Drain
Mansura	0.3	0.18	60	Drain
Damietta	0.1	0.03	30	Lake
Kafr El Sheik	0.1	0.03	30	Drain
Mahalla	0.3	0.09	30	Drain
Tanta	0.35	0.105	30	Drain
Kafr El Zayat	0.1	0.03	30	Drain
Damanhour	0.2	0.15	75	Drain
Shebin El Kom	0.1	0.03	30	Drain
Bahya	0.1	0.03	30	Drain
Fayoum	0.15	0.045	30	Drain
Beni Suef	0.12	0.018	15	Drain
Mena	0.15	0.045	30	Drain
Assiut	0.2	0.06	30	Drain
Total (19 cities)*	13.08	7.28	56	

* Ras El Bar and Guiza cities are served and therefore total will be 21 cities. Guiza is considered part of Greater Cairo and Ras El Bar part of Damietta.⁽²⁾

- (1) Report on water and sanitary disposal of Sewage and Industrial Wastes and Environmental Problems in Relation to Development in Egypt, Submitted by the Public Service Committee to the Senate Council, Feb. 1986.
- (2) World Health Organization (W.H.O.): Environmental Impact on Health, First National Consultative Conference on Water Development, Geneva, Feb. 1982.

Please notice that cities along the Red sea and North west coast and in Sinai are not served although they are considered important areas that attract tourists.

Rural areas are not served at all the inhabitants use various types of primitive latrines or septic tanks which are not sanitary.

A summary table showing cities, which served and unserved by Public Sewerage Systems as of 1976.⁽¹⁾

ITEMS	Projects of Sewerage Systems				
	No.	%	No.	%	
1. Number of provinces	26	18.0	69.2	8.0	30.8
2. Total number of cities	168	21.0	12.5	147	87.5
more than 100,000 persons	20	16	80.0	4	20.0
10,000 - 100,000	127	4	3.2	123	96.8
2,000 - less than 10,000	16	1	6.25	15	93.75
less than 2,000	5	0	0.00	5	100.00
3. According to population:					
a. Cities with projects	13.2	7.3	55.2	5.9	44.8
b. Urban population (Total)	16.2	7.3	44.9	8.9	55.1
c. Total urban & Rural	38.5	7.3	18.9	81.1	81.1

It is important to notice that the sewage treatment plants in the 21 served cities are not functioning properly, because they are overloaded by wastes in quantities more than their designed capacities. This is due to the increased population, the increased water consumptions, and the water unnecessarily lost.

Moreover, the sewers themselves cannot carry all the domestic liquid wastes and that is why overflow and flooding of streets by sewage became a

(1) Comprehensive Social Survey of Egyptian Communities, 1952 - 1980, published by the National Centre for Crime and Social Research, Vol. 1 on Health, 1985, pp. 17-44.

daily problem in many areas in our cities, causing bad odour, nuisance, contamination of land and air pollution.

This is not a healthy sign and actually tourists are aware of this problem and become reluctant to stay longer periods to avoid the risk of exposing themselves to diseases

The following table shows the prevalence of common environmentally induced diseases (typhoid, infectious hepatitis and diarrheal diseases).

Common Water Borne Diseases in Egypt 1970-1983

	Typhoid & Paratyphoid		Infectious Hepatitis		Diarrhoeal Diseases	
	No. of Cases	Inc.	No. of Cases	Inc.	No. of Cases	Inc.
1970	9586	30.9	19031	61.4	158	0.51
1971	11825	37.7	22058	69.4	1098	3.50
1972	12860	39.5	22520	69.2	149	0.45
1973	14095	43.6	22914	68.7	165	0.5
1974	14730	43.1	23744	69.5	83	0.24
1975	11555	33.0	19659	56.2	105	0.3
1976	10040	28.0	19024	53.0	98	0.27
1977	9934	27.0	25225	68.5	128	0.35
1978	7842	30.7	20587	54.3	80	0.12
1979	6254	16.4	17953	46.0	62	0.16
1980	5471	12.8	20300	47.5	7195	16.8
1981	4521	10.4	17304	43.7	7848	17.6
1982	4275	9.6	18122	40.6	6539	14.6
1983	3929	8.6	15850	34.7	--	--

Inc. means number of cases per 100,000 people.⁽¹⁾

It is noticed that the incidence of both typhoid and hepatitis has decreased from 1970 to 1983. This is due to provision of safe water supplies and other health measures.

(1) World Health Organization (W.H.O.): Environmental Impact on Health, First National Consultative Conference on Water Development, Geneva, Feb. 1982.

Lakes and Sea Water:

1. Lakes:

Egyptian lakes in north of delta (Manzala, Borolos, Idko and Mariut and in Fayoum (Qaroun) are polluted by agricultural drain waste waters carrying sewage, industrial wastes and chemical insecticides. Lake Mariut is the most polluted lake due to the discharge of sewage from Alexandria city. This has resulted in fish kill and decreased the yield of lake to produce fish. The amount fish decreased form 9000 tons in 1950s to 2000 tons in 1960s to less than 2000 tons in 1970s. The lack of locally produced fish has increased the price of food specially animal proteins. This has been reflected on the cost spending summer holiday in Alexandria and may affect internal tourism activities.

2. Sea Coastal Water and BEACHES:

Both Mediterranean and Red coasts are exposed to pollution by oil discharged from ships crossing our territorial sea waters. The presence of oil sea fields in Suez bay, and Alamin are another source of oil pollution. The oil finds its way to the beaches by the action of sea currents damaging them and deteriorating the quality of water and sand. Swimmers find their bodies covered with thin layer of oil in Alexandria. Sewage wastes are not infrequently discharged into the sea water, causing contamination and spread diseases.

All these are factors that make the Egyptians prefer to spend their summer holidays in other countries which have clean beaches and at a reasonable cost.

The direct consequence of tourists avoiding to visit our country appears in the decline of one of the main governmental incomes gained in foreign currency.

In addition to this, the natives prefer to pass their vacation abroad, thus leading to get another loss of foreign currency flowing outside the country.

Alexandria plight Pollution poisons chic season

Alexandria and its environs are to Egypt what the Hamptons are to New York. Each year, wealthy and middle-class people try to escape Cairo's burning desert heat for the cooler, humid breezes of the Mediterranean.

Alexandria's population ordinarily grows in the summer to about four million people from three million, specially on Fridays and Saturdays-Egypt's weekend.

By midday it seems that every speck of sand is shielded by contiguous beach umbrellas stretching across the horizon. The 45-miles along corniche, the broad boulevard that traces the sea coast, is jammed with cars, motorcycles, donkey drawn carts, and beachbound pedestrians. Hundred of thousands of children frolic in the surf.⁽¹⁾

Crowds are sparse

But not so this year. The corniche is near full even during the 2 p.m. rush hour, when Alexandrians leave their offices for lunch and nap. Hotels are offering weekend packages to lure customers away from Cyprus, the favourite summer haunt this year. Reservations are not longer required even at the most popular restaurants. The benches, by Alexandrians standards, are deserted.

(1) Intergovernmental Meeting on the Protection of the Mediterranean (Convened in Barcelona, 1975)

While reliable figures are hard to come by, travel agents estimate that the tourists summer influx has plunged from a usual peak of two million to about 500,000.

The main culprit in the decline is Sewage. Alexandria is one of the few Mediterranean cities that still pumps raw Sewage into the sea close to its shores. Indeed, Alexandrians have talked of little else this summer.

"All of a sudden, Alexandria's Sewage problem has become a national problem". Said Ahmed Bahaa El Dine, a columnist for the semi-official daily Al-Ahram. "The Sewage that now covers Montazah, Aida and the other aristocratic beaches has been there for months" he said. "So why all this sudden fuss?".

"Because the first-class Egyptian travelled to Alex. for their summer vacations!" he went on. "That's Why".

"More to the point, "he continued, "Government officials with big mouths and Loud voices travelled to Alex and discovered the problem".

Role in the cabinet shake-up

In fact, the Sewage scandal was widely cited as a major cause of the recent cabinet shuffle. Commentators here said "the problem had highlighted the government's indecisiveness and inability to solve urgent problems".

The protests by the rich were particularly vocal this summer. In late August, prominent members of the Alexandria Yacht Club complained to the local officials "the presence of Sewage on their private beach," reported

Al Shaab, an opposition newspaper, several of whose editors and senior reporters also own or rent apartments here, and does Mr. Bahaa El Din.

"If this situation continues," a prominent physician complained, "Alexandria would experience not only serious economic problems, but health hazards as well".

Al Shaab reported, and several doctors confirmed, that many children who have swam in the Alex, sea this summer have contracted unusual skin rashes and intestinal ailments.

"We're seeing disorders that we haven't ever seen before," said a doctor who teaches at Alexandria University's medical college.

The local government of Alexandria whose economy is heavily dependent on the annual swimmer invasion, has been eager to escape blame. A convenient scapegoat has been found: the United States.

In late August, Al-Ahaly, another Cairo-based opposition newspaper, asserted that the local council of Alexandria had formally protested to Washington the delay in completing a long-planned desperately needed "waste water" project, at a cost of nearly \$ 1.5 billion. American officials in Cairo said they did not know of any such protest.

But they did acknowledge the project has been delayed for at least four years, partly by a dispute between Egypt and the United States over several issues. At the moment, work has been stopped by a disagreement over where the partly treated sewage should be dumped. The American support what they call an "ocean outflow" solution, which they estimate is almost \$ 500 million cheaper than any environmentally superior to the "desert outflow" that Egypt wants.

As a temporary solution, city officials approved a 1000- foot extension of the pipeline that carries raw Sewage into the Mediterranean. The extension completed in May was disastrous because the water currents carried the sewage back to the shore. Finally the government approved the "desert outflow" (1)

(1) El-Ahram : (The Protection of Environment in Egypt), 36465, 10 Oct., 1986.

4. AIR POLLUTION

What is air Pollution?

Air pollution is the effect of pollutants on the human nature and environment. Pollutants can be either natural or industrial.

Natural Pollutants

These can be the gases which result from volcanoes and their effect on the nature and plants and Local dust such as the "Khamsein" in Egypt which spoils the plants and crops.

Industrial Pollution

The industrial pollution of the air is probably the oldest. It could be considered to have begun, in a minor way, with the discovery of fire & the burning of wood.

Air pollution injury falls into three main categories: The injury to human health. The injury to amenity & the economic injury. Lately discovered and the most important is the hospitality industry. The injury to tourism.

Among the constituents of the general air pollution smoke was very long the most obvious.

Smoke abatement became the standard phrase for efforts to reduce the pollution, although one of its attributes was the smell & taste of the sulphur dioxide that accompanied it.

Smoke abatement measures were included in the public health legislation. Health is indeed the most important factor in the drive for clean air.⁽¹⁾

People made the tourism, if people are healthy they'll travel, & the tourism will increase.

They search for clean air, but avoid going to a place where there's air pollution, they travel to have fun not to get sick.

There is no conclusive evidence that air pollution causes lung cancer, but probably it may be one of the factors involved.

The incidence of this disease is again higher in towns than in the rural areas.

There are also other effects of air pollution, impossible to reduce to statistics, such as the depressive psychological effects of living in a grimy & gloomy environment.

The harmful effects of air pollution on human health are paralleled by the wide spread & divers injury done to plant life.

Vegetation in and around the conurbations and industrial places is often seriously affected and damage may occur at considerable distances from the source of the pollution.

A classical series of experiments at Leeds, for instance, showed that the growth of plants in different parts of the city and its environs was inversely proportional to the measured amount of pollution.

(1) Grandjean & A. Gilgen : Environmental Factors in Urban Planning, Zurich, 1973, p. 32 (Translated).

Many species of plants will either not grow, or will grow really feeble, in a polluted atmosphere, and these may mean heavier costs, or reduced productivity, in agriculture and market gardening.

It is depressing, it intensifies drabness and urban squalor, it lowers standards of cleanliness and the appreciation of beauty.

And now if the air pollution effects on plants and it destroys them, it has a very great effect on the human health, do you think you'll find a person who goes to a place where there's air pollution! They leave it O.K. but there's a doubt that they go there by themselves, it is a suicide.

Experiments show us that the countries where there's air pollution, tourism decreases and vice-versa. Because, beside that it destroys health-it destroys the beauty of any country, then why will be there any tourist ?

The damage and the labour and materials involved in reparation and maintenance are among the many economics consequences of air pollution.

Although most of the major pollution associated with the first Industrial Revolution have been eliminated or controlled, the automobile now has a wider and more pervasive impact than any other fact of modern technology.⁽¹⁾

Plus the increasing discharges from aircraft and those from major centres of technology such as oil refineries, all this directly injure man and his environment. Buildings are corroded, Antiquities are corroded. Animals and plants are affected. And the whole plants may, by time, be charged with the vast quantity of carbon dioxide being emitted into the atmosphere.

(1) Johnson, K.L & Heller : Carbon monoxide and Air Pollution from Automobile Emissions, USA, 1968, pp. 67-68.

AIR POLLUTION IN EGYPT

In Egypt air pollution, is approaching a very dangerous point. Air pollution is rapidly increasing due to the exhaust coming out of cars and buses (all means of transportation). This is very dangerous to the human beings as this exhaust causes cancer in the respiratory system. Standing in the Mokatum and looking down at Cairo, one can not see it clear due to the polluted air in the atmosphere.

Odour pollution is caused by some professions such as tanning of leather. One can smell the odour in the Madabegh district which causes irritation to people passing in that area, but this does not cause real harm to the people. Natural pollution exists in Egypt also and we can see that presented in the "Khamsin" wind, which blows from the desert accompanied by sand and dust.

Industrial Pollution in Egypt

We, Egyptians, must admit that the air pollution plays a big role in our life. The most important is the air pollution that comes from industry.

The most important industrial cities in Egypt are Alexandria, Cairo & its suburbs Mustorod - Helwan - Maadi.

When we watch the sky of any of these cities we will notice black clouds all over the place as a result of the smoke that comes out of the chimneys of those factories that is full of carbon dioxide that effect people's health and plantation. Therefore, this smoke has become one of the reasons that makes tourists get away form the city.⁽¹⁾

(1) Roger Revelle : Carbon Dioxide and World Climate, U.S.A., 1982, p. 35.

Such a scene is finally losing the popularity in Egypt. Until recently the belching stacks of the postrevolution industrial program were considered a mark of progress and beauty. But the government is fully aware that the price of this progress is grievous indeed.

The air in Helwan and Maadi is close to unbreathable, mainly due to the Cement factory there.

The plant was shown to dump 293 tons a day of cement dust into the atmosphere, of which 195 tons per square mile fall daily to the ground. There are no quantitative figures on the level of airborne dust in Helwan, but it is enough to block 12% of solar radiation during mid-day and more than 50% at sundown. It is enough to kill almost all the trees in the town.⁽¹⁾

Rich with its sulphuric water, Helwan is known to be one of the International areas for Medical Treatment Tourism.

However, the cement dust generated from the factories which are widely spread in the area has raised the pollution and generated a negative aspect on tourism.

Government leaders are aware of this, and steps have been taken to avoid industrial pollution.

The Ministry of Industry Decree No.380 of 1982 requires any new private industrial project to conform to pollution emissions standards before being issued an operating license.

(1) Winklestein, W. and others : The Relationship of Air Pollution and Economic Status to Total Mortality and Selected Respiratory System in Man, U.S.A. 1967, pp. 162-169.

G.O.F.I.* is purposely hitting the problem based on with Weston International has selected 15 of the 227 public sector plants with the most serious pollution problems for immediate attention. However, as the amount of money available (\$ 314 million grant from USAID) is limited, they have selected only six installations of pollution control equipment.

The selection was based on a best return-on-investment standard, according to Mr. Tomlinson. These projects evolve organic products, chemicals and leather, as well as for Cement plants. Among the pollutants to be recovered are ammonium, mercury, chromium and Cement dust.

It is the Cement industry which best illustrates what Weston and G.O.F.I. want to demonstrate, there are immediate economic returns on pollution control.

According to estimates, the cost of installing electrostatic precipitators and bag filters in for plants (to recover 95% of Cement dust emissions) is \$ 20,2 million plus \$ 2 million in annual operating and maintenance costs.

But as the value of the recovered Cement is more than \$ 12 millions a year, the time for capital recovery is 2 to 2.5 years. Other industries demonstrate longer costs recovery periods, but they still fall within the realm of economic feasibility.

ACTION AGAINST AIR POLLUTION

Domestic smoke is now recognized as the most serious single factor in the general pollution, and under the clean air. This act is being steadily

* G.O.F.I. : Government Office For Industrialization.

abolished by the creation of smoke control areas, or smokeless zones, in which all smoke emission is prohibited *to encourage tourists to stay in these areas during their vacation.*

There are at present no powers for controlling petrol engine emissions, but here there are hopes for substantial reductions in both of the principal pollutions carbon monoxide and hydrocarbons.

These include fuel injection systems and modified carburetors.

Much work is also being done on electric battery vehicles, and advances here would be of a great value, specially in congested streets in urban areas.

Progress towards clean air is therefore being made in all quarters, but much more needs to be done.⁽¹⁾

(1) Grandjean & A. Gilgen : op. cit., pp. 6-7.

3. Prevention of sulphur dioxide:

In comparison with smoke and dust, sulphur dioxide is a form of atmospheric pollution which is difficult to prevent, although there are simple ways of appreciably reducing the amounts emitted into the air.

The methods available for preventing or reducing damage by sulphur dioxide fall into 4 classes, the first 2 are closely connected:

1. Using relatively sulphur free fuels as wood, methane, petrol, paraffin and gas oil. Electric power, solar or nuclear generating stations.
2. Removing sulphur from fuels before burning.
3. Removing sulphur dioxide from the products of combustion.
4. Emitting fuel gases into a region of the atmosphere where they are relatively harmless by using tall enough stacks.⁽¹⁾

(1) Meetham, A.K. & Bottom, D.W. : Atmospheric Pollution, its History, Origin, and Prevention, Oxford 1981, pp. 181-202.

RECOMMENDATIONS

The harmful effects of atmospheric pollution are so wide spread and varied that they are difficult to summarize.

There is no doubt that atmospheric pollution in the concentration in which has been allowed to occur, particularly in urban areas caused damage to property and made living conditions generally less pleasant.

Although the damage caused by pollution has been reduced during recent years, human health; animal and plant growth and survival are still affected intentionally.

PREVENTION OF ATMOSPHERIC POLLUTION

1. Prevention of smoke:

The problem of eliminating smoke is a complex one; because it is essential to convert coal-burning appliances in old plants as well as to see new factories have their appliances designed for smokeless fuels.

2. Prevention of ash and grit:

Particles of ash and grit are emitted from chimneys if two conditions are fulfilled: if particles are available to mix with the gases in the combustion chamber, and if the velocities of the gases in the fuels and stack are sufficient to carry the particles away.

THE SOUND / NOISE POLLUTION

In November 1977, an international Symposium held in London attracted six hundred learned members of European acoustical societies; members of the WHO; Government ministers and research scientists.

They gathered to focus national attention on a too frequently neglected type of urban pollution: NOISE.

The message they collectively delivered was one that could not be lightly glossed over: our modern industrialized societies are getting noisier; and if they continue in this way many people will suffer serious psychological and physical harm.⁽¹⁾

EFFECTS OF NOISE ON TOURISTS

Effects on the autonomic nervous system

Noises can cause narrowing of the blood-vessels and hence raise the blood-pressure. The respiratory system is even more sensitive, and reacts by breathing more rapidly.

But if the noise is excessive they become a stress system and irritate the tourists who become reluctant to stay longer periods in such noisy place.⁽²⁾

(1) The Times : (Effects of noise on people), 16 Nov., 1977.

(2) Committee on the Problem of Noise, 1963, Noise: Final report. London : H.M. Stationary Office.

Disturbance of sleep:

Disturbance of this sort prevents sleep from having its restorative effect, and brings about chronic weariness, with all its consequent ill-effects on will being, efficiency and liability to illness.⁽¹⁾

CONCLUSION

To attract tourists, the government must protect its natural resources from pollution and enforce existing laws, as it is estimated that 25 million tourists will visit Egypt by 1990.

The government should provide its cities with basic sanitary measures including safe water supply in good quality and enough in quantity, to improve sewerage system, making progress towards clean air and to protect the tourists from annoyance which caused by the noise in the crowded places.

At last a great attention should be paid by local governments to clean their cities and organize mass campaigns to educate the public to keep the environment clean.

(1) A. Bey - Wickrama & others : Mental Hospital Admissions, Noise, London, 1969.

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