

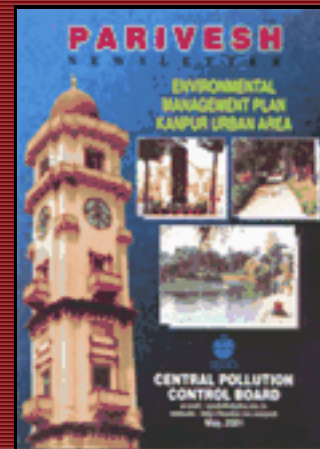
Parivesh

A News Letter from ENVIS Centre - Central Pollution Control Board

Editorial

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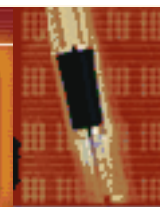


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Parivesh

A News Letter from ENVIS Centre - Central Pollution Control Board



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Editorial

The Urban areas of the country are growing into bigger agglomerations with ever increasing influx of population. The urban population in India increased from 25.85 million in 1901 to 159.46 million in 1981 and in 1991 it crossed 217 million (nearly 26% of the total population). The number of urban centres (town and urban agglomerations) has grown from 2,843 in 1951 to 3,678 in 1991. As in 1991, India had 23 metropolitan cities having population more than 1 million in each city.

The urban areas confronted with a plethora of environmental problems due to haphazard development. Absence of environmental considerations in planning & development process, over crowding and congestion, lack of sufficient water supply, unhygienic and improper living conditions, pollution of air and water, improper and inadequate garbage collection and disposal systems are among the host of problems in the urban areas.

To safeguard the environment and to maintain good quality of life in the urban areas, there is a need of concerted effort and a holistic approach. As is said "Prevention is better than cure", there is a need to properly plan land uses considering environmental aspects and to ensure that development take place in a sustainable manner.

The Central Pollution Control Board took an initiative by taking up a pilot study on "Environmental Management Plan for Kanpur Urban Area." We are overwhelmed with the response received from all the concerned in Kanpur. We are particularly happy to note that the Kanpur Development Authority considered the pilot study report "Environmental management Plan for Kanpur Urban Area" and has incorporated it in their short and long term development plans. Thanks the Kanpur Development Authority, a number of measures for improvement of environment are under implementation in Kanpur.

Through this Newsletter, we would like to share the experience in Kanpur and set an example that it is still not too late to do something for improvement of environment in our cities and that efforts can help bring results.

(Dilip Biswas)
Chairman, CPCB



Environmental management Plant Kanpur Urban Area

BACKGROUND

With development, the urban areas are growing into bigger agglomerations with ever increasing influx of people. The urban areas in the country are poised with severe environmental problems. The adverse environmental effects are due to air pollution, water pollution, noise pollution, unhygienic and poor living conditions, human stress, natural resource depletion, diminishing of green cover, over exploitation of resources, inadequate water supply, overcrowding and congestion, damage to cultural & heritage sites. Some of the causes of the adverse effects are population migration, gap between supply/demand of jobs and services, mushrooming of slums, lack of water supply, drainage and garbage disposal facilities, inadequate public transport, lack of recreation areas, haphazard growth of industries, encroachments, lack of public awareness, lack of plan implementation and resource crunch. The problems of environmental pollution in urban areas are becoming complex and are creating high-risk environment.

Conventionally, the environmental problems in the urban areas have been addressed by adopting pollution control measures. Such measures included providing of adequate sewage treatment facilities, clean fuels for vehicles, improved engines for vehicles and pollution control in industries. However, it has been seen that the problems due to lack of proper planning and plan implementation are coming to fore due to incompatible land uses, such as industries coming up with in residential areas. It has to be understood that pollution control measures alone cannot prevent pollution and related risks. Some of the concerns are:

1. Emission standards from vehicles or industries are mainly based on techno-economic feasibility, which implies that certain amount of emissions are permitted and mere compliance with standards does not ensure zero pollution. The standards of emissions from industries or vehicles are required to be made stringent from time to time, if the background levels of pollution increase. This implies additional costs on the 'sources' and hence the possibilities of the 'sources' not complying with standards due to these increased costs.
2. The pollution control systems have problems due to reliability of their performance, operation and maintenance and also risks if the polluter does wilfully not operate them.
3. As the number of industries at a location increase, there are cumulative impacts on the surroundings.
4. Distance between the pollution 'source' and the 'receiver' plays an important role. If the industries come up too close to residential areas or are placed within residential areas, there could be increase in risks.
5. Risks due to storage and handling of chemicals, transport of chemicals, materials and products also have to be considered.

The issues of concern are:

1. Environmental aspects are rarely taken into consideration in urban planning/ development
2. Increasing PILs for relocating environmentally incompatible land uses is an indication that siting of industries/developmental projects will be dictated by public opinion
3. Solutions of pollution control in individual sectors viz. industry, transport etc. are not entirely solving the problems
4. Lack of planning standards for incorporating environmental infrastructure as a part of land use is leading to space problems and looking for uneconomical solutions at later stages
5. The increasing environmental awareness can have a negative impact on development if not corrected in the initial stages itself

Proper planning of land uses and supporting infrastructure is an important aspect which has been generally neglected. The environmentally relevant activities that occupy land (land use) and have potential to pose impacts on the environment

include trade and industry locations, housing construction, transport facilities (road, rail, water), utilities, refuse/hazardous waste, wastewater installations, forestry, quarrying/mining, power generation, agriculture, recreation and tourism. Some of these activities also have inter-dependencies such as the industries depending on housing, transport, waste treatment installations etc. It is required to incorporate environmental considerations into these activities and to appropriately plan the land uses, compatible to each other.

The environmental considerations are usually not incorporated while preparing land use plans. Even if they are considered, plan implementation is generally weak. For ensuring best results of improved environmental quality, proper planning is utmost important. It is easier to plan and execute preventive measures than to invest on pollution control and remediation of polluted areas. Proper land use planning does not mean that there is need for pollution control. Pollution control and regulatory measures can play a very effective role as a second step of defence against pollution.

The Central Pollution Control Board (CPCB), since 1995 has been involved in executing various environmental planning and mapping tasks targeted towards ensuring sustainable development. Using these experiences, CPCB has taken up a pilot study for Kanpur Urban Area to demonstrate the planning tools for environmental improvement. The present Newsletter details the outcome of the study.

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Environmental management Plant Kanpur Urban Area

ENVIRONMENTAL MANAGEMENT PLAN - KANPUR URBAN AREA

The study area covers the main city of Kanpur and its immediate vicinity. The environmental management plan includes environmental plan and environmental improvement strategies. Environmental planning includes a system of plans, programmes and measures for planning use/protection of natural resources and incorporation of environmental/ecological objectives into the Master Plan. The study included identification of sources of pollution, environmental monitoring, field survey, mapping and environmental modelling to arrive at an environmental management plan for Kanpur urban area.

The mapping was carried out in a scale of 1:30,000 (as base maps were readily available in this scale). The maps prepared include land use, location of existing industries, environmental resource areas, housing quality, water supply, drainage, surface water quality, ground water quality, air quality, solid waste collection status, environmental hotspots and environmental (management) plan. Different maps included information as below:

S.No.	Name of the Map	Contents
1	Base map	Boundaries, major roads, railways, rivers
2	Land use map	Residential areas, open space/agricultural land, rivers/water bodies, institutional areas, water logged areas, burial grounds, industrial areas, parks, play grounds, village settlements, slums, commercial areas, forests, solid waste dump sites, religious places, residential cum commercial areas, etc.
3	Existing industries map	Closed industries, partially operational industries, cluster of tanneries, heavy engineering industries, small scale chemical industries, light engineering industries, workshops, large scale chemical industries, flour mills, industrial areas under construction, dairy etc.
4	Environmental resource areas	Plantations, monuments, play grounds, forest plantation, open lands, agricultural lands, parks, recreational areas, forests, prayer grounds etc.
5	Housing quality	Categorised into very good, good, average, poor and very poor zones based on services such as water supply, sewerage, drainage, roads etc.
6	Surface water quality map	Drainage, sewerage network, areas with no sewerage network, areas covered by sewerage network, water logged areas, open areas not needing sewerage, polluted stretches of rivers.
7	Ground water quality map	Contaminated areas, areas having traces of pesticides, areas with good quality
8	Solid waste	Areas with no specific problems, areas with occasional collection and disposal problems, areas with poor collection efficiency, dump sites

9	Air quality map	Highly polluted areas, polluted areas, medium polluted areas, good quality areas, very good quality areas
10	Environmental hot spots	Problem areas/zones compiled from various above maps
11	Environmental (management) plan	Proposed green belts, forests, open spaces etc. to be preserved, slums needing upgradation, change of land use from industry to greens, commercial areas needing rehabilitation, proposed industrial areas, proposed road network and railway

The environmental problems (hotspots) and the recommendations were grouped into:

1. The city structure or city development concept
2. Air quality management
3. Solid and liquid waste management

Brief abstracts from the study report (prepared in 1997-1998) and the subsequent implementation measures undertaken are given below.

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Environmental management Plant Kanpur Urban Area

ENVIRONMENTAL MANAGEMENT PLAN - KANPUR URBAN AREA

Cawnpore (the present Kanpur) was an obscure hamlet until British set up an army camp in 1778. The subsequent development of Kanpur into an industrial city can be traced back to establishment of Garrison. Kanpur is the second largest city in the state of Uttar Pradesh. The city is bounded between two rivers namely Ganges in the north and Pandu in south. The average breadth of the city is about 9 km between two rivers and extreme length is about 27 km spread towards northwest and southeast.

The three events in succession that accelerated the pace of industrial development of Kanpur are:

- annexation of Oudgh dynasty by British in 1856;
- the first war of independence in 1857; and
- connecting the city with railway line in 1859.

The important developments in the city are:

1. separate municipality (one of the oldest in country) was established in the year 1861
2. electricity supply for the first time in 1906
3. first sewerage network in the year 1904
4. first piped water supply in the year 1889
5. first manual telephone exchange was opened in 1907 and operated by Kanpur telecom organisation
6. The Town Development Bill was approved during 1918
7. The Kanpur Urban Area Development Authority replaced it in 1945
8. City underwent rapid industrial development after post independence

The climate of Kanpur is tropical in nature. The city encounters seasonal variation of climate throughout the year with high temperature during summer, cold weather during winter and sufficient rain during monsoon. The hottest months are May and June with mercury levels touching 40 to 45° C. Usually summers are dry. The temperature falls to 6.5 to 10° C during December and January. Kanpur encounters lowest R.H during summer (35 to 70%), medium in winter (55 to 86 %) and maximum during monsoon period (60 to 93 5%). The annual rainfall in the range of 420 to 1300 mm per year with average being 821 mm per annum.

The population growth in Kanpur in 1941 was 7.17%, however it had fallen to 2.2% by 1991. The decadal population growth trends are shown table.

Decadal Population Growth in Kanpur

Year	Population in Millions	Annual Growth (%)
1901	0.202	-
1911	0.178	(-)1.26
1921	0.216	1.94

1931	0.234	1.19
1941	0.487	7.17
1951	0.705	3.77
1961	0.971	3.25
1971	1.275	2.76
1981	1.639	2.54
1991	2.037	2.20

A number of industrial establishments are located within the urban agglomeration. The main categories of these industries are textiles, heavy engineering and tanneries. There are about 75 large and medium scale industries apart from 4,000 (approx.) small scale units. Kanpur is an important centre for trade and commerce in Uttar Pradesh. Besides production, the city is a major distribution centre for finished leather products, textiles and fertilisers.

Kanpur is a transit point for many tourist attractions around the city. Notable tourist points within the city are Bithoor, Ganga Ghats and J.K Temple. Educational institutes of national repute such as Indian Institute of Technology, National Sugar Institute, Central Leather Research Institute, Chandra Sekhar Azad Agricultural University, Ganesh Shankar Vidyarthathi Memorial Medical College, National Textile Institute, Harcourt Butler Technological Institute and Indian Council of Agricultural Research Institute are situated in the city. Other important educational institutes are Kanpur University and Govt. Polytechnic.

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Environmental management Plant Kanpur Urban Area

KEY ISSUES

- Population growth declined from 7.17% in 1941 to 2.2% in 1991. The main reasons can be attributed to closure of industries and deteriorating environmental conditions. The Master Plan of the city has expired in 1991. Although, the new plan is under preparation. lack of planning, congestion, encroachments and deteriorated environmental conditions are predominantly visible in the city.
- The city is showing signs of decay with many large industrial units facing closure and there is steady deterioration in infrastructure facilities. The growth of the city is decelerated in the past two decades and the immigration to the city has become negligible.
- The industrial areas are in the heart of the city with residential areas on either side. The risks of pollution and impacts from industries are obvious.
- In general, most of the housing localities in Kanpur are marred with unhygienic living conditions and lack of civic amenities. There are about 296 identified slums in Kanpur having a total population of about 5 lakhs. Lack of civic services, unhygienic living conditions coupled with increase in housing stock deficit gave rise to slum dwellings and its population. The urban infrastructure is not satisfactory enough to bring homogenous development in new areas. The growth of housing stock is not keeping in pace with the growth of population. The city of Kanpur is plagued with frequent power failures. It is one of the major factors affecting the quality of life even in the areas earmarked as good quality housing areas. As per the socio-economic survey conducted by the Kanpur Development Authority, about 67% of the households in Kanpur live in single room or portion thereof, 21 % in two room dwelling, 6 % in three room dwelling and only 3 % households in dwelling units having 4 rooms or more.



- The city has 296 identified slums with population over 5 lakhs. The slums, since have no sewerage and other infrastructure facilities, pose severe environmental problems.



Severe sanitation problems in slum areas

- The existing air quality in core areas is 5 to 6 times higher than the standards. About 60% of the city has air pollution problems. City encounters severe dust and smoke problems and the prescribed limit of $500 \mu\text{g}/\text{m}^3$ in terms of SPM is often exceeded in many locations in the city. Due to impact of vehicular pollution, air quality at major road crossings exceeds the norms of SPM and lead. About 0.2 million petrol/diesel driven vehicles are

plying on the roads contributing to 142 MT of pollutants per day. Badly maintained roads, mixed traffic pattern, road encroachments, apart from meter gauge railway track traversing the city length aggravate the impact of the vehicular pollution. Noise levels are alarmingly high in commercial areas, far exceeding the prescribed limits. Residential and silence zones are also marginally exceeding the safety norms.

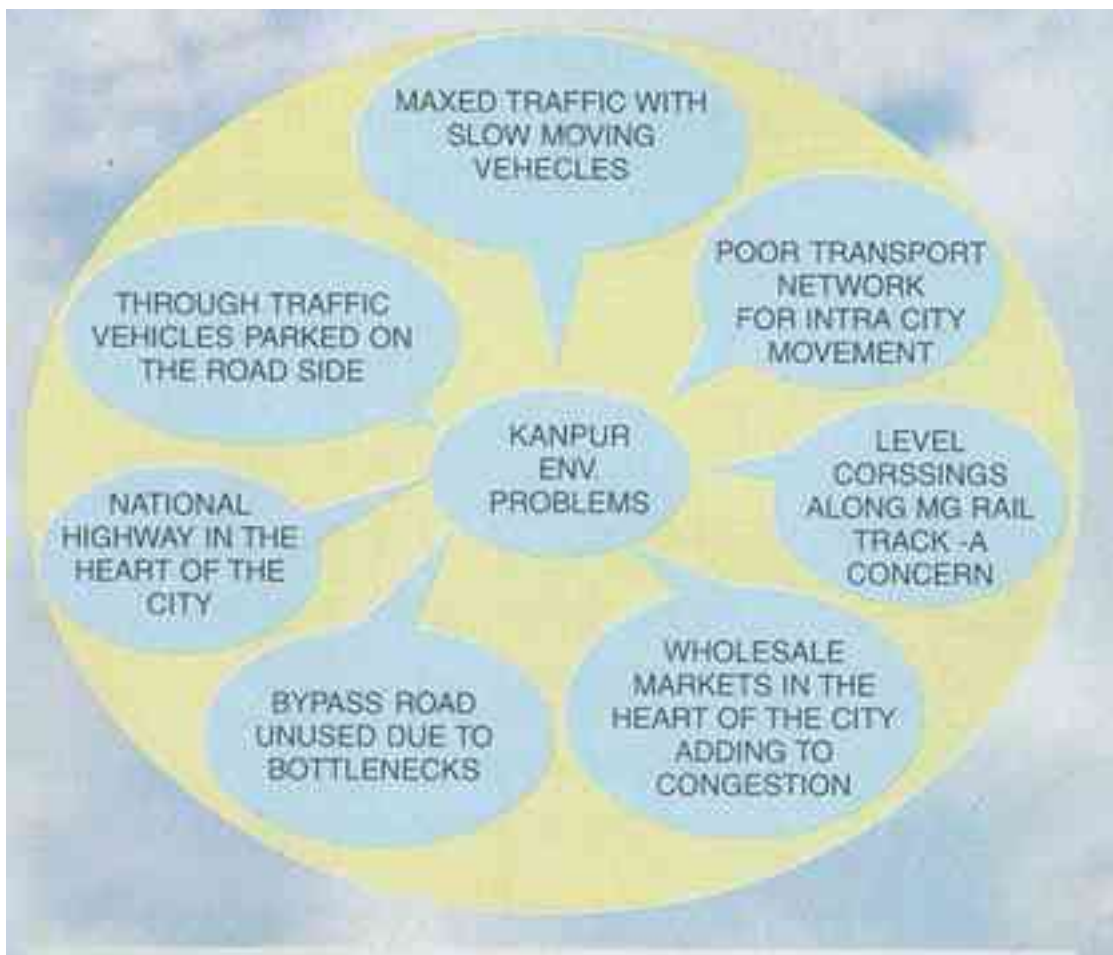


Traffic congestion - A regular feature

- Smoke emissions and noise from diesel driven tempos, which constitutes the major public transport system in Kanpur, causes nuisance to the commuters as well as population living along the roadside. The city lacks adequate road network for providing flexibility for traffic movement especially for trips from north to south of city and for cross movement within the city. The highway in the heart of the city has large volume of through traffic that has nothing to do with the city. Also, the highway is posing noise and air pollution problems. The existing meter gauge railway line is leading to traffic blocks and air pollution problems due to increased idling time of vehicles at intersection and traffic congestion. The concentration of lead was found exceeding the standards at some of the busy road intersections in the city. The existing wholesale markets and the truck and bus terminus in the heart of the city are posing traffic problems. Use of coal, wood , cow-dung etc. in slums *abadis*, LIG colonies, slum settlements along the railway yard create localised smoke problems effecting visibility and irritation to eyes. The problem is more severe during winters due to stable wind conditions.
- The city has inadequate transport network and traffic and transportation system leading to considerable air pollution problems.
- The M.G. rail track passing along the residential areas towards the western part of the city is of concern as air pollution is found to increase by 6 to 8 times after opening the gates (about 17 in number) after passing of the train.
- The main water supply intake at Bhaironghat pumping station is located in the proximate down stream of Ranighat *nallah* where other minor streams are discharging sewage into the channel. This is of great concern as the water source gets contaminated and may become a potential source for cause of epidemics. Leakage and intrusion of sewage and other contaminated effluent into the distribution system is a common problem in the city affecting the drinking water quality at the receiving end. Due to heavy silting in supply canal, raw water is not reaching the tanks for treatment at Benajhabar water works.



- About 60% KDA is without sewerage system. The septic tanks installed by residents in these areas overflow on to roads. The total wastewater generated is about 390 mld. About 20 storm water drains are carrying industrial and domestic wastewater to River Ganga and about 7 drains to River Pandu. About 224 mld sewage is discharged untreated. About 260 mld wastewater is flowing to river Ganga whereas the trunk sewer that collects the sewage from the drains joining it has a capacity of only 160 mld. Usage of hand pumps for drinking water poses severe threat when the sewage is disposed into open drains or into soak pits.



- About 1400 MT of garbage from domestic sources and 30 MT of industrial waste are being generated daily from the city. Existing infrastructure is fairly adequate to collect and dispose the solid waste. Apart from conventional waste, about 15 MT of hazardous waste and 7.5 MT of bio-medical waste are being generated from the city, for which a site for disposal is yet to be identified. Roadside dumping of garbage is observed.



Solid waste dump site along national highway

- In a few areas the ground water is contaminated with toxic heavy metals and other pollutants. The contamination of ground water is attributed to indiscriminate dumping of toxic industrial waste on ground by some chemical industries in the past and these damages are almost irreversible.

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HIGHLIGHTS OF RECOMMENDATIONS

- The new industrial areas coming in the southern side of the city need proper environmental assessment before taking decisions on permitting new industries.
- For traffic and transportation system, a number of measures including removing of bottlenecks, creating new corridors by widening roads or removing encroachments, new bypass road etc. had been recommended. Since the existing metre gauge rail track is posing problems to traffic movement and causing air pollution, it was proposed to introduce MRTS for intra city movement using this track. For the 17 crossings, a parallel road was proposed with three crossovers. The crossovers were also suggested to be used as commercial nodes. The rail traffic on the metre gauge was proposed to be realigned with the existing broad gauge track (there was a move at the time of EMP preparation to convert metre gauge track to broad gauge).
- Shifting of wholesale markets, bus terminus and truck terminus that are located in the heart of the city, to an appropriate place was suggested.
- Providing of green belts at various places as shown in the environmental (management) plan was suggested.
- Recommendations were made on sewerage and drainage system was made, including phase-wise expansion of sewerage network.
- Dredging and renovation of Motijheel ponds to create recreational areas was suggested.
- Stopping immediately of dumping of wastes along GT Road was recommended.
- New sites for waste disposal were suggested to be identified based on environmental assessment and to adopt appropriate treatment technologies.
- EPM can be an important input in preparation of Master Plan for Kanpur

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PUBLIC WORKSHOP ON EMP - KANPUR

- To discuss the study outcome with all the concerned and to get a feedback on implementation of the results proposed, a one day workshop was jointly organised at Kanpur by the Kanpur Development Authority and CPCB on April 06, 1999. The workshop was inaugurated by Sh. Satish Mahana, Hon'ble Minister of State for Urban Development, Government of Uttar Pradesh and concluded in the presence of Smt. Sarla Singh, Hon'ble Mayor, Kanpur.

The workshop was attended by most of the public representative of Kanpur urban area particularly the corporators. The workshop was graced by Sh. Ajay Shankar, IAS, Divisional Commissioner, Kanpur Division; Sh. N. N. Prasad, IAS, Vice Chairman, KDA; Sh. L.B. Tiwari, IAS, Mukhya Nagar Adhikari, Kanpur Nagar Nigam; Sh. R. C. Mishra, Secretary, KDA; Sh. Vinoy Shankar, IAS (Retd), Sr. Consultant, IIT, Delhi, apart from participants representing different local Govt. organisations viz. Kanpur Nagar Nigam, Kanpur Jal Sansthan, Jal Nigam UPPCCB, RTO etc. besides senior Officers from KDA and CPCB. The workshop was also represented by large industries viz. M/s Duncans Industries, M/s LML and representatives from industrial associations. Among the other participants, the local NGOs viz. Eco-friends, Ganga Sewa Samiti and I Love Kanpur, representatives from local educational institutions viz. IIT, University and HBTI, representatives from the leading press, AIR, Siti Cable, Zee TV and Doordarsan.

A number of prominent personalities and corroborators were requested to deliver their view on the aspects of environmental issues of Kanpur based on inputs provided on "EMP – Kanpur Urban Area". A few of the views are listed below.

- Eco-friends (NGO), Kanpur - requested to make a white paper for the city of Kanpur as has been prepared for Delhi and Agra.
- Prof. (Dr.) Vinod Tare, Indian Institute of Technology, Kanpur - requested for optimal utilisation of resources with special reference to water including extraction of groundwater, leading to sustainable development.
- I love Kanpur (NGO) explained how an area can be kept clean by people participation. He cited the example of Lakhanpur area in Kanpur.
- Mr. Grahams Jones, Project Manager, Community Development, ICDP, Kanpur stressed for a dynamic committee, who should look after the identified activities mentioned in the workshop.
- Sh. Vinay Shankar, IAS (Retd.) emphasised for more micro (locality/area) based as well as macro (regional/district) based planning. He emphasised to utilise the data generated through satellites for developmental activities.
- Mrs. Bina Arya, Corporator, while describing the water logging problems, poor management of solidwaste management, encroachments of roads by the vendors, requested for speedy implementation of the suggested environmental management plan.
- Sh. Raghunath Singh, Ex-MLA and representatives of Ganga Mahasamiti (NGO) requested for speedy implementation of the environmental management plan. He also stressed the need for the conservation of river Ganges.
- Sh. S. M. Shahid, President, UP Leathers Industries Association requested to include eradication programme of stray animals including pigs.

The recommendations that came up from the workshop include constitution of a Task Force for overall

implementation and overseeing execution of the EMP. Also, suggested was constitution of Work Groups on city structure, air quality and solid & liquid waste management. The other suggestions include:

- Constitution of Integrated Development Committee
- "Environment" to be included in school curriculum
- Action plans to be prepared by the experts upto the ward level
- Development of public awareness programme and NGO/ public participation in the developmental programme
- Involvement of KDA and KNN in developmental programmes
- Preparation of White Paper as has been prepared for Delhi and Agra
- Preparation of time targeted action plan for implementation of Environmental Management Plan for provide appropriate legal support

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Environmental management Plant Kanpur Urban Area

SALIENT ACHIEVEMENTS SINCE 1999

- **Formation of Task Force**

A task force has been constituted soon after the workshop under the chairmanship of Sh. N.N. Prasad, Vice-Chairman, KDA. The other member-organisations in the task force are as below:

1. Kanpur Development Authority
2. Kanpur Nagar Nigam
3. Kanpur Jal Sansthan
4. UP Jal Nigam
5. Central Pollution Control Board
6. UP Pollution Control Board
7. Civil Defence, Kanpur
8. Public Works Department, UP
9. Kanpur Electric Supply Authority
10. District Administration
11. District Urban Development Authority
12. RITES



As recommended in the EMP, the concerned organisations were initially asked to study the problem areas with micro-details alongwith budget requirement and submit to the Task Force. The Task Force reviewed most of the action plans submitted by the concerned agencies and activities were divided into short term and long term implementation measures for the development of city.

Preparation of Blue Print

Upon receipt of the commitments and time targeted action plan from all concerned agencies/ministries, a Blue Print in the name of "Development and Up-keepment of Infrastructural Facilities for Kanpur City" has been prepared. The salient features of the Blue Print are given below.

- Strengthening of civil amenities like development of parks (particularly Motijheel complex with Jheel (pond with recreational facility like boating and gardens, Phool Bag with *phool* (Flowers), development of Ghantaghar area alongwith Ghanta (bell on tower), fountain in roundabouts, improvement of road condition

with and no heavy vehicles in congested areas.



- Traffic management by introduction of one way traffic, road dividers, street lighting, construction of fly-over, development of round-abouts (with fountains), traffic lights in most of the road crossings etc.



Traffic decongestion and beautification of Ghantaghar area

- Development and improvement of residential areas and industrial areas with roads.
- Shifting of inter city bus terminus from congested Ghantaghar (Railway Station Complex) to Jhakarkatti (by the side of G.T. Road near Railway Station), creation of new bus terminus for inter city transport.
- Lighting arrangement at most busy crossings
- Improvement in the existing road net work
- Shifting of slaughter house from the city
- Improvement in the drainage network including regular cleaning
- Beautification of city by plantation along the canal side, recreational facility at Motijheel and Kidwai Nagar including earning of revenue form parking, entry fee, imposition of penalty for violation of norms etc.

Improvement in City Structure

- Consultants, viz. IIT for city planning, RITES for transport management, CII for industrial development, have been engaged.



Renovation at Phool Bag

- The Task Force reviewed most of the action plans submitted by the concerned agencies and activities were divided into short and long term implementation measures for the development of city.
- All the concerned agencies/organizations have been brought to work under one umbrella and have identified the problems of the city. Implementation measures were prioritised and divided into Short Term Plan and Long Term Plan.
- Assurance has been taken from Government/concerned ministries on implementation.
- The proposed implementation measures gained political support.
- New residential areas have been identified.
- Strengthening of civil amenities including construction of drains and roads, regular lifting of solid waste and providing of recreational facilities such as development of parks has been taken up. Motijheel complex has been developed with gardens and boating. Phool Bag known for *phool* (flowers) has been restored with flowers. Additional attraction at Motijheel is the musical fountain, which is earning a lot revenue, in addition to providing recreation.



View of Motijheel, which has been renovated

- Development and improvement of residential areas and industrial areas with road corridors.
- Shifting of inter city bus terminus from congested Ghantaghar (Railway Station Complex) to Jhakarkatti (by the side of G.T. Road near Railway Station), creation of new bus terminus for inter city transport.
- Lighting arrangements made at most busy road crossings.
- Improvement in the existing road net work.
- Shifting of slaughter house from the city.
- Improvement in the drainage network including regular cleaning.
- Beautification of city by plantation along the canal side, recreational facility at Motijheel and Kidwai Nagar.

Air Quality Management

- One way traffic introduced at Mall Road area
- Plying of heavy vehicles in commercial areas restricted.
- Parking areas developed at central business areas like Parade, Motijheel.
- Road dividers introduced for lane driving in main city roads like station road, main city road, VIP Road, Meston Road, 80 feet Road and Transport Nagar.
- Traffic signal system introduced at major traffic zones like Gurdev Palace, Parade, Ghataghar, Gumti no-5, Halsi Road, Transport Nagar etc.



Fountain at the round about in one of the important road junctions

- Complete decongestion of Ghantaghar area by means of shifting of bus terminus.
- Development of about 20 major road crossings with round-about and fountains/ plantations.
- Construction of flyover work is in progress at Gol-Chouraha.
- Most of the main road corridors have been improved.

Liquid and solid waste management

- Infrastructures facilities have been improved for solid waste lifting
- Frequency of lifting of waste has been improved in Civil Lines, Vikas Nagar, Dada Nagar, Transport Nagar and market areas
- Identification of sites for hospital waste disposal was taken up



Traffic islands constructed/improved at several places for better traffic flow

- Environmental impact assessment is in progress for the existing dump sites
- Water quality aspects are covered under Ganga Action Plan
- Treatment efficiency of CTEP/STPs are regularly monitored
- Activities have been assigned to consultants
- KDA is in regular touch with CII, industrial associations
- Development of Bothoor as Tourist Spot is under way

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REVIEW OF IMPLEMENTATION MEASURES

- The suggested short term and long term action plan for development and up-keepment and maintenance of infrastructure facility are being reviewed from time to time either by the Chairman of the Task Force or by the Hon'ble Minister for Urban Development.

As a result of such time bound activities, and concerted efforts, the city is already on the dynamic path of improvement.



Public workshop on EMP - Kanpur

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Central Pollution Control Board

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