

M. C. Mehta (Taj Trapezium Matter)

Vs

Union of India and Others

Writ Petition (C) No. 13381 of 1984

(Kuldip Singh, Faizanuddin JJ)

30.12.1996

JUDGMENT

KULDIP SINGH; J. –

1. Taj Mahal - The Taj - is the "King Emperor" amongst the World Wonders. The Taj is the final achievement and acme of the Moghul Art. It represents the most refined aesthetic values. It is a fantasy-like grandeur. It is the perfect culmination and artistic interplay of the architects' skill the jewellers' inspiration. The marble in-lay walls of the Taj are amongst the most outstanding examples of decorative workmanship. The elegant symmetry of its exterior and the aerial grace of its domes and minarets impress the beholder in a manner never to be forgotten. It stands out as one of the most priceless national monuments, of surpassing beauty and worth, a glorious tribute to man's achievement in Architecture and Engineering.

2. Lord Robert in his work "Forty-one years in India" describes the Taj as under :

"Neither words nor pencil could give to the most imaginative reader the slightest idea of all the satisfying beauty and purity of this glorious conception. To those who have not seen it, I would say, - Go to India; the Taj alone is well worth the journey."

A poet describes the Taj as under :

"It is too pure, too holy to be the work of human hands. Angels must have brought it from heaven and a glass case should be thrown over it to preserve it from each breath of air."

Sammuel Smith in his book about the Taj explains the impact as under :

"We stood spellbound for a few minutes at this lovely apparition; it hardly seems of the earth. It is more like a dream of celestial beauty, no words can describe it. We felt that all previous sights were damned in comparison. No such effect is produced by the first view of St. Peter's or Milan or Cologne Cathedrals. They are all majestic, but this is

enchantment itself. So perfect is its form that all other structures seem clumsy."

3. The Taj is threatened with deterioration and damage not only by the traditional causes of decay, but also by changing social and economic conditions which aggravate the situation with even more formidable phenomena of damage or destruction. A private sector preservation organisation called "World Monuments Fund" (American Express Company) has published a list of 100 most endangered sites (1996) in the World. The Taj has been included in the list by stating as under :

"The Taj Mahal - Agra - India

The Taj Mahal, marble tomb for Mumtaz Mahal, wife of Emperor Shah Jahan, is considered the epitome of Mughal monumental domed tombs set in a garden. The environment of Agra is today beset with problems relating to the inadequacy of its urban infrastructure for transportation, water and electricity. The densest pollution near the Taj Mahal is caused by residential fuel combustion, diesel trains and buses, and back-up generators. Constitution of the proposed Agra Ring Road and Bypass that would divert the estimated daily 6,50,000 tons of trans-India truck traffic financing. Strict controls on industrial pollution established in 1982 are being intensively enforced following a 1993 Supreme Court Order. The Asian Development Bank's proposed \$300 million loan to the Indian Government to finance infrastructure improvements would provide the opportunity to solve the chronic problems. Agra contains three World Heritage Sites, including the Taj Mahal."

4. According to the petitioner, the foundries, chemical/hazardous industries and the refinery at Mathura are the major sources of damages to the Taj. The Sulphur Dioxide emitted by the Mathura Refinery and the industries when combined with Oxygen - with the aid of moisture - in the atmosphere forms sulphuric acid called "Acid rain" which has a corroding effect on the gleaming white marble. Industrial/Refinery emissions, brick-kilns, vehicular traffic and generator-sets are primarily responsible for polluting the ambient air around Taj Trapezium (TTZ). The petition states that the white marble has yellowed and blackened in places. It is inside the Taj that the decay is more apparent. Yellow pallor pervades the entire monument. In places the yellow hue is magnified by ugly brown and black spots. Fungal deterioration is worst in the inner chamber where the original graves of Shah Jahan and Mumtaz Mahal lie. According to the petitioner the Taj - a monument of international repute - is on its way to degradation due to atmosphere pollution and it is imperative that preventive steps are taken and soon. The petitioner has finally sought appropriate directions to the authorities concerned to take immediate steps to stop air pollution in the TTZ and save the Taj.

5. The Report of the Expert Committee called "Robert Environmental Impact of Mathura Refinery" (Varadharajan Committee) published by the Government of India in 1978 has been annexed along with the writ petition. Para 4.1 of the conclusions therein is as under :

"There is substantial level of pollution of Sulphur Dioxide and particulate matter in the Agra region. The possible sources are all coal users consisting of two Power Plants, a number of small industries mainly foundries (approximately 250) and a Railway Shunting Yard. As far as suspended particulate matters are concerned, because of use of coal, contribution will be substantial. Even though the total amount of emission of Sulphur Dioxide from these sources may be small, on account of their proximity to the monuments, their contribution to the air quality of the zone will be considerably high."

Varadharajan Committee made, among others, the following recommendations :

"Steps may be taken to ensure that no new industry including small industries or other units which can cause pollution are located north-west of the Taj Mahal. ... Efforts may be made to relocate the existing small industries particularly the foundries, in an area south-east of Agra beyond the Taj Mahal so that emissions from these industries will not be in the direction of the monuments. Similar considerations may apply to large industries such as Fertilizer and Petrochemicals. Such industries which are likely to cause environmental pollution may not be located in the neighbourhood of the refinery. The Committee further recommends that no large industry in the Agra region and its neighbourhood be established without conducting appropriate detailed studies to assess the environmental effect of such industries on the monuments. Location should be so chosen as to exclude any increase in environmental pollution in the area. ... The Committee wishes to record its deep concern regarding the existing level of pollution in Agra. It recommends that an appropriate authority be created which could monitor emissions by industries as well as air quality at Agra on a continuous basis. This authority should be vested with powers to direct industries causing pollution to limit the level of emission and specify such measures as are necessary to reduce the emissions whenever the pollutant level at the monuments exceeds acceptable limits. The Committee particularly desires that recommendations made in regard to reduction of existing pollution levels at Agra should be covered to a time-bound programme and should be implemented with utmost speed. The Committee also recommends that studies should be undertaken by competent agencies to explore the possibility of protecting the monuments by measures such as provision of a green belt around Agra in the region between Mathura and Agra. ... Even though assurances have been obtained from IOC that adequate precautions would be taken to contain the pollution on account of using coal in the power plant, the Committee is of the opinion that till such time this problem is studied in depth and suitable technologies have been found to be satisfactorily in use elsewhere the use of coal in the refinery power plant should be deferred."

6. The Central Board for the Prevention and Control of Water Pollution, New Delhi, published a report (Control of Urban Pollution Series CUPS/7/1981-82) under the title "Inventory and Assessment of Pollution Emission in and around Agra-Mathura Region (Abridged)". The relevant findings are as under :

"Industrial activities which are in operation in Agra City and its outskirts could be categorized as (i) Ferrous Metal Casting using Cupolas (Foundry); (ii) Ferro-alloy and Non-Ferrous Castings using Crucibles, Rotary Furnaces etc.; (iii) Rubber Processing; (iv) Lime Oxidation and Pulverising; (v) Engineering; (vi) Chemical; and (vii) Brick and Refractory Kilns (Table 4-1). ... The contribution of Sulphur Dioxide through emission primarily from the combustion from the fuels comprising hard coke, steam coal, wood and fuel oil is estimated as 3.64 tonnes per day from industrial activities in Agra City and its outskirts (Table 5-3). The vehicular contribution as estimated from traffic census in 6 road crossing is only 65 kgs a day or 0.065 tonnes a day and should be considered negligible for the present (Para 7.4). ... The contribution of Sulphur Dioxide from the 5 recognised distinct discrete sources in tonnes per day 2.28, 2.28, 1.36, 1.21 and 0.065 from (i) two thermal power stations, (ii) foundries, (iii) other industries in Agra, (iv) two railway marshaling yards and (v) vehicular traffic respectively. Omitting contribution from vehicular traffic as because it is considered negligible, the relative contributions from the other 4 distinct sources are 32, 32, 19, and 16.9 per cent. With the elimination of the first and the fourth sources - by closing down the two thermal power stations and replacing coal-fired steam engines by diesel engines in the two railway marshaling yards - about 50 per cent (48.9 to be exact) cut-down of Sulphur Dioxide emission is expected."

7. The National Environment Engineering Research Institute (NEERI) gave an "Overview Report" regarding status of air pollution around the Taj in 1990. Relevant part of the report is as under :

"The sources of pollution, including small and medium-scale industrial units, are scattered all around Taj Mahal. High air pollution load is thus pumped into the Taj air-shed. Sudden rises in concentration level are often recorded in all directions in gaseous as well as particulate pollutant depending upon the local micro climatic conditions. On four occasions during the five-year air quality monitoring, the 4 hrly average values of SO₂ at Taj Mahal were observed to be higher than 300 ug/m³, i.e. 10 folds of the promulgated CPCB standard of 30 ug/m³ for sensitive areas. The values exceeded even the standard of 120 ug/m³ set for industrial zones. Statistical analysis of the recorded data indicate that 40% (cumulative percentage level) has crossed the standard set for sensitive receptors/zones. ... The SPM levels at Taj Mahal were invariably high (more than 200 ug/m³) and exceeded the national ambient air quality

standard of 100 ug/m³ for SPM for sensitive locations barring a few days in monsoon months. ... Another study during 1985-87 brought to fore that the overall status of the ambient air quality within the trapezium has significantly deteriorated over this period."

The impact of the air quality on the Taj has been stated as under :

"The period industrial development of Agra-Mathura region has resulted in acidic emissions into the atmosphere at an alarming rate. This causes serious concern on the well-being of Taj Mahal. ... The gaseous pollutants being acidic in nature, significantly both the abiotic as well as the biotic components of the ecosystem like plants and building material like marble and red stone."

This Court on 8-1-1993 passed the following order :

"We have heard Mr. M. C. Mehta, the petitioner in person. According to him, the sources of pollution in Agra region as per the report of the Central Pollution Control Board are iron foundries, Ferro-alloyed industries, rubber processing, lime processing, engineering, chemical industry, brick refractory and vehicles. He further states that distant sources of pollution are the Mathura Refinery and Ferozabad Glass Industry. It is necessary to have a detailed survey done of the area to find out the actual industries and foundries which are working in the region. We direct the U.P. Pollution Control Board to get a survey done of the area and prepare a list of all the industries and foundries which are the sources of pollution in the area. The Pollution Board after having the survey done shall issue notices to all the foundries and industries in that region to satisfy the Board that necessary anti-pollution measures have been undertaken by the said industries/foundries. The Pollution Board after doing this exercise shall submit a report to this Court on or before 5-5-1993. A copy of this order be sent to the Chairman and Secretary, U.P. Pollution Control Board for compliance and report as directed."

Pursuant to the above-quoted order the U.P. Pollution Control Board (the Board) filed an affidavit dated 3-5-1993. It is stated in the affidavit that as per survey report furnished by the Regional Office of the U.P. Board the industries of Agra region were categorised as under :

Nature of Industry Number of Industries (i) Foundries 168 (ii) Rubber Factories 20 (iii) Engineering Industries 46 (vi) Chemical and other Industries 55 (v) Lime Kilns 03 (vi) Refinery (situated at Mathura) 01 (vii) Glass Industries (situated at Ferozabad) 49 (viii) Brick Refractories and Poultries 09 (ix) Bangle Industries (situated at Ferozabad) 120 (x) Block Glass Industries 40 ----- TOTAL 511 -----##

The affidavit further states that notices were issued to the aforesaid 511 industries/foundries as directed by this Court. Although Mathura Refinery is included in the list of 511 industries but we are not dealing with the Refinery in this judgment. The Mathura Refinery is being dealt with separately. All the foundries/industries are represented before us through the National Chamber of Industries and Commerce, U.P., Agra, U.P. Chamber of Commerce and the Glass Industries Syndicate. Some of the individual industries have also been represented through their learned counsel.

8. This Court considered the affidavit filed by the Board and passed the following order on 5-5-1993 :

"Pursuant to this Court's order dated 8-1-1993, an affidavit has been filed by the U.P. Pollution Control Board. It has been stated therein that in terms of this Court's order dated 8-1-1993, notices have been issued by the Board to 511 industries in Agra region. The names and addresses of the said industries have been enclosed along with the affidavit. The industries are required to file their replies to the notices by 5-5-1993 (today). ... We direct the U.P. Pollution Control Board to issue a public notice by getting the same published in two local newspapers and two national newspaper calling upon all the 511 industries to install anti-pollution mechanism/effluent treatment plants if they have not already done so. All the 511 industries be called upon to file replies to the notices already issued by the Board within further time of eight weeks from the date of the publication of the notices in the newspapers. This publication shall be done within two weeks from today. After the replies from the industries are received and processed by the Board, the Board may, if it so desires, inspect any of the industries in order to find out the correctness of the replies filed by the industries. The matter be listed on 10-8-1993."

Pursuant to this Court's order (quoted above) the Board filed affidavit dated 5-8-1993 wherein it is stated that public notice was published in two local newspapers of Agra on 17-5-1993 and two national newspapers on 18-5-1993 calling upon the industries to file their replies during the extended time. The affidavit states that all the listed industries were polluting industries and 507 out of them had not even installed any air pollution control device. The 212 industries who did not respond to the notice and failed to take any step towards installing the pollution control devices were closed by the order dated 27-8-1993 with immediate effect. The closure order was to operate till the time necessary pollution control devices were to be set up by the industries concerned.

9. Meanwhile, NEERI submitted its report dated 16-10-1993/18-10-1993 regarding Sulphur Dioxide emission control measures at Mathura Refinery. Since the Mathura Refinery matter is being dealt with separately it is not necessary to go into the details of the report. Suffice it to say that apart from short-term strategy, the NEERI recommended the use of natural gas, setting up of Hydro-cracking unit, improved Sulphur recovery unit, Chemo-biochemical Sulphur recovery and the setting up of green belt around the

Refinery. The NEERI Report examined in detail the decay mechanism and status of the Taj marble. How the deterioration of marble occurs, is stated by NEERI as under :

"The deterioration of marble occurs in two modes. In the first mode, weathering takes place if the marble is sheltered under domes and cornices, and protected from direct impact of rain. Here a crust is formed, which after some period, exfoliates due to mechanical stresses. In case of marble exposed to rain, gradual reduction of material occurs, as the reaction products are washed away by rainfall and fresh marble is exposed. The crusts are formed due to Sulphur Dioxide, but the cumulative effect of all pollutants are more damaging. It is also observed that trace metals present in fly ash and suspended particulate matter, e.g. Manganese, Iron and Vanadium act as catalysts for oxidation of Sulphur Dioxide, and in turn enhance degradation of marble calcite to gypsum."

The NEERI Report indicates the air-pollution effect on the Taj in the following words :

"The Taj Mahal marble samples analysed by NEERI in 1993 reveal that the black soot on certain protected surfaces contains 0.6% Calcium and traces of Sulphate. X-ray diffraction studies indicated that soot and quartz (Silicon Dioxide) and the major constituents of the black coating at Taj Mahal (Lal and Holden, ES & T, April 1981). The origin of soot can be traced back to the fuel consumption around the sensitive receptor, while quartz is derived from geocrustal origin and causes surface abrasion. Soot in itself is not chemically destructive, but with tar it acts as a soiling agent. Absorption of the acidic gases is enhanced due to the presence of soot/smoky matter resulting in long-term effects. Further, the presence of soot reduces the aesthetic value of the monument. Ambient air round Taj Mahal is polluted primarily from point/line sources and has adverse impacts on building material by alteration of marble and sandstone structures at micro-crystalline level. The earlier studies have revealed that the concentrations of gaseous pollutants and SPM (predominantly soot and carbon particles) are relatively high during winter months due to the frequent inversion conditions restricting vertical dispersion. During monsoon seasons, suspended particles are washed away and this cycle of pollutant builds up and subsequent removal continues exposing fresh surface of the monument to the pollutant."

On 19-11-1993, this Court passed the following order :

"On 5-11-1993, we suggested to Mr. N. N. Goswami, learned Senior Advocate, appearing on behalf of the Union of India to find out the possibility of providing gas as fuel to the Glass Industries and the foundries around Agra. Mr. Goswami states that he is already in touch with the authorities concerned and needs little more time. We give him time till 26-11-1993. He must file concrete proposal before the next date

of hearing. Meanwhile, we also issue notice to the Secretary, Ministry of Petroleum, Government of India and the Chairman, Gas Authority of India, returnable on 26-11-1993."

This Court on 26-11-1993 examined the affidavit filed by the Gas Authority of India Ltd. (GAIL) regarding supply of natural gas to the industries operating in TTZ and passed the following order :

"Pursuant to this Court's order dated 19-11-1993, Mr. R. P. Sharma, General Manager, Marketing and Planning, Gas Authority of India Ltd. has filed an affidavit dated 25-11-1993. Mr. Sharma is also present in Court. It has been stated in the affidavit and also orally by Mr. Sharma that without undertaking the detailed survey with regard to the assessment of demand and other technical requirements it would not be possible to proceed further in this matter.

Dr. Khanna, Director, NEERI states that some sort of survey in this respect has already been done by the State of U.P. He further states that so far as Mathura Refinery is concerned. NEERI has done the survey under the directions of this Court. According to him, the work of doing further survey on behalf of the Gas Authority of India Ltd. can be undertaken by NEERI if the terms are suitable. Mr. R. P. Sharma, General Manager, Gas Authority of India Ltd. states that the Gas Authority shall send their terms of reference to the NEERI within ten days. Let this be done. Dr. Khanna states that they will respond to the terms within a week thereafter.

Mr. Pradeep Misra, learned counsel appearing on behalf of the U.P. State Pollution Control Board, states that whenever data in this matter is available with the State of U.P. shall be supplied to NEERI within a week.

To be listed on 17-12-1993. We request Dr. Khanna, Director, NEERI and Mr. R. P. Sharma, General Manager, Gas Authority of India Ltd. (or any other officer on his behalf) to be present in Court on 17-12-1993."

10. The NEERI in its project proposal dated 19-12-1993 regarding feasibility of utilisation of natural gas as replacement of conventional fuel in the industrial sectors of Agra, Mathura and Ferozabad stated as under :

"The Ministry of Environment and Forests (MEF), retained the National Environmental Engineering Research Institute (NEERI) in December 1992 to redefine the Taj Trapezium. The study was completed in July 1993. Stringent pollution control regulations have been stipulated by the Government of India but the industries within Agra area are not meeting the prescribed emission standards. One of the reasons is that the industries use coal and coke for their fuel requirements. Amongst the options proposed in the Air Environment Management Plan in Taj Trapezium

Report, NEERI has suggested change over to cleaner fuel like ONG for mitigation of air pollution in the region. As per the directives of the Hon'ble Supreme Court of India, NEERI proposed a study on techno-economic feasibility of utilisation of Compressed Natural Gas (CNG) as a replacement of solid/liquid fuels (e.g. Coal, FO, LSHS etc.) in the industrial sectors of Agra, Mathura and Ferozabad region, based on the Terms of Reference formulated by the Gas Authority of India Ltd. (GAIL).

The existing HBJ pipeline laid by GAIL for transmission and distribution of CNG from the Western Offshore Region passing through Gujarat, Madhya Pradesh, Rajasthan, Uttar Pradesh, Delhi and Haryana can be tapped to serve this sensitive area. Auraiya in Uttar Pradesh is the nearest possible tapping point which is at an approximate distance of 170 kilometres from Agra. Presently the total availability of CNG ex-Hazira is of the order of 20 MMSCMD, and is expected to increase to 38-39 MMSCMD in 1998-99 as projected by GAIL. Based on the existing energy demand, NEERI has projected approximately 1.00 MMSCMD CNG requirements for Agra, Mathura and Ferozabad region.

The price of CNG at Auraiya (exclusive of tax) ranges from Rs. 2500-2700/1000 m³ which will be further altered by Government of India after 1995 (GAIL's projection)."

11. This Court by the order dated 11-2-1994 asked the NEERI to examine the possibility of using Propane or any other fuel instead of coal/coke by the industries in the TTZ. This Court also directed the U.P. State Industrial Development Corporation (the Corporation) to locate sufficient areas outside the TTZ to relocate the industries. The operative part of the order is as under :

"We requested Mr. V. R. Reddy, learned Additional Solicitor General on 14-1-1994 to have discussion with the authorities concerned and assist us in probing the possibility of providing some safe fuel to the foundries and other industries situated in the Taj Trapezium. We are thankful to Mr. Reddy for doing a good job and placing before us various suggestions in that direction. Mr. Reddy has suggested that NEERI be asked to examine the possible effects of the use of Propane as a safe fuel from the point of view of atmospheric pollution. We accept the suggestion and request Dr. P. Khanna to examine the feasibility of Propane as a possible alternative to the present fuel which is being used by the foundries and other industries in the Taj Trapezium. This may be done within 2 weeks from today. Copy of this order be sent top the Director, NEERI within 2 days from today. Government of India, Ministry of Environment shall pay the charges of NEERI in this respect.

We further direct the U.P. State Industrial Development Corporation through its Managing Director to locate sufficient landed area possibly outside the Taj Trapezium where the foundries and other industries located within the Taj Trapezium can be ultimately shifted. The Corporation shall also indicate the various incentives which the Government/UPSIDC might offer to the shifting industries. The Managing Director of the UPSIDC shall file an affidavit before this Court on or before 4-3-1994 indicating the steps taken by the Corporation in this respect. We also direct the Gas Authority of India to indicate the price of Propane which they might have to ultimately supply to the industries within the Taj Trapezium or the industries which are to be shifted from within the Taj Trapezium. This may be done within 4 weeks from today. We place the statement of the outcome of discussion held by Mr. Reddy with the authorities concerned on record."

This Court on 25-2-1994 examined the issue relating to supply of natural gas to the Mathura Refinery and the industries in the TTZ and passed the following order :

"With a view to save time and red-tape we are of the view that it would be useful to have direct talk with the highest authorities who can take instant decision in the matter. We, therefore, request the Chairman of the Oil and Natural Gas Commission, the Chairman of the Indian Oil Corporation and the Chairman of the Gas Authority of India to be personally present in this court on 8-3-1994 at 2.00 p.m.

We further direct the Secretary, Ministry of Petroleum, to depute a responsible officer to be present in the Court on 8-3-1994 at 2 p.m."

The Corporation filed an affidavit dated 3-3-1994 indicating the location/area of various industrial estates which were available for relocation of the industries from TTZ. After examining the contents of the affidavit, this Court on 4-3-1994 passed the following order :

"Mr. K. K. Venugopal, learned Senior Advocate appears for the U.P. State Industrial Corporation Limited. The Corporation has filed an affidavit wherein it is stated that the Corporation has 220 acres of developed land in industrial area, Kosi (Kotwa) where 151 plots are available for immediate allotment. It is further stated that undeveloped land measuring 330 acres is available in Salimpur in Aligarh District. Both these places are about 60/65 kms away from Agra and are outside the Taj Environment Trapezium. It is also stated that 85 acres of undeveloped land is also available at Etah, which is about 80 kms away from Agra.

Before we issue any directions regarding the development of area or allotment of land to various industries, it is necessary to know the exact number of air polluting industries which are operating within the Taj Trapezium which are to be shifted outside the

trapezium. Mr. Pradeep Misra, learned counsel for the U.P. State Pollution Control Board, fairly states that he would direct the Board Secretariat to prepare a list on the basis of their record and survey, and submit the same in this Court within a week from today.

Mr. S. K. Jain and Mr. Sanjay Parikh, Advocates have been appearing for various industries. They also undertake to get the information in this respect and give a list to the U.P. Pollution Control Board. We further direct the Secretary, Department of Industries, Government of Uttar Pradesh, to file/cause to file a list of all the air polluting industries within the Taj Trapezium in this Court within a week from today."

On 8-3-1994 the Chairmen, General Manager and other officers of various commissions/corporations and departments were present in Court. After hearing them, the Court passed the following order :

"Pursuant to this Court's order dated 25-2-1994, Shri S. K. Manglik, Chairman and Managing Director, Oil and Natural Gas Commission along with Shri Atul Chandra, Group General Manager (Operation), Shri K. K. Kapur, Chairman and Managing Director, Gas Authority of India along with Shri R. P. Sharma, General Manager (Marketing), Shri B. K. Bakshi, Chairman and Managing Director, Indian Oil Corporation along with Shri A. P. Choudhary and Shri S. R. Shah, Joint Secretary, Ministry of Petroleum, are present in Court. We place on record our appreciation for having responded to our request.

We have discussed our viewpoint with Shri Manglik, Shri Kapur, Shri Shah and Shri Bakshi. We have requested them to file in this Court a note each with regard to the discussion we have had with them in the Court. This may be done within five days."

When the matter came up for consideration on 31-3-1994, this Court while examining the question of relocating the industries, passed the following order :

"... Mr. Venugopal, learned Senior Counsel appearing for the UPSIDC, states that the UPSIDC would examine the demand of each of the industry and thereafter locate the requisite area outside the Taj Trapezium for shifting these industries. We propose to issue public/individual notices inviting objections/suggestions from the industries concerned. Mr. Venugopal states that he would prepare and file the format of the said notice. This matter to come up for further consideration on 8-4-1994."

13. This Court on 11-4-1994 examined the NEERI Report dated July 1993. The Ministry of Environment and Forests retained NEERI in January, 1993 to undertake an extensive study with a view to redefining the TTZ (Taj Trapezium) and realienating (sic) the area management environment plan. The NEERI submitted its final report to the Government of India in July 1993. A copy of the report was placed on the record of this Court. The report was prepared under the guidance of Dr. P. Khanna, NEERI and the project leaders

were Dr. A. N. Aggarwal and Dr. (Mrs.) Thakra. In addition, there was a team of about 30 scientists participating in the project. The NEERI in its report has found as a fact that the industries in the TTZ (Districts of Agra, Mathura, Ferozabad and Bharatpur) are the main source of pollution causing damage to the Taj. The NEERI has suggested various measures for controlling the pollution in the area. One of the suggestions made is the shifting of the polluting industries to an area outside the TTZ. The other notable recommendation is the setting up of the Green Belt Development Plan around the Taj to save it from the effect of pollution. Under the directions of this Court, the green belt as suggested by NEERI is already in the process of being planted/grown around the Taj. The matter is being processed separately.

14. This Court on 11-4-1994 after hearing the learned counsel for the parties, passed the order indicating that as a first phase the industries stated in Agra be relocated out of TTZ. While the industries have been heard on the issue of relocation, this Court on 29-4-1994 passed the following order :

"... Efforts are being made to free the prestigious Taj from pollution, is there is any, because of the industries located in and around Agra. It is further clear from our order that the basis of the action initiated by this Court is the NEERI's Report which was submitted to the Government of India in July 1993.

We are of the view that it would be in the interest of justice to have another investigation/report from a reputed technical/Engineering authority. Ministry of Environment and Forests, Government of India may examine this aspect and appoint an expert authority (from India or abroad) to undertake the survey of the Taj Trapezium Environmental Area and make a report regarding the source of pollution in the Trapezium and the measures to be adopted to control the same. The authority can also identify the polluting industries in the Taj Trapezium. We, therefore, request Mr. Kamal Nath, Minister-in-charge, Department of Environment and Forests, to personally look into this matter and identify the authority who is to be entrusted with this job. This must be done within three weeks from the receipt of this order. A responsible officer of the Ministry shall file an affidavit in this Court within two weeks indicating the progress made by the Ministry in this respect. Registry to send copy of the above-quoted order to the Secretary, Ministry of Environment and Forests and also to Mr. Kamal Nath, personally, within three days from today."

Pursuant to the above-quoted order, the Government of India, Ministry of Environment and Forests, by the order dated 18-5-1994 appointed an expert committee under the chairmanship of Dr. S. Varadharajan.

15. Meanwhile the Indian Oil Corporation placed on record its report on the feasibility study regarding the use of safe alternate fuel by the Mathura Refinery. The report suggested the use of natural gas as the most optimum fuel. Once the natural gas in

brought to Mathura there would be no difficulty in providing the same to the other industries in TTZ and outside TTZ. This Court on 5-8-1994 passed the following order :

"Pursuant to this Court's order dated 31-3-1994 the Indian Oil Corporation has placed on record the final report on the feasibility study for using alternate fuel at Mathura Refinery. In the beginning of the Report summary along with Indian Oil Corporation's experience on the subject is given. The conclusion of the summary is as under :

'Out of the various alternate fuels (viz. Natural Gas, Propane, LPG and Naphtha) studied for use in process-fired heaters and boilers in Mathura Refinery, Natural Gas is the most optimum fuel in view of wide international experience, safety and minimum implementation time-frame. Other alternate fuels Propane, LPG and Naphtha are valuable saleable products and therefore scarcely used in the world as a fuel for process-fired heaters. Liquid Naphtha forms vapour clouds from possible leakages from burner flanges on underside of fired heater. In view of this, it may not be prudent to recommend use of Naphtha in large-size heaters (e.g. AVU furnaces) and boilers of Mathura Refinery with air preheaters."

The feasibility study report specifically suggests that natural gas is the most economical and appropriate alternate fuel for the Mathura Refinery. The question for consideration, is : By what method/route the natural gas is to reach Mathura and made available to the Refinery at Agra. The summary of the report in para 4.4 in this respect states as under :

'A new loop line of 36 inch diameter from Bijapur to Dadri is being laid by Gas Authority of India Limited (GAIL) under the Gas Rehabilitation and Expansion Project and is scheduled to be commissioned by June 1996. Supply of Natural Gas to Mathura Refinery will require laying a new 10 inch diameter 13 kms long branch line tapped off from the above expansion project at Shahpur. The proposed branch line to Mathura Refinery can be completed within the time schedule of commissioning the new loop line as above.'

Mr. M. C. Mehta, the petitioner-in-person herein has, however, suggested that instead of laying the pipeline from Bijapur to Dadri via Mathura, it would be economical and time-saving exercise to lay down the lines from Auraiya or Babrala to Mathura. According to him, this would be in conformity to the Report already submitted by NEERI in this respect. He has further submitted that if the pipeline is drawn from Auraiya, it would also serve the industries at Ferozabad and Agra. Learned counsel for the Indian Oil Corporation states that he would place the suggestion before the experts of the Corporation and assist this Court on 8-8-1994. He may do so. Learned counsel for the Corporation may also ask a responsible officer, who can explain the whole situation to the Court, to be present in Court on 8-8-1994 at 2.00 p.m."

The matter came up for further consideration on 8-8-1994 when this Court passed the following order :

"Mr. B. B. Chakravarty, General Manager, Safety and Environment Protection, Indian Oil Corporation, is present before us. According to him the pipeline suggested by Mr. M. C. Mehta (from Auraiya to Mathura or from Babrala to Mathura) is not feasible. According to him the scheme of laying down the pipeline from Bijapur to Dadri via Mathura has already been sanctioned and is being implemented. He further states that apart from supplying gas to Dadri, the line when laid down, shall also be in a position to carry the supplied required for the Mathura Refinery.

In the final report dated 12-7-1994, submitted by the Indian Oil Corporation it has been stated that the new pipeline of 36" diameter from Babrala to Dadri is being laid under the Gas Rehabilitation and Expansion Project and is scheduled to be commissioned by June 1996. It is further stated that a new 10" diameter 13 kms long branch line tapped of from the above expansion project would also be completed within the above time schedule. We direct the Gas Authority of India to file an affidavit through some responsible officer, within two weeks from the receipt of this order, showing the progress made till date in the project of laying down the pipeline from Babrala to Dadri. The affidavit shall also state as to whether it is possible to prepone the date of commissioning of the project from June 1996 to December 1995.

Copy of the order be sent to Gas Authority of India and the Indian Oil Corporation."

Pursuant to this Court's order dated 21-10-1994 the GAIL filed an affidavit indicating the progress regarding the laying of pipeline for the supply of natural gas to Mathura Refinery and the industries in the TTZ. It is stated in the affidavit that all efforts were being made to complete the project by December 1996.

16. The Varadharajan Committee submitted its report regarding preservation of Taj Mahal and Agra monuments in two volumes. After hearing the learned counsel for the parties, this Court on 3-8-1995 passed the following order :

"The Varadharajan Committee appointed by the Ministry of Environment and Forests, Government of India has submitted its report regarding preservation of Taj Mahal and Agra monuments in two volumes. Mr. M. C. Mehta and Mr. Krishan Mahajan have taken us through some parts of the report. There are now two major reports on the subject. There is a NEERI Report to which we have referred to in our various orders from time to time. NEERI Report was submitted sometime in July 1993. In its reports, NEERI suggested that in order to preserve Taj it is necessary to relocate various industries located in Taj Trapezium. The Varadharajan

Committee Report now received also suggests the relocation of the industries situated in Taj Trapezium. The Varadharajan Committee has also given various other useful suggestions for improving the atmosphere environmental quality around Taj and also for preservation of Taj Mahal. It is the primary duty of the Government of India, Ministry of Environment and Forests to safeguard Taj Mahal from getting deteriorated. We direct the Ministry through Secretary, Ministry of Environment and Forests to examine the NEERI Report and also the Varadharajan Report and indicate in positive terms the measures which the Ministry is intending to take to preserve the Taj Mahal.

We are further prima facie of the view that in view of the two reports (NEERI and Varadharajan), the polluting industries in Taj Trapezium shall have to be relocated. It cannot be done without there being positive assistance from the Ministry of Environment and Forests, Government of India and the State of Uttar Pradesh. We direct these two authorities to come out with reallocation scheme so that all the polluting industries situated in Taj Trapezium are shifted to the new place in a phased manner. Keeping in view the importance and urgency of the matter we request Mr. Kamal Nath, the Minister of Environment and Forests to personally look into the matter and have the response of the Ministry and the reallocation scheme prepared within four weeks from the receipt of this order.

An affidavit of the Secretary, Ministry of Environment and Forests shall be filed in this Court within a period of four weeks."

17. Pursuant to the above-quoted order, Additional Secretary in the National River Conservation Directorate, Ministry of Environment and Forests, New Delhi filed an affidavit before this Court. After examining the affidavit, this Court passed the following order :

"Pursuant to the above-quoted order an affidavit dated 3-8-1995 has been filed by Shri Vishwanath Anand, Additional Secretary in the National River Conservation Directorate, Ministry of Environment and Forests, New Delhi. Various aspects have been dealt with in the said affidavit. So far the question of relocation of the industries from Taj Trapezium is concerned no positive stand has been indicated by the Ministry of Environment, Government of India. As indicated by us in our order quoted above two expert reports are before the Government of India. 'NEERI' gave its report as back as July 1993 and Varadharajan Committee Report was submitted to the Government in April 1995. Although this Court was prima facie of the view that the polluting industries in Taj Trapezium would have to be relocated but this Court finally left it to the Ministry of Environment and Forests to examine the two reports and give its response to this Court. We personally requested Mr. Kamal Nath the then Minister of Environment and Forests to examine the matter and have the scheme

for relocation of industries from Taj Trapezium framed within the time indicated by this Court. Nothing positive has come before us. We have today discussed this aspect at length with the learned Solicitor General, Mr. Dipankar Gupta. Once again we request Mr. Rajesh Pilot, Minister of Environment and Forests, Government of India to have the two reports examined expeditiously. It is of utmost importance that the pollution in the Taj Trapezium be controlled. We want positive response from the Ministry."

18. There being no helpful response from the Government of India, we finally heard the matter at length for several days and are disposing of the issues raised before us by this judgment.

19. This Court on 14-3-1996 directed the GAIL, Indian Oil corporation and the U.P. State Industrial Development Corporation to indicate the industrial areas outside the TTZ which would be connected with the gas supply network. The order passed was as under :

"Mr. Reddy, the learned Additional Solicitor General after consulting Mr. C. P. Jain, the Chief Environmental Manager, New Delhi has stated that mechanical process for bringing gas near Mathura Refinery shall be completed by December 1996. He further stated that the commissioning would be done by January 1997. We have on record the undertaking of the Gas Authority of India that while the pipeline is being constructed the branch pipeline for supplying gas to Mathura Refinery and to the industries shall also be completed side by side. We direct the Gas Authority of India, Indian Oil Corporation and the U.P. State Industrial Development Corporation to file an affidavit in this Court within two weeks of the receipt of this order indicating as to which of the industrial areas outside the Taj Trapezium would be connected with the gas supply network. We may mention that the PSCDC has already filed affidavit in this Court indicating various industrial estates which can be developed outside the Taj Trapezium."

20. Pursuant to the above-quoted order of this Court, the General Manager, GAIL filed affidavit dated 2-4-1996. After examining the contents of the affidavit, this Court on 10-4-1996 passed the following order :

"Pursuant to this Court's order dated 14-3-1996 Mr. P. C. Gupta, General Manager (Civil), Gas Authority of India has filed affidavit dated 2-4-1996. It is stated in the affidavit that the Ministry of Petroleum and Natural Gas has already allocated 0.60 MMSCMD for distribution to the industrial units in Agra and Ferozabad. It is stated that as per the time-schedule already filed in this Court, the two pipelines shall be completed by December, 1996. It is further stated that the quantity of gas as mentioned above is only for the purposes of supplying the same to the industries located within the Taj Trapezium. We have no doubt that while laying

down the supply line within the city of Agra, the safety of Taj and also the people living in the city of Agra shall have to be taken into consideration. We are told that expertise in this respect is available with the GAIL. If necessary, the opinion of NEERI, which has been associated by this Court in Taj Trapezium matter, can also be obtained by the GAIL.

We have already heard arguments regarding relocation of industries from Taj Trapezium. Some of the industries which are not in a position to get gas connections or which are otherwise polluting may have to be relocated outside Taj Trapezium. The GAIL may also examine whether in the event of availability of more quantity of gas, the same can be supplied to the industries outside the Taj Trapezium which are located in the vicinity from where the gas pipe is passing.

Mr. Gupta has further stated that for the purposes of laying distribution network within the Taj Trapezium, GAIL is establishing a joint venture company. However, pending formation of the joint venture company, the required functions are being performed by GAIL. It is stated that GAIL had advertised comparative prices and heat equivalent of various fuels in the newspapers circulated in Agra and Ferozabad to enable the industries, who are prospective consumers of gas to evaluate the economics of conversion to gas. So far 214 parties from Agra and 364 parties from Ferozabad have responded. According to the affidavit these responses are being processed. Mr. Reddy, on our asking, states that he would have the matter examined and file an affidavit on this Court within two weeks indicating the time-frame regarding the laying of distribution network within the Taj Trapezium. Mr. Reddy further states that some land shall have to be acquired for the purposes of constructing City Gate Stations at Agra and Ferozabad. He states that the cooperation of the U.P. Government is required for acquiring the land. We direct the Collector, Agra as well as Collector, Ferozabad to render all assistance to GAIL in acquiring land for setting up the two stations for the public purposes."

21. This Court on 12-9-1996 passed the following order regarding the safety measures to be taken during the construction and operation of the gas network in the Taj Trapezium. The Court also recorded the undertaking by the learned counsel for the industries that the industries in TTZ are taking steps to approach the Gas Authority of India for gas connections :

"Pursuant to this Court's order dated 10-4-1996 and subsequent order dated 10-5-1996, Mr. P. C. Gupta, General Manager, Gas Authority of India has filed an affidavit. It is stated in the affidavit that necessary directions in the pipeline design, corrosion, protection, protection during construction and during operations have been taken by the Gas Authority of India. It is for the Central Pollution Control Board or the State Pollution Control Board concerned to examine the legal position and do the needful,

if anything is to be done under the law. Mr. Gupta, in para 5, has further stated as under :

'However, in its endeavour GAIL has not received sufficient response from the industrialists in the city of Agra, where prospective industrial consumers of gas have not yet worked out how to convert the cupola furnaces to gas-fired ones. Hence, GAIL apprehends that after it has undertaken provisioning such an expensive infrastructure exercise, it may not have enough consumers for the gas supplies in Agra at least during the near future of commencement of the supply. This Hon'ble Court may therefore, direct the prospective consumers to inform this Hon'ble Court of their willingness to convert to gas.'

Mr. Sibal and Mr. Parikh, learned counsel appearing for most of the industries have informed us that the industries are taking steps to approach the GAIL for gas connection. Mr. Parikh further states that most of them have already done it. This is a matter between the industries and GAIL. It is for their benefits that the industries should approach the GAIL for gas connection."

22. The NEERI submitted a Technical Report dated 7-3-1994 pertaining to "Issue Associated with Fuel Supply Alternative for Industries in Agra-Mathura Region". Paras 2.4.1. and para 3 of the Report are as under :

"2.4 Safety Requirements

2.4.1. NG : The use of NG involves the defining of No Gas Zone for safe distribution. The new sites in Agra and Ferozabad industries being identified by the Government of Uttar Pradesh shall minimise this hazard as the industrial estates shall be suitably designed for NG distribution.

The new industrial sites should preferably be out of the Taj Trapezium. The incentives for industries to shift to new industrial estates need to be established to ensure speedy implementation.

* *##

3.0 Summary

The various issues raised in this report pertaining to the fuel supply alternatives to the industries in Agra-Ferozabad region and the Mathura Refinery, can be summarized as :

- Need for relocation of industries; - Availability of cleaner fuel (present and future); - Environmental benefits from alternate fuels; - Safety considerations;##

The recommendations are summarized hereunder :

- Shifting of small-scale polluting industries outside the Taj Trapezium on industrial estate sites to be identified by the Government of Uttar Pradesh;
- Provision of natural gas to the industries in Agra-Mathura region and Mathura Refinery."

23. Mr. M. C. Mehta, Mr. Kapil Sibal and other learned counsel representing the Agra industries took us through the April 1995 Varadharajan Committee Report. Relevant paragraphs of the Report are reproduced hereunder :

"4. ... The Expert Committee's recommendation that steps may be taken to ensure that no new industry, including small industries or other units, which can cause pollution are located north-west of the Taj Mahal, has been enforced. However, efforts to relocate existing small industries, particularly the foundries, in an area south-east of Agra beyond the Taj Mahal, have not been successful."

24. The Report clearly shows that the level of Suspended Particulate Matter (SPM) in the Taj Mahal area is high. The relevant part of the Report in this respect is as under :

"SPM (Period 1981-1993)

(i) The level of SPM at Taj Mahal is generally quite high, the monthly mean values being above 200 micrograms/cubic metre for all the months during 1981-1985 except for the monsoon months.

(ii) There is an increasing trend in the monthly mean SPM concentrations from about 380 micrograms/cubic metre to 620 micrograms/cubic metre during the period 1987-1991, and the trend reverses thereafter till 1993. There is a decrease in monthly mean SPM levels from 620 micrograms/cubic metre in 1991 to about 425 micrograms/cubic metre in 1993."

25. Para 71 of the Report deals with the consumption of coal in the Agra areas. The relevant part is as under :

"... These do cause pollution of the atmosphere. Industries in Agra are situated north-west, north and north-east of the Taj Mahal, several of them being located across the river. These are the major sources of concern as they are not far away, and much of the time winds blow from their location towards Taj Mahal."

Para 78 relating to the use of Natural Gas is as under :

".... Natural Gas distribution to industries in existing locations in Agra would need installation of pipelines and metres. This may be expensive and in addition not ensure safety, as accidental leakage in pipeline network may lead to explosions and fires. It may however be possible to use LPG or HSD with suitable precautions, after careful review."

Relevant part of para 79 is as under :

"..... NEERI Report dated 7-3-1994 on Fuel Supply alternatives (Annexure) suggests Natural Gas can be considered for use only in new industrial sites."

The industries in Agra have been dealt in paras 92, 93, 95 and 96 which are as under :

"92. Industries in Agra and Ferozabad have been asked to instal APCD to reduce essentially SPM level in air emissions. The UPPCB has the authority to monitor their performance to meet standards outlined for different industries by CPCB nothing their capacities. These regulations should be fully enforced. NEERI has suggested suitable sites in Agra and Ferozabad which could be identified and developed as industrial estates with facilities, separated from residential area. If such sites are developed, Natural Gas supply in the industrial estate would be possible with safety, and the industrial units could be shifted.

93. ... There is need for a single authority in such estate to coordinate all maintenance and repair work on electrical supply, telecommunications, water, sewage, drains, roads and construction. Any industrial estate in Agra with Natural Gas will have to be located at a substantial distance from monuments to ensure full safety.

* *##

95. When industrial units are relocated, it would be appropriate to modernise technology equipment and buildings. Most of the units will need very substantial financial assistance. The value of the present sites and their future use have to be determined. It would not be desirable to promote residential colonies and commercial establishments in such vacated areas as they may in turn add to the problems of water supply and atmospheric quality by excessive use of energy. Major changes of this nature would need a clear development planning strategy and resources, and will also take several years for implementation.

96. There is urgent need for quicker measures which could lead to better environment, especially in the Taj Mahal. For this purpose, it is necessary to effect overall reduction in coal/coke consumption by industries and others in Agra and in Taj Trapezium Zone generally. The present level of consumption of 129 metric tonnes per day by industry can be substantially reduced by new technology and by use of LPG and HSD of low sulphur. Stricter standards for emissions may be evolved when such technological and fuel changes are effected. Support for development of modifications in design and operation

and demonstration should be provided. Some assistance to industries for adoption of these may be considered after careful examination of the costs and benefits to the industry and to society. All those industries not responding for action for feasible changes and contributing disproportionately to atmosphere pollution have to face action."

26. The Taj being a monument on the World Heritage List, the Government of India sought the expert advice through UNESCO on the structural and chemical preservation aspects of the monument. Accordingly, two experts, namely, Dr. Mentrizio Marbeilli and Dr. M. Larze Tabasso visited the Taj Mahal between 17-1-1987 to 30-1-1987 to study the problems pertaining to the conservation of marble and sandstones in the Taj and recommended remedial measures. According to them, the yellowishness of the marble is due to (a) SPM and (b) dust fall impinging on the surface. Opinions of the Archaeological Survey of India and other scientists annexed to the Varadharajan Report unanimously say that the yellow shadow of the marble on different parts of the Taj including four minarets is mainly due to SPM and the dust fall impinging on the surface. The comments of the Archaeological Survey of India as noticed in the Varadharajan Report are as under :

"On the structural side, the Taj Mahal is in a sound state of preservation and the studies conducted so far also confirm the same. The only threat to the Taj Mahal is from the environmental pollution.

The Science wing of the ASI is continuously monitoring the level of suspended particulate matter, Sulphur Dioxide concentration and sulphation rate. The studies made in this regard show that suspended particulate matter level has been found to be higher than the maximum permissible level 100 kg/m³. This has imparted a yellowish appearance on the surface of the Taj Mahal."

27. After careful examination of two Varadharajan Reports (1978) and 1995) and the various NEERI Reports placed on record, we are of the view that there is no contradiction between the two sets of reports. In the 1978 Report, Varadharajan found substantial level of air pollution because of Sulphur Dioxide and SPM in the Agra region. The source, according to the report, was the coal-users including approximately 250 small industries mainly foundries. The excess of SPM was because of the use of coal. The Report specifically recommended in para 5.4 for the relocation of the existing small industries particularly the foundries. The 1995 Varadharajan Report clearly shows that the standard of atmospheric pollution is much higher than the 1981-85 period which according to the Report is also because of heavy traffic and operation of generating sets. NEERI Reports have clearly recommended the relocation of the industries from the TTZ.

28. This Court on 11-4-1994, passed the following order :

"... We are of the view that the shifting of the industries from the Taj Trapezium has to be made in a phased manner. NEERI's Report indicates that the maximum pollution to the ambient air around Taj Mahal is caused by the industries located in Agra. We, therefore, as a first phase, take up

the industries situated in Agra for the purposes of the proposed shifting outside Taj Trapezium.

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We, therefore, direct the U.P. State Pollution Control Board to issue public notices in the two national English daily newspapers and also two vernacular newspapers for three consecutive days indicating that the Supreme Court of India is processing the proposal for shifting of the air polluting industries such as Foundries, Pit Furnaces, Rubber Sole, Chemical, Refractory Brick, Engineering and Lime Processing from Agra to outside Taj Trapezium at a suitable place to be selected after hearing the parties including the industry owners. The individual industries shall be asked to supply the following information :

1. Name, Registration Number, Location and the ownership/status of the industry.
2. Total land/including built-up area which is at present under the possession of the industry.
3. Nature/quantum of the fuel which is being used.
4. Number of the workers/other staff employed.
5. Total capital investment/turnover of the industry.
6. Extent of the land required by the industry in the new industrial area outside the Taj Trapezium.
7. The product of the industry and the raw material used for such production.
8. The nature/extent of the alternate safe fuel, if required.
9. Financial assistance in the shape of loan etc. if required, and to what extent.

Apart from the public notice, individual notices to all the industries which are situated in Agra shall also be served by the U.P. State Pollution Control Board, to the air polluting industries. We further direct the Union of India to have a gist of the above public notice announced on local television as well as on local radio in Agra/Mathura for three consecutive days.

The publication of the notice in the National Newspapers shall be got done by the U.P. Pollution Control Board on 29-4-1994/30-4-1994 and 1-5-

1994. Thereafter, the notices shall be got published in the local newspapers on 6-5-1994, 7-5-1994 and 8-5-1994. The individual notices shall be served on the industries before 8-5-1994. The Union of India shall also have the notice broadcast as directed by us between 1-5-1994 and 10-5-1994. Mr. N. N. Goswamy, learned Senior Counsel fairly states that he will prepare the gist of the notice and send it to the Government of India."

29. The chronology of the orders quoted by us in this judgment shows that this Court took cognizance of this matter in January 1993. There are four NEERI reports, two Varadharajan reports and several reports by the Board. After examining all the reports and taking into consideration other material on the record, we have also hesitation in holding that the industries in the TTZ are active contributors to the air pollution in the said areas. NEERI and Varadharajan (1978) Reports have specifically recommended the relocation of industries from the TTZ. Although the Board has placed on record list of 510 industries which are responsible for air pollution but in view of our order dated 11-4-1994 (quoted above), we are confining this order only to 292 industries located and operating in Agra. These industries are listed hereunder :

Foundries (District Agra)

#1. Mr. Gulab Rai Chottey Lal 21/16, Freeganj, Agra.2. M/s. Gulab Rai Chottey Lal 27/65, Pathwari, Agra.3. M/s. Krishna Iron Foundry, Freeganj, Agra.4. M/s. B. C. Iron Foundry, Sultanganj, Agra.5. M/s. Kajeco Industries, Sultanganj, Agra.6. M/s. National Iron Foundry, Motilal Nehru Road, Agra.7. Raj Pattern Makers & Founders, Motilal Nehru Road, Agra.8. M/s. Miraz Iron Foundry, 1290, Bhairon Bazar, Agra.9. M/s. Mudgal Iron Industry, 7/6, Pathwari, Agra.10. M/s. Prabhat Iron Foundry, Freeganj Road, Agra.11. M/s. Raghav Engg. Co., 21/60, Freeganj, Agra.12. M/s. Raj Iron Foundry, (Unit-I) 26/1, Sultanganj, Agra.13. M/s. Agrawal Tin Mfg. Co., Sultanganj, Agra.14. M/s. Moti Lal Agrawal & Co., 21/33, Freeganj, Agra.15. M/s. Anil Metal Ind., (Foundry Division) Bichpuri Road, Amarpura, Agra.16. M/s. Shree Durga Laxmi Iron Foundry, Langre Ki Chowki, Agra.17. M/s. S. S. & Iron Foundry, Jeoni Mandi, Agra.18. M/s. Randhir Chand Khoob Chand Iron Foundry, Masta Ki Bagichi, Langre Ki Chowki, Agra.19. M/s. Shree Ram Metal Ind., 31/24-D, Langre Ki Chowki, Agra.20. M/s. Indian Iron Ind., Langre Ki Chowki, Agra.21. M/s. Suresh Iron Foundry & Engg. Works, Langre Ki Chowki, Agra.22. M/s. Suresh Industries, Bypass Road, Near Waterworks, Agra.23. M/s. Mahajan Iron Foundry, Transport Nagar, Agra.24. M/s. Taj Iron Foundry, Aboolala Dargah, New Agra.25. M/s. Himalaya Ind., Transport Nagar, Agra.26. M/s. Laxmi Metal Ind., Indira Mill Compound, Jeoni Mandi, Agra.27. M/s. Shree Durga Bhagwati Industries & Iron Foundry, Langre Ki Chowki, Agra.28. M/s. India Casting Co., C-1, Balkeshwar Road, Agra.29. M/s. Indian Iron Foundry, Sultanganj, Agra.30. Shanker Iron Foundry, Balkeshwar, Agra.31. Jagannath Dewan Chandra Jain, Freeganj, Agra.32. Agarwal Wire Ind., C-

30, Site A, Ind. Area, Sikandara, Agra.33. Super Chem. Ind., D-1, Sector A, Ind, Area, Sikandara, Agra.34. Uttam Lah Udyog, 10 Km Stone, Mathura Road, Agra.35. Mahajan Ispat Udyog, Runukutta, Mathura Road, Agra.36. G. M. Industries Corpn., Kailash Road, Sikandara, Agra.37. Satya Deep Udyog, Mathura Road, Agra.38. Arbaria Iron Foundry, Runukutta, Mathura Road, Agra.39. Allied Iron & Steel Works, Runukutta, Mathura Road, Agra.40. Singh Industries, Mathura Road, Artoni, Agra.41. Kalyan Steel Products (P) Ltd., Artoni, Mathura Road, Agra.42. B. K. Steels, Artoni, Mathura Road, Agra.43. Anand Industry, Artoni, Mathura Road, Agra.44. Arbaria Steels, Artoni, Mathura Road, Agra.45. Luthura Engineering, 15 km., Artoni, Mathura Road, Agra.46. Satya Ind. Coprn., Unit-2, Rambagh, Agra.47. A. R. Iron Foundry, Rambagh, Agra.48. S. A. Iron Foundry, 11/42, Rambagh, Agra.49. S. K. Iron Foundry & Engg. Co., Unit-1, Rambagh, Agra.50. S. K. Iron Foundry & Engg. Co., Unit-2, Rambagh, Agra.51. S. G. Industries, Rambagh, Agra.52. Golden Engg. Corpn., 4/45, Rambagh, Agra.53. Paliwal Iron Foundry & Metal Works, Rambagh, Agra.54. Jain Foundry & Engg. Works, Rambagh, Agra.55. Castwel Foundry, Naraich, Hathras Road, Agra.56. Oswal Iron Foundry, Rambagh, Agra.57. Ganga Engineers, Rambagh, Agra.58. S. S. Iron Foundry, 11/111, Rambagh, Agra.59. Suraj Foundry, 11/45, Rambagh, Agra.60. Dewan Chand Suraj Prakash Jain, 11/43, Rambagh, Agra.61. Parolia Engg. Works, 11/47-C, Rambagh, Agra.62. S. B. Iron Foundry, 11/18-B, Rambagh, Agra.63. Reliable Industry, Rambagh, Agra.64. Sarla & Co., Rambagh, Agra.65. Shree Ram Iron Foundry & Engg. Works, 4248/2, Rambagh, Agra.66. Jagdish Industrial Corpn., Naraich, Hathras Road, Agra.67. R. K. Engineers & Founders, Hathras Road, Agra.68. Goyal Iron & Steel Works, Naraich, Hathras Road, Agra.69. R. R. Iron Foundry, Rambagh, Agra.70. Sharad Industries, Foundry Nagar, Hathras Road, Agra.71. Kansal Iron Foundry, 11/48/6/C, Naraich, Hathras Road, Agra.72. Goyal Metal Industries, Foundry Nagar, Hathras Rd., Agra.73. Fatechand Sehgal & Sons, Naraich, Hathras Road, Agra.74. Adesh Kumar Jain, C-69, Foundry Nagar, Agra.75. Deepak Chemical Works, 11B/103, Naraich, Hathras Road, Agra.76. Devki Nandan, 11B/103, Naraich, Hathras Road, Agra.77. Prakash Iron Foundry, Hathras Road, Agra.78. Ravi Agricultural Ind., Hathras Road, Agra.79. V. K. Enterprises, C-48, Foundry Nagar, Agra.80. Manik Chand Garg & Co., C-50, Foundry Nagar, Agra.81. Bombay Engg. & Moulding Works, 3994, Nagla Kishanlal, Hathras Road, Agra.82. Gopal Iron Foundry, D-38, Foundry Nagar, Agra.83. Sterling Machine Tools, C-38, Foundry Nagar, Agra.84. Bharat Ind., Unit-2, B-12, Foundry Nagar, Agra.85. Kajeco Industries, Unit-2, B-9/10, Foundry Nagar, Agra.86. Devi Enterprises, Hathras Road, Agra.87. Techno Industries, 2919, Naraich, Hathras Road, Agra.88. Goyal Iron & Steel Works, (India) Nagla Kishanlal, Hathras Road, Agra.89. G. C. Industries, Naraich, Hathras Road, Agra.90. K. J. Industries, B-5, Foundry Nagar, Agra.91. Bajrang Iron Industry, B-4, Foundry Nagar, Agra.92. Agra Loh Udyog,

1167, Foundry Nagar, Agra.93. Singhal Industries, B-2, Foundry Nagar, Agra.94. Raj Iron Foundry, Unit-II, B-3, Foundry Nagar, Agra.95. Agrico Enterprises, E-60/E-61, Foundry Nagar, Agra.96. Tantan Auto Industry, E-72, Foundry Nagar, Agra.97. Naresh Iron Foundry, D-62, Foundry Nagar, Agra.98. A. B. Auto Works (P) Ltd., C-32, Foundry Nagar, Agra.99. Shri Ram Engg. Works, D-19, Foundry Nagar, Agra.100. Britania Engg. Co., C-31, Foundry Nagar, Agra.101. Expert Founders & Engg., C-29, Foundry Nagar, Agra.102. Basal Casting Co., D-17, Foundry Nagar, Agra.103. Maharaja Agrasen Iron Foundry, D-15, Foundry Nagar, Agra.104. Ajanta Industries, D-20, Foundry Nagar, Agra.105. Accurate Ferro Castings, B-18/B, Foundry Nagar, Agra.106. Shiraj Industry, D-68, Foundry Nagar, Agra.107. Shinning Engg. Works, B-19, Foundry Nagar, Agra.108. Mittal Iron Founders & Engg., Foundry Nagar, Agra.109. Shivam Industries, C-23, Foundry Nagar, Agra.110. Mercury Engg. & Steel, E-16, Foundry Nagar, Agra.111. Arya Sons, B-17/2, Foundry Nagar, Agra.112. Agrawal Metal Industries, C-70, Foundry Nagar, Agra.113. Kamal Engg. Works, Unit-II, C-25, Foundry Nagar, Agra.114. Kamal Engg. Works, Unit-I, D-48, Foundry Nagar, Agra.115. Power Field India, E-4, Foundry Nagar, Agra.116. Shyam Metal Industries, E-3, Foundry Nagar, Agra.117. Narayan Brothers Factory, E-3, Foundry Nagar, Agra.118. Shaktiman Industries, E-25, Foundry Nagar, Agra.119. Jain Ambey Piston King Industry, E-14, Foundry Nagar, Agra.120. Monark India, E-13/E-14, Foundry Nagar, Agra.121. Gopal Iron Foundry, D-43, Foundry Nagar, Agra.122. Natraj Iron Foundry, E-18, Foundry Nagar, Agra.123. Bhagwati Iron Foundry, D-2, Foundry Nagar, Agra.124. Chinar Foundry, E-1, 2, Foundry Nagar, Agra.125. Modern Industries, II-B, 76-A, Foundry Nagar, Agra.126. Devi Sahai Gopaldas, Iron Foundry, C-15, Foundry Nagar, Agra.127. Mittal Industries, C-18, Foundry Nagar, Agra.128. B. K. Castings, C-6, Foundry Nagar, Agra.129. N. K. Iron Foundry, C-3, Foundry Nagar, Agra.130. Metal Products, C-33, Foundry Nagar, Agra.131. Shanti Vrat & Sons, B-7, Foundry Nagar, Agra.132. Mr. Sushil Kr. Danoria, B-14/1, Foundry Nagar, Agra.133. BSA Agricultural Ind., 17/15, Nunhai Road, Nawalganj, Agra.134. Indu Engg. & Textile Ltd., 12/16-A, Nawalganj, Agra.135. Vijay Iron Foundry, 1250, Nawalganj, Agra.136. Kaushal Industries, Nawalganj, Agra.137. Standard Pumps, Nunhai, Agra.138. Doneria Pvt. Ltd., 10/4, Hathras Road, Agra.139. Doneria Iron & Steels, 11/28, Chini Ka Roza, Agra.140. Ratan Industries (P) Ltd., 10/12, Katra Wazir Khan, Hathras Road, Agra.141. Bharat Iron & Steel Foundry, 10/10, Katra Wazir Khan, Agra.142. Shri Bankey Bihari Udyog, 10/9, Katra Wazir Khan, Agra.143. Balaji Udyog, 10/22, Katra Wazir Khan, Agra.144. Nav Durga Dhalai, 1014-A, Katra Wazir Khan, Agra.145. Ess Jay Steels (P) Ltd., 10/4-A Hathras Road, Agra.146. Girdharlall Thakurdas Agencies (P) Ltd., 11/38, Hathras Road, Agra.147. Kumar Steel Udyog, 11/24, Chini Ka Roza, Agra.148. G. T. Iron Industries, 11/38, A-3, Hathras Road, Agra.149. Munnalal Mistri, 11/124, Chini Ka Roza, Agra.150. Metal Cast India, 3-Ind. Estate, Nunhai,

Agra.151. M/s. Printing Machine Mfg. Co., I, Ind. Estate, Nunhai,
Agra.152. M/s. Amar Enterprises, 2, I.E., Nunhai, Agra.153. M/s.
Northern India Tools Co., 62, I.E., Nunhai, Agra.154. M/s. Meghdoot
Pistons (P) Ltd., 6, I.E., Nunhai, Agra.155. M/s. Mehra Casting Works,
32, I.E., Nunhai, Agra.156. M/s. Mahaveer Iron Foundry, 12/15,
Nawalganj, Agra.157. M/s. Paras Foundry, 68, I.E., Nunhai, Agra.158.
Mahaveer Iron Foundry, 67, I.E., Nunhai, Agra.159. M/s. Maharshi
Dayanand Iron Foundry, 71, I.E., Nunhai Agra.160. M/s. Basant
Industries, Nunhai, Agra.161. M/s. A. V. Engineering Works, 160, I.E.,
Nunhai, Agra.162. M/s. Ess Bee Iron Foundry, 134, I.E., Nunhai,
Agra.163. M/s. Tracko International, 56, I.E., Nunhai, Agra.164. M/s.
Metafam Engg. Associate, 19, I.E., Nunhai, Agra.165. M/s. Vinay Iron
Foundry, 75, I.E., Nunhai, Agra.166. M/s. Samta Trading Corpn., 136,
I.E., Nunhai, Agra.167. M/s. Mahaveer Engg. Works, 82, I.E., Nunhai,
Agra.168. M/s. Universal Steel Ind., 69, I.E., Nunhai,
Agra.169. Anil Metal Industry, Bodla Road, Agra.170. Agra
Engg. Industries, Artoni, Agra.171. Profile Furnaces & Heat Treatment,
Kailash Road, Sikandara, Agra.172. Aay Jay Udyog, B-6, Site B, Ind.
Area, Sikandara, Agra.173. Krishi Seva Udyog, D-41, Foundry Nagar,
Agra.174. Paragon Industries, D-7, Foundry Nagar, Agra.175. Usha
Martin Ind. Ltd., Nawalganj, Agra.176. Mercury Engg., Chini Ka Roza,
Agra.177. Shivam Industries, 10/4-A, Katra Wazir Khan, Agra.178.
Donaria Industries, 10/4-A, Hathras Road, Agra.179. Rahul Diesels
(India), Rambagh, Agra.180. K. J. Diesels (P) Ltd., Naraich, Hathras
Road, Agra.181. Prakash Agricultural Ind., Foundry Nagar, Agra.182.
Anil Agricultural Ind., B-25, Foundry Nagar, Agra.183. Singhal Industries
Corp., C-49, Foundry Nagar, Agra.184. Gangotri Diesels (P) Ltd.,
Hathras Road, Agra.185. Shivas Industries, C-36, Foundry Nagar,
Agra.186. Olympic Diesels, E-53, Foundry Nagar, Agra.187. Shri Ram
Diesels (India), C-56, Foundry Nagar, Agra.188. Minerva Diesel Eng. (P)
Ltd., C-67, Foundry Nagar, Agra.189. A. K. Enterprises, B-20, Foundry
Nagar, Agra.190. Kalyan Engg. Works, E-8, Foundry Nagar, Agra.191.
Chandra Metal Enterprises, E-24, Foundry Nagar, Agra.192. Rajendra
Industries, E-31, Foundry Nagar, Agra.193. Bright Engg. Works, E-19,
Foundry Nagar, Agra.194. K. G. Electro Techniques, E-17, Foundry
Nagar, Agra.195. Satya Udyog, Unit-2, C-11, Foundry Nagar, Agra.196.
Doneria Engg. Co., C-5, Foundry Nagar, Agra.197. Basant Ispat Udyog
(P) Ltd., C-34, Foundry Nagar, Agra.198. Atul Engg. Udyog, Nunhai,
Agra.199. Atul Generation (P) Ltd., Nunhai, Agra.200. Mohan Generators
& Pumps, 45, I.E., Nunhai, Agra.201. M/s. Steelco Ind., 54-A, Industrial
Estate, Nawalganj, Nunhai, Agra.202. M/s. Jay Steel Mfty., Nawalganj,
Nunhai, Agra.203. M/s. Automotive Products, 73, I.E., Nunhai, Agra.204.
M/s. S. G. Sundrani, I.E., Nunhai, Agra.205. M/s. Alfa Engg. Works, 20,
I.E., Nunhai, Agra.206. M/s. Shyam Metal Works, 21, I.E., Nunhai,
Agra.207. M/s. Jagdish Metal Works, 24, Nunhai, Agra.208. M/s.
Suchlam Engg. Works, 165-A, I.E., Nunhai, Agra.209. M/s. Pawan Auto

Ind., I.E., Nunhai, Agra.210. M/s. Shaktiman Ind., I.E., Nunhai, Agra.211. Sandeep Autos, I.E., Nunhai, Agra.212. M/s. Indian Auto Rings, I.E., Nunhai, Agra.213. M/s. Vulcan Engg. Inds., Nunhai, Agra.214. M/s. Agra Steels Corpn., I.E., Nunhai, Agra.215. M/s. Chemicals and Other Industries. M/s. Biological Evons Ltd., Bichpuri Road, Agra.216. M/s. Wasan & Co., Bodla, Bichpuri Road, Agra.217. M/s. Mahajan Tanners (P) Ltd., Bichpuri Road, Agra.218. M/s. Agra Tannery Leather, Bichpuri Road, Agra.219. M/s. C. R. Oil Mill, Motilal Nehru Road, Agra.220. M/s. Sharda Oil Mills, Motilal Nehru Road, Agra.221. M/s. B. P. Oil Mills (P) Ltd., Maithan, Agra.222. M/s. Mayur Kattha Industries, Chalesar, Agra.223. M/s. A. V. Paper Cones, Sikandara, Agra.224. R. R. Chem Industries, Kailash Road, Sikandara, Agra.225. Agra Beverages Corpn. (P) Ltd., Mathura Road, Agra.226. Arctic Drinks (P) Ltd., 12 Km, Mathura Road, Agra.227. Devyani Foods (P) Ltd., Mathura Road, Agra.228. B. K. Enterprises, Mathura Road, Agra.229. R. M. Foods (P) Ltd., Artoni, Mathura Road, Agra.230. Park Leather Industries Ltd., Runukutta, Mathura Road, Agra.231. Hindustan Crushers & Fertilizers, Runukutta, Agra.232. General Mills Corpn., Runukutta, Mathura Road, Agra.233. Amar Shikha Wood Product, Artoni, Mathura Road, Agra.234. Amar Jyoti Industries, Artoni, Mathura Road, Agra.235. Sun Beverages (P) Ltd., Artoni, Mathura Road, Agra.236. Taj Beverages (P) Ltd., Artoni, Mathura Road, Agra.237. Pee Cee Soap Factory, Artoni, Mathura Road, Agra.238. Kandla Flooring & Fabrics (P) Ltd., A-1, Site A, Ind. Area, Sikandara, Agra.239. Agra Roller Floor Mills, Artoni, Mathura Road, Agra.240. R. K. Brothers, C-25, Site A, Ind. Area, Sikandara, Agra.241. Sun Ray Agrochem, Runukutta, Mathura Road, Agra.242. Plywood Products, 19.6 Km, Runukutta, Mathura Road, Agra.243. Shreekshetria Gandhi Ashram, Runukutta, Agra.244. Shiraj Foods, Unit-2, Runukutta, Mathura Road, Agra.245. C. R. Foods India (P) Ltd., 1977/1, Runukutta, Mathura Road, Agra.246. Ramjilal Harishchand, 11/48-E, Rambagh, Hathras Road, Agra.247. Agra Oil & General Industry, Naraich, Hathras Road, Agra.248. Bansal Marble Industries, Hathras Road, Agra.249. Sandeep Resin Industries, E-38, Foundry Nagar, Agra.250. Anchor Wax Industry, C-26, Foundry Nagar, Agra.251. Anil Paint Works, E-10, Foundry Nagar, Agra.252. Bee Kay Industry, E-28, Foundry Nagar, Agra.253. B. K. Salts, Behind E-28, Foundry Nagar, Agra.254. National Chemicals, C-9, Foundry Nagar, Agra.255. Jai Shanker Salt Peter Works, A-8, Foundry Nagar, Agra.256. Singhal Pesticides, 9/122, Moti Bagh, Yamuna, Agra.257. Adarsh Paper Product, 10/4, Katra Wazir Khan, Agra.258. Seema Oil Corpn., 11/38-B, Sita Nagar, Agra.259. Agarwal Industries, 10/22, Katra Wazir, Agra.260. Allora Paper Products, 10/4, Katra Wazir Khan, Agra.261. Agarwal Knitting, 188, Industrial Estate, Nunhai, Agra.262. Bright Son Electroplaters, Industrial Area, Nunhai, Agra.263. Micro Metals, 151, Ind. Estate, Nunhai, Agra.264. M/s. Bonita Chemicals, 64, I.E., Nunhai, Agra.265. M/s. Gandhi Refineries, 69-A, I.E., Nunhai, Agra.266. M/s. Mahaveer Glass & Silicate Works, 65, I.E., Agra.267. M/s. The National

Glass & Silicate, Nunhai, Agra.268. M/s. Agra Chains Pvt. Ltd., 14, I.E., Nunhai, Agra.269. M/s. Agra Leather Board Pvt. Ltd., 5, I.E., Nunhai, Agra.270. M/s. Bajwa Rubber Ind., 12/67, Rui Ki Mandi, Agra.271. M/s. Bengal Rubber Ind., Shahganj, Agra.272. M/s. K. K. Rubber Ind., 11/3954, Langre Ki Chowki, Shastri Nagar, Agra.273. M/s. Caapstan Rubber Products, Transport Nagar, Agra.274. M/s. Smart Industries, 5/99, Billochpura, Agra.275. M/s. Rubber Complex, Shahganj, Agra.276. Weston Rubber, 11 Km Stone, Mathura Road, Agra.277. Katyal Industries, 10 Km Stone, Mathura Road, Agra.278. Capston Rubbers (India), C-6, Site A, Ind. Area, Sikandara, Agra.279. Bengal Rubber Ind., (Unit-2), C-7, Ind. Area, Site A, Sikandara, Agra.280. Bajwa Rubber Ind. (Unit-2), C-8, Ind. Area, Sikandara, Agra.281. Noble Rubber Products, B-1, Ind. Area, Sikandara, Agra.282. Agra Rubber Industries, E-37, Foundry Nagar, Agra.283. Goodage Rubber Works, B-16/3, Foundry Nagar, Agra.284. Syntex Rubber Rollers, 10/4, Katra Wazir Khan, Agra.285. Shakti Rubber Corpn., Sikandara, Agra.286. M/s. Novelty Udyog, 37, I.E., Nunhai, Agra.287. M/s. Sheela Udyog, 14-B-144, I.E., Agra.288. M/s. J. J. Rubber & Plastic, 11, I.E., Nunhai, Agra.289. Sunrise rubber Ind., 18, I.E., Nunhai, Agra.290. Lime Kilns290. Hansaram Bhagwandas, Naraich, Hathras Road, Agra.291. Garg Lime Industries, Naraich, Hathras Road, Agra.292. Pankaj Small Ind., Nawalganj, Agra.##

30. The Taj, apart from being a cultural heritage, is an industry by itself. More than two million tourists visit the Taj every year. It is a source of revenue for the country. This Court has monitored this petition for over three years with the sole object of preserving and protecting the Taj from deterioration and damage due to atmospheric and environmental pollution. It cannot be disputed that the use of coke/coal by the industries emits pollution in the ambient air. The objective behind this litigation is to stop pollution while encouraging development of industry. The old concept that development and ecology cannot go together is no longer acceptable. Sustainable development is the answer. The development of industry is essential for the economy of the country, but at the same time the environment and the ecosystems have to be protected. The pollution created as a consequence of development must be commensurate with the carrying capacity of our ecosystems.

31. Various orders passed by this Court from time to time (quoted above) clearly indicate that the relocation of the industries from TTZ is to be resorted to only if the Natural Gas which has been brought at the doorstep of TTZ is not acceptable/available by/to the industries as a substitute for coke/coal. The GAIL has already invited the industries in TTZ to apply for gas connection. Before us Mr. Kapil Sibal and Mr. Sanjay Parikh, learned counsel for the industries have clearly stated that all the industries would accept gas as an industrial fuel. The industries operating in TTZ which are given gas connections to run the industries need not relocate. The whole purpose is to stop air pollution by banishing coke/ coal from TTZ.

32. This Court in Vellore Citizens' Welfare Forum v. Union of India [(1996) 5 SCC 647 : JT (1996) 7 SC 375] has defined "the Precautionary Principle" and the "Polluter Pays Principle" as under : (SCC pp. 658-60, paras 11-14)

"11. .. We are, however, of the view that "The Precautionary Principle' and 'The Polluter Pays Principle' are essential features of 'Sustainable Development'. The 'Precautionary Principle' - in the context of the municipal law - means :

(i) Environmental measures - by the State Government and the statutory authorities - must anticipate, prevent and attack the causes of environmental degradation.

(ii) Where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

(iii) The 'onus of proof' is on the actor or the developer/industrialist to show that his action is environmentally benign.

12. 'The Polluter Pays Principle' has been held to be a sound principle by this Court in Indian Council for Enviro-Legal Action v. Union of India [(1996) 3 SCC 212 : JT (1996) 2 SC 196]. The Court observed : (SCC p. 246, para 65)

'... we are of the opinion that any principle evolved in this behalf should be simple, practical and suited to the conditions obtaining in this country'.

The Court ruled that : (SCC p. 246, para 65)

'... once the activity carried on is hazardous or inherently dangerous, the person carrying on such activity is liable to make good the loss caused to any other person by his activity irrespective of the fact whether he took reasonable care while carrying on his activity. The rule is premised upon the very nature of the activity carried on'.

Consequently the polluting industries are 'absolutely liable to compensate for the harm caused by them to villagers in the affected area, to the soil and to the underground water and hence, they are bound to take all necessary measures to remove sludge and other pollutants lying in the affected areas'. The 'Polluter Pays Principle' as interpreted by this Court means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. Remediation of the damaged environment is part of the process of 'Sustainable Development ' and as such the polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology.

13. The Precautionary Principle and the Polluter Pays Principle have been accepted as part of the law of the land. Article 21 of the Constitution of India guarantees protection of life and personal liberty. Articles 47, 48-A and 51-A(g) of the Constitution are as under :

47. Duty of the State to raise the level of nutrition and the standard of living and to improve public health. - The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.

48-A. Protection and improvement of environment and safeguarding of forests and wildlife. - The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.

51-A. (g) to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.

Apart from the constitutional mandate to protect and improve the environment there are plenty of post-independence legislations on the subject but more relevant enactments for our purposes are : The Water (Prevention and Control of Pollution) Act, 1974 (the Water Act), the Air (Prevention and Control of Pollution) Act, 1981 (the Air Act) and the Environment (Protection) Act, 1986 (the Environment Act). The Water Act provides for the constitution of the Central Pollution Control Board by the Central Government and the constitution of the State Pollution Control Boards by various State Governments in the country. The Boards function under the control of the Governments concerned. The Water Act prohibits the use of streams and wells for disposal of polluting matters. It also provides for restrictions on outlets and discharge of effluents without obtaining consent from the Board. Prosecution and penalties have been provided which include sentence of imprisonment. The Air Act provides that the Central Pollution Control Board and the State Pollution Control Boards constituted under the Water Act shall also perform the powers and functions under the Air Act. The main function of the Boards, under the Air Act, is to improve the quality of the air to prevent, control and abate air pollution in the country. We shall deal with the Environment Act in the latter part of this judgment.

14. In view of the above-mentioned constitutional and statutory provisions we have no hesitation in holding that the Precautionary Principle and the Polluter Pays Principle are part of the environmental law of the country."

33. Based on the reports of various technical authorities mentioned in this judgment, we have already reached the finding that the emissions generated by the coke/coal consuming industries are air pollutants and have damaging effect on the Taj and the people living in the TTZ. The atmospheric pollution in TTZ has to be eliminated at any cost. Not even one per cent chance can be taken when - human life apart - the preservation of a prestigious monument like the Taj is involved. In any case, in view of the precautionary principle as defined by this Court, the environmental measures must anticipate, prevent and attack the causes of environmental degradation. The "onus of proof" is on an industry to show that its operation with the aid of coke/coal is environmental benign. It is, rather, proved beyond doubt that the emissions generated by the use of coke/coal by the industries in TTZ are the main polluters of the ambient air.

34. We, therefore, hold that the above-mentioned 292 industries shall as per the schedule indicated hereunder change over to the National Gas as an industrial fuel. The industries which are not in a position to obtain gas connections - for any reason - shall stop functioning with the aid of coke/coal in the TTZ and may relocate themselves as per the directions given by us hereunder.

35. We order and direct as under :

(1) The industries (292 listed above) shall approach/apply to the GAIL before 15-2-1997 for grant of industrial gas connection.

(2) The industries which are not in a position to obtain gas connections and also the industries which do not wish to obtain gas connections may approach/apply to the Corporation (UPSIDC)/Government before 28-2-1997 for allotment of alternative plots in the industrial estates outside TTZ.

(3) The GAIL shall take final decision in respect of all the applications for grant of gas connections by 31-3-1997 and communicate the allotment letters to the individual industries.

(4) Those industries which neither apply for gas connections nor for alternative industrial plot shall stop functioning with the aid of coke/coal in the TTZ with effect from 30-4-1997. Supply of coke/coal to these industries shall be stopped forthwith. The District Magistrate and the Superintendent of Police shall have this order complied with.

(5) The GAIL shall commence supply of gas to the industries by 30-6-1997. As soon as the gas supply to an industry commences, the supply of coke/coal to the said industry shall be stopped with immediate effect.

(6) The Corporation/Government shall finally decide and allot alternative plots, before 31-3-1997, to the industries which are seeking relocation.

(7) The relocating industries shall set up their respective units in the new industrial estates outside TTZ. The relocating shall not function and operate in TTZ beyond 31-12-1997. The closure by 31-12-1997 is unconditional and irrespective of the fact whether the new unit outside TTZ is completely set up or not.

(8) The Deputy Commissioner, Agra and the Superintendent (Police), Agra shall effect the closure of all the industries on 31-12-1997 which are to be relocated by that date as directed by us.

(9) The U.P. State Government/Corporation shall render all assistance to the industries in the process of relocation. The allotment of plots, construction of factory buildings, etc., and issuance of any licence/permissions, etc., shall be expedited and granted on priority basis.

(10) In order to facilitate shifting of industries from TTZ, the State Government and all other authorities shall set up unified single agency consisting of all the departments concerned to act as a nodal agency to sort out all the problems of such industries. The single window facility shall be set up by the U.P. State Government within one month from today. The Registry shall communicate this direction separately to the Chief Secretary, Secretary (Industries) and Chairman/Managing Director, UPSIDC along with a copy of this judgment. We make it clear that no further time shall be allowed to set up the single window facility.

(11) The State Government shall frame a scheme for the use of the land which would become available on account of shifting/relocation of the industries before 30-6-1997. The State Government may seek guidance in this respect from the order of this Court in *M. C. Mehta v. Union of India* [(1996) 4 SCC 351].

(12) The shifting industries on the relocation in the new industrial estates shall be given incentives in terms of the provisions of the Agra Master Plan and also the incentives which are normally extended to new industries in new industrial estates.

(13) The workmen employed in the above-mentioned 292 industries shall be entitled to the rights and benefits as indicated hereunder :

(a) The workmen shall have continuity of employment at the new town and place where the industry is shifted. The terms and conditions of their employment shall not be altered to their detriment.

(b) The period between the closure of the industry in Agra and its restart at the place of relocation shall be treated as active employment and the workmen shall be paid their full wages with continuity of service.

(c) All those workmen who agree to shift with the industry shall be given one year's wages as "shifting bonus" to help them settle at the new location. The said bonus shall be paid before 31-1-1998.

(d) The workmen employed in the industries who do not intend to relocate/obtain Natural Gas and opt for closure, shall be deemed to have been retrenched by 31-5-1997, provided they have been in continuous service (as defined in Section 25-B of the Industrial Disputes Act, 1947) for not less than one year in the industries concerned before the said date. They shall be paid compensation in terms of Section 25-F(b) of the Industrial Disputes Act. These workmen shall also be paid, in addition, six years' wages as additional compensation.

(e) The compensation payable to the workmen in terms of this judgment shall be paid by management within two months of the retrenchment.

(f) The gratuity amount payable to any workman shall be paid in addition.

36. Before parting with this judgment, we may indicate that the industries in the TTZ other than 292 industries shall be dealt with separately. We direct the Board to issue individual notices and also public notice to the remaining industries in the TTZ to apply for gas connection/relocation within one month of the notice by the Board. The Board shall issue notice within one month from today. The matter to come up for further monitoring in this aspect before this Court on 4-4-1997.

37. We may also indicate that this Court by order dated 10-5-1996 has stopped the operation of all the brick kilns in the TTZ with effect from 15-8-1996. This Court by order dated 4-9-1996. This Court by order dated 4-9-1996 has directed that the fly-ash produced in the process of the functioning of thermal plants may be supplied to the brick kilns for the construction of bricks. This would be a useful step to eliminate the pollution caused by fly-ash.

38. This Court is separately monitoring the following issues for controlling air pollution in TTZ :

(a) The setting up of hydro-cracker unit and various other devices by the Mathura Refinery.

(b) The setting up of a 50-bed hospital and two mobile dispensaries by the Mathura Refinery to provide medical aid to the people living in the surrounding areas (Court order dated 7-8-1996).

(c) Construction of Agra bypass to divert all the traffic which passes through the city. Under direction of this Court, 24 kms' stretch of the bypass shall be completed by the end of December 1996 (Court order dated 10-4-1996).

(d) Additional amount of Rs. 99.54 crores sanctioned by the Planning Commission to be utilised by the State Government for the construction of electricity supply projects to ensure 100 per cent uninterrupted electricity to the TTZ. This is necessary to stop the operation of generating sets which are major source of air pollution in the TTZ (Court orders dated 10-4-1996, 10-5-1996, 30-8-1996, 4-9-1996 and 10-9-1996).

(e) The construction of Gokul Barrage, water supply work of Gokul Barrage, roads around Gokul Barrage, Agra Barrage and water supply of Agra Barrage, have also been undertaken on a time-schedule basis to supply drinking water to the residents of Agra and to bring life into River Yamuna which is next to the Taj (Court order dated 10-5-1996 and 30-8-1996).

(f) Green belt as recommended by NEERI has been set up around Taj. Pursuant to continuous monitoring of this Court, the Green Belt has become a reality.

(g) This Court suggested to the Planning Commission by order dated 4-9-1996 to consider sanctioning separate allocation for the city of Agra and the creation of separate cell under the control of Central Government to safeguard and preserve the Taj, the city of Agra and other national heritage monuments in the TTZ.

(h) All emporia and shops functioning within the Taj premises have been directed to be closed.

(i) Directions have been issued to the Government of India to decide the issue, pertaining to declaration of Agra as heritage city within two months.

39. We are mentioning these issues dealt with by this Court because it may be necessary to monitor some of these matters to take them to a logical extent. This Court may look into these matters on 4-4-1997.

40. The issue relating to 292 industries is thus disposed of.