



Executive Summary

Consistency is key to a successful implementation of any program. The Pune Municipal Corporation, takes pride in submitting the seventh successive Environmental Status Report for the year 2001-02, pursuant to the legal provisions. Significantly, the report is exclusively prepared in-house and covers extensive details of various promotional projects undertaken by the PMC. Recommendations on regulatory framework are also made to prevent environmental degradation. Besides, the role and expectations from the citizens in nurturing the urban environment are also defined.

The city, with 18° 31' N latitude and 73° 51' E longitude, is situated on the western margin of the Deccan Plateau at the confluence of Mutha and Mula rivers. Pune lies on the leeward side of the Western Ghats, at a height of about 560 Mts. above mean sea level. The mean daily maximum and the minimum temperatures for the hottest month i. e. May are 37°C and 23°C respectively. The same for the coldest month of December are 30°C and 12°C respectively. The relative humidity ranges from 36% in March to 81% in August. The annual rainfall is about 70 cm.

The census of 2001 reveals that the city population has reached a figure of 25,40,069 souls indicating a record rise by 62.13% from 1991 census. The Pune Municipal Corporation proposes to launch a massive program for controlling the population under Integrated Population and Development Project under the assistance of UNFPA from January 2003, to arrest the upward trend. The total population in the slums (declared + undeclared) is 10,50,000 souls. The Pune Municipal Corporation has undertaken number of welfare and development schemes for the citizens residing in the slums such as the construction of the public toilets, slum rehabilitation scheme, Lok Aawas Yojana, Valmiki Ambedkar Aawas Yojana. The PMC is also implementing various programs such as providing self-employment for the youths below poverty line, women and child welfare scheme, backward class welfare scheme and Suvarna Jayanti Shahari Rojgar Yojna in co-operation with the neighbourhood groups.

Economic Activity:

Presently, service industry is the primary and foremost activity that supports the city life. Employment in public/government bodies also constitutes a major force, with more than 25 state headquarters existing in the city. Construction is another sector, which has witnessed a growth during the last two decades. Recent addition is the Information Technology and Biotechnology. Work Participation Ratio (WPR) is estimated at 30.80% with employment pattern of 2% primary, 27.50% secondary and 70.50% in tertiary or service sectors.

Transportation:

With a population of over 25 lakhs and the area of 243.90 square kilometres, the city requires a massive transportation system. The Pune Municipal Corporation has constructed a road length of around 750 kilometres (asphalted) and 100 kilometres (non-asphalted) occupying 5% of the land area in the city. Of these,



twelve roads in the city are identified as the arterial roads, which are presently undergoing transformation in the form of cement concretization. The PMC and MSRDC have also undertaken construction of 24 fly-overs, Railway over-bridges, bridges over rivers in the city to ease the traffic congestion. With introduction of approximately 6800 vehicles per month, the traffic congestion in the city is increasing alarmingly. As a consequence, average speeds on the city roads are greatly impaired and range between 15 km/hr to 35 km/hr. Various development schemes such as square beautification, road divider and railings, setting up timers at the signals, creating parking lots, construction of sub ways to enhance the traffic mobility are completed with a few of them through BOT initiative. Unruly and heavy traffic has direct implication on air pollution in the city area. Disproportionate rise in the no. of vehicles, Growth of informal forms of mass transport, a severely impaired Pune Municipal Transport, heterogeneous traffic conditions with limited road capacities making segregation of traffic impossible, absence of a ring road despite radial expansion of the city, various encumbrances on roads, have all contributed in aggravating the traffic problems faced by the city. Absence of suitable parking facilities at important locations adds to the congestion of the traffic. The current record on accidents demonstrates that the numbers of fatal, major and non-injurious accidents are decreasing over the last few years, there is, however, a constant rise in the number of minor accidents. The city on an average registers about seven accidents every day.

Pune Municipal Transport:

The Pune Municipal Transport is no exception to the other public transport undertakings wherein the services are heavily subsidised. A thinner fleet, rising operational and maintenance costs, inventories and the establishment costs and decrease in the number of commuters, seriously impoverished the soundness of the Pune Municipal Transport. The informal public transportation in the form of diesel driven six seater auto rickshaws came on scene about five years ago adversely affecting its economic viability and also worsening the ambient air quality. Against this backdrop, the PMC was compelled to take coercive measures against these vehicles by banning their movement on certain roads under Section 208 of the Bombay Provincial Municipal Corporation Act, 1949. The PMT also has drawn a comprehensive action plan for its improvement, wherein a major thrust is given on augmentation of its fleet. Accordingly, the PMC has decided to propose a credit of Rs. 10 Crores to the PMT in the month of July 2002, for purchase of 100 new buses and improve public transport facilities.

Development planning:

Pune region has undergone a lot of changes in land use, due to the unprecedented growth in the urban areas of the region. The area under settlement has increased 2.4 times during last 30 years. The area under Agriculture and Grassland-Scrub has decreased by 31% and 39% respectively. The area under 'Hills and Forests' and watersheds remains apparently same, though there are some encroachments over some hill slopes, however very marginal in the regional context. The PMC has already embarked on the preparation of a draft development plan for the newly added area to ensure planned development there and the same is expected to be submitted to the PMC



for publication by end of July, 2002. The concept of Transferable Development Rights and Accommodation Reservation has only partly helped PMC to implement the DP of the old area. The PMC has been able to acquire land measuring 0.69 Sq. kms. so far through TDR and also develop 80 reserved sites through the concept of Accommodation Reservation. It is estimated that the PMC has so far cumulatively been able to implement the sanctioned DP to the extent of 42.91%. The shortcomings with regard to development planning include underestimated population, lack of proper evaluation of development tools like TDR, Accommodation Reservations, lack of road network in the outer area of the old city, limited area covered under sanctioned TP Schemes, lack of basic amenities of minimum standards etc.

Heritage properties:

Pune City boasts a rich cultural and historical background. The city has a number of beautiful structures, that need to be preserved or conserved. The Pune Municipal Corporation has taken initiative in conserving the buildings, artifact structures, areas and precincts of historic, aesthetic, architectural, cultural significance and natural features of environmental significance. In order to monitor conservation of the heritage structures, the urban heritage conservation committee has finalised Development Control Rules & Regulations for heritage structures.

Recreational Developments and Gardens:

The PMC has undertaken various garden development and urban afforestation projects in the city at 30 different locations. There is about 15% increase in the number of gardens in the year 2001-02. The PMC's success of transplantation of over 1000 trees coming under road widening has a revealing effect on the road development projects. The construction works of two large projects of gardens at Parvati, survey No. 120 and 121 (P. L. Deshpande garden, Sinhgad road) and Kothrud (on the 27-acre piece of land where earlier garbage depot existed) have also been undertaken by the PMC. Also, the civic body has undertaken urban afforestation project at Lohegaon on a plot of 80 acres area. The citizens are also encouraged to plant more trees in their own premises. The PMC offers plant saplings at subsidised rates for such purposes at four different places in the city with necessary technical support, if required. The Tree Authority of the PMC formulates norms for the conservation of plantations in the city.

Water Supply:

Pune City has a perennial source of surface water in the form of storage across Mutha river. Annual requirement of raw water is around 9.5 TMC (9500MCFT) against a cumulative storage capacity of 28 TMC in Khadakwasala, Panshet, Varasgaon and Temghar dams on Mutha river. On an average PMC is supplying 200 litre per capita per day of water to the citizen of Pune. About 1500 work force is deployed by the PMC to manage the distribution system with sizes ranging from 80 mm to 3000 mm covering distance of around 1200 kms. The PMC has undertaken a number of measures to overcome deficiency in water supply, such as, reducing leakage component by replacing existing PVC or AC lines and also by shifting pipelines under the road widening, installation of booster pumping



stations and supplementation of water supply through tankers. In order to provide equitable water supply to the entire city, the PMC has started implementation of the first phase of the Water supply Project costing Rs 201 crores. The PMC has shifted to charging water in the form of water tax instead of water meters since 01.04.2000 for residential and the mixed purpose properties. The meter system, however, continues for special domestic connections on medical ground and for rental properties besides commercial, industrial connections.

Drainage:

The city generates around 451 MLD of wastewater. The sewage collection system covers about 132 Km² area in the old Municipal limit whereas, about 49 Km² area would be covered by the sewer lines in the merged villages during 2002. A total of 88.96Km length has been added to the existing drainage lines. Nevertheless, about 265 MLD sewage is still carried through open gutters and nallas for the want of adequate conveyance system. It has led to an adverse impact on the environment in the surrounding areas through which they flow. In an effort to mitigate pollution in nallas, their channelisation program has been undertaken. Also, a large number of housing schemes in the outer area still depend on the on site sanitation in the form of septic tanks. The effluents in the nallas and rivers are affecting the ecological balance of the city. Massive program to augment the sewage treatment capacity is already launched by the PMC. As on date over 50% of the construction work of Bhairoba nalla STP (largest in India) and Bopodi STP is completed and both will be commissioned by January 2003. About 40% civil work of Erandawane STP and 60% that of Tanajiwadi STP is completed and the plants will be commissioned by March 2003 and October 2002 respectively. In the newly merged villages 545 km length of sewage collection systems is planned; of which 80 km has been already laid while another 163 kms will be laid in the coming year.

Solid Waste Management:

The city generates about 1000 metric tons of solid waste daily which amounts to about 400 to 500 gm of solid waste per day/per capita. The waste generated is rarely segregated at source and thus contains both dry and wet components. The PMC is responsible for providing necessary infrastructure for collection, storage, segregation, transportation, processing and disposal of municipal solid waste. Average cost of solid waste handling is Rs. 1500 per ton. In order to maintain hygienic conditions in the SWS management, PMC strives hard in proper collection, transportation and disposal of solid waste. The transportation of solid waste in three shifts, setting up of mini bio-gas plants, ban on plastic of sizes less than 20 - 25 micron thickness etc. are some initiatives being taken in this regard. At the garbage depot at Uruli Devachi efforts are underway for effective disposal of garbage through use of effective micro-organism (EM) technology, installation of carcass utilisation plant, etc. Special cleanliness drive is being under taken through nuisance detection squad.

Air Pollution:

Exposure to air pollution is now an almost inescapable part of our urban life. Air pollution can adversely affect human health, not only by direct inhalation but also



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indirectly by other exposure routes, such as drinking water contamination, food contamination and skin transfer. Most of the air pollutants directly affect the respiratory and cardiovascular systems. Air pollution due to vehicular emissions is estimated at 181.96 tons per day and is increasing unabated. Constant monitoring of air quality parameters is therefore, imperative to prevent the health hazards from air pollution. The PMC accordingly has instituted a well-equipped Environmental Laboratory to keep constant check on city's environment.

As stated in the local newspapers on 11.07.2002, the Regional Transport Authority (RTA) has banned registration of all new diesel public vehicles including six-seaters, all models of diesel three-seater rickshaws and passenger jeeps in Pune and Solapur districts. It may be recalled that the Pune Municipal Corporation had been relentlessly advocating such a move to be introduced in Pune city through all forums. The report further adds that the LPG would soon be introduced in the city particularly for PMT and PCMT to curb the pollution levels. The PMC shall endeavour to modify the fleet of PMT to make it compatible with environmentally friendly fuels. Similar exercise will have to be undertaken to phase out automobiles with two stroke engines with their replacement by four stroke engines.

Water Pollution:

The quality of water is of vital concern for a buoyant community since it is directly linked with community's welfare. Water is used for many development purposes and any loss of beneficial use due to pollution amounts to economic as well as ecological and human health damage.

The Pune Municipal Corporation's environmental laboratory is engaged in collecting and testing river water samples periodically. The test report at four places in the city-Vitthalwadi, Garware Bridge, Sangam Bridge and Bund Garden indicate that the values of all the pollutants increase as the river traverse down the city. Absence of dissolved oxygen and higher levels of hardness in the river water samples make it prohibitive for any use. Increase in the chlorides (Cl) content downstream of Pune indicates pollution due to domestic effluent. The Maharashtra Pollution Control Board has taken serious cognisance of the river contamination and has sued the Pune Municipal Corporation as per the provisions of Water Pollution Control Act (1974). The problem is further compounded as the river Mutha continues to remain dry year after year despite successive normal monsoons preventing annual draining of the river. Nevertheless, the Pune Municipal Corporation has appreciated exigency in restoring the ecological balance of the river and promptly therefore has started implementation of six sewage treatment plants along the sides of the river totalling a capacity of 333MLD. In addition, the PMC has prepared a master plan for "Mutha River Improvement Project" (MRIP) and has sent it to the State Government for financial assistance. The PMC is also actively interacting with the Irrigation Department to curb pollution of water in Khadakwasla lake and the Mutha Right Bank Canal.



Noise Pollution:

There are numerous effects on the urban environment due to the increase in noise pollution. The increasing ambient noise levels in public places from various sources, inter-alia, construction and other commercial activities, generator sets, loud speakers, public address systems, music systems, vehicular horns and other mechanical devices have deleterious effects on civic health and the psychological well-being of the people.

It is observed that the noise levels during the Ganesh festival are above the prescribed standards for the last five years at all the tested sites. Though the levels of noise pollution have reduced in 2001, thanks to repeated appeals to the citizens and subsequent coercive measures taken by the Pune Municipal Corporation, they are still above the ambient noise limits. The Ganesh mandals, whose numbers are increasing year after year and now stand around 4000, can also help in preventing the noise pollution levels not only during Ganesh festival but during other festivals also. Rampant honking on the streets also contributes substantially to the noise pollution. The proposed Area Traffic Control System shall help overcome this syndrome. The citizens need to take some more lessons for observing the traffic rules. Informal industrial and construction activities in the residential areas also lead to noise. Advent of cable TV has been quite detrimental to peace in the housing areas. Crackers bursting in Diwali is no exception. When organisers of Sawai Gandharva Mahotsav can forego their specialised night festival into a daylight affair, sacrificing the wonderful tunes of night melodies, there is every hope that the Pune-kars shall rise to the occasion to help serve the civic cause.

What the Citizens should do ?:

The implementation of various measures and initiatives to counter environmental degradation will give desired results only with an active community participation. In fact, the constitution of India defines the fundamental duties of the citizens wherein every individual is required to bear responsibility in development process of the cities, states and the nation also. Thus the onus of maintaining acceptable living standards in our city lies equally on the shoulders of Puneites. The report gives a few 'Dos and Don'ts' for promoting community involvement in the process of development.

Evaluation of Past performance:

The process of preparation of Environmental Status Report will become merely an annual ritual unless it indicates the actions taken on the recommendations suggested in the preceding year's report. The report gives details of compliance made by the PMC inter alia, the recommendations made in the Environmental Status Report of 2000-01. It should be noted that the Pune Municipal Corporation has been able to initiate action in 40 cases out of the 44 recommendations made in the last year's report. Some of the key achievements during last year have been as following:

- Substantial implementation of various components of the integrated water supply and sewerage project



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- Increased traffic mobility with an effective traffic planning and the road development works including widening works, and construction of fly overs, ROBs bridges over river etc.
- A net increase of 15% in the availability of gardens and recreational open spaces
- Ban on entry of diesel driven six seaters and other heavy vehicles on five roads of the city in an effort to increase traffic mobility and decrease air pollution
- Nalla channelisation and construction of 6 STPs to minimise water pollution in the rivers Mula and Mutha
- Preparation of draft development plan for the newly added area
- Reduction of FSI in the city area by preventing 'lumping' of TDR
- Establishment of Environmental Laboratory and execution of a School Education Program with the help of Bharti Vidyapeeth Institute of Environmental Sciences and Research to promote environmental awareness in the city.

Appraisal of Environmental Status:

- Rise in the population continues unabated at the rate of 62.13% during the last decade. The census figures are truly revealing as the city is housing 25,40,069 lakh people presently. Physical expansion of the city by net addition of adjoining 23 villages meant merely a mathematical reduction in the average population density, which now stands at 104.20 persons per Hectare.
- The unauthorised use of land is a striking feature in the city. The lands owned by the public authorities are easily encumbered. The hilltops and hill- slopes and green belts are gradually losing green cover and are housing informal settlements. The lands occupied by the non-conforming users in the core city also need to be tackled systematically.
- The traffic condition is deteriorating much faster by registration of 300 (approx.) vehicles per days on the city roads. It has also been established that the public transport will be economically viable only upon strict enforcement of certain code of conduct for traffic movement. Imposition of ban on six-seaters on certain roads and subsequent strike of the six-seaters rickshaws in the city helped PMT to increase its revenue by 75%. The level of traffic education and awareness amongst the Puneites has proven to be far from satisfactory.
- Air pollution levels in the city are closely associated with the traffic and transportation conditions. The Pune Municipal Corporation attempts to mitigate the effect by resorting to a package of promotional and regulatory measures. It is expected that heavy vehicular traffic, to the extent of 40%, plying through the city can be diverted to the bye-passes that are presently being constructed by Maharashtra State Road Development Corporation.
- Higher decibel levels at important intersections in the city indicate dominance of diesel-operated vehicles such as recently introduced three wheeler



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rickshaws, six seaters, PMT buses and trucks. Reckless honking of vehicles also adds to the noise levels causing serious health implications. The problems faced by the city during the course of the Ganesh festival have assumed such serious proportions that a rich heritage set by the city forefathers is in a danger of getting relegated to an environmental disaster.

- The natural drainage system of the city is badly affected due to the encroachments and un-authorised constructions. Additional 258 toilet blocks in the slums are further required to be constructed in the II and III phase of the program to cover almost all slums with slum sanitation. In the outer areas, existence of many septic tanks speaks of a huge backlog in an effective sewage collection system.
- No natural drainage system in the city is free from filth and dirt. The contaminants in the river show 75.86% deviation in DO level from the standard limits. Nalla cleaning and training facilities are also being undertaken to maintain the flow carrying capacities. Nonetheless, an extensive review of the natural drainage system is required so that an action plan can be chalked out to retain the system.
- Solid Waste Management system of the city is found to be working satisfactorily given a significant increase by about 15% in the lifting capacity than the preceding year. Optimal route alignment for the movement of fleet needs to be worked out so that the minimum obstructions are caused to the flow of other traffic. Restrictions on use of plastic bags should be strictly enforced. With the help of EM technology and by developing the landfill site at Uruli Devachi with carefully drawn plans for each activity, there is a total transformation felt at the depot.
- Water supply to the city is characterised by equitable distribution in the planned settlements of the old area on one hand and by inequitable distribution in the outer area on the other. Decentralised waterworks and the distribution systems thereof need to be created to ensure equitable distribution at the optimal running costs. Surprisingly, The PMC has so far not formulated any policy of ground water tapping. It is a high time that the groundwater potential of the city is considered as a reliable source of water supply.
- Unauthorised subdivisions of lands and the constructions thereupon are the major concerns of the outer area. Efforts will be required to arrest the process of Gunthewari in addition to their regularisation. The city has town-planning schemes for an area of 24.1 sq. kms. against the total area 146 sq. kms. indicating a genuine need to prepare more town planning schemes for the remaining area.
- Health profile of the citizens indicates a relative fall in water borne diseases. The diseases caused by air pollution have also shown a higher trend. Movement against the swine and the stray dogs needs momentum.



Initiatives:

An effective environmental management strategy must cover the issues pertaining to promotional activities, regulatory measures and a smooth citizen interface. It is important that the environment management strategy addresses basic environmental concerns that the city is facing currently. Following key objectives, therefore are targeted with a specific time frame for their implementation. Supplementary mechanism to realise the basic objectives is also given.

Key objectives:

- Reduce air pollution in the city by 50% within three years.
- Increase green cover in the city by 50% within three years.
- Sanitize the river flow by increasing the quantum of treated effluent from existing 20% to 75% through the proposed sewage treatment plants by December 2003
- Rehabilitate 10% of existing slums in formal housing in the next three years
- Arrest the process of uncontrolled urbanisation through the DP exercise
- Undertake school environment awareness program to cover all the primary schools in the city by 2004 AD

The above objectives can be realised by initiating following major actions.

- Preparation of traffic and transportation plan by April 2003
- Strict imposition of ban on six-seaters and heavy vehicles on remaining major roads
- Strengthening of PMT and also move forward with regard to Sky Bus project
- Introduction of Countdown Timers and Area Traffic Control System at all the major intersections
- Imposition of bans on registration of new diesel three and six seaters rickshaws in the city.
- Survey the green spaces and prepare a green map of Pune
- Prepare an action plan for the preservation of various lakes in the city
- Carry out tree census with identification of trees
- Development of water supply system for newly added areas
- Performing water and energy audit for water supply
- Formulation of a policy for groundwater tapping and water harvesting
- Preparation of Development Plan for newly merged area considering the environmental aspects i. e. integrate environmental planning with DP to make them compatible with each other
- While preparing the Development Plan, ensure that the agricultural lands in these villages are not indiscriminately converted to residential areas. Instead, nodal development centres focussing around the “gaothans” of the newly merged villages, be developed as small, self contained town ships which will



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obviate the need for the residents of such areas to come to the inner city for their basic, daily needs.

- Assess need for midterm revision of the existing Development Plan to integrate it with the proposed development plan of the new area
- Prepare new town planning schemes for thorough implementation of existing development plan and also fully implement the sanctioned TP schemes
- Prepare a comprehensive plan for alignment of roads U/S 205 of the BMC Act, in the peripheral areas of the old DP where DP roads are insufficient
- Formulate a strategy for the development of open spaces of private layouts for recreational purposes
- Move the government for exploitation of surplus lands for civic purposes rather than granting exemptions under section 20 or 22 of the ULC Act, 1976.
- Identification of 'Hawkers Zone' and 'No Hawkers Zone'
- Strengthen the mechanism for preservation and monitoring of heritage sites
- Revision and fresh delineation of natural drainage system of the city as the DP provisions are insufficient.
- Completion of SPSs and STPs at Bahiroba, Tanaji wadi, Bopodi and Erandwane with capacity of 215 MLD and to set up an integrated system of biogas plants to utilise liquid and solid waste
- Improvements at Uruli Devachi site: Construction of compound wall, introduction of Geo-textiles for land fill
- Implementation of Integrated Population and Development Project under UNFPA for population control
- Implementation of revised Appendix 'T' for slum rehabilitation project
- Creation of Transit Camps to facilitate SRPs
- Rehabilitation of Slum Dwellers through the Valmiki Ambedkar Aawas, Lok Aawas Schemes
- Preparation of Environment Management Plan by Dec. 2003
- Further expansion of the ongoing school education program
- Institution of an award for environment friendly layouts/societies on following criteria; Vermiculture, segregation of household waste, development of open spaces, conservation and reuse of water, parking facility, landscape, etc.