

The challenge of Climate Change has become one of the critical issues of planet Earth. Each one of us has a responsibility to preserve the planet and our self-sustainability depends on our lifestyle. The government cannot be immune to this urgent task. Let us do our bit now, for our city and our environment. This means putting in place small efforts which are encapsulated in a framework which makes it possible for each Delhiite to become a part of the process of change. This document sets forth the ways in which Delhi's Development Agenda can be marshaled to meet the objective of preserving our planet. The document sets out the goals, which are achievable in the next three years, and is intended to sparkle a debate on our development goals and make each citizen a Bhagidar in this effort.



Published by
Directorate of Information and Publicity
www.publicity.delgovt.nic.in

CLIMATE CHANGE AGENDA FOR DELHI 2009-2012

RAKESH MEHTA

CLIMATE CHANGE

AGENDA FOR DELHI 2009-2012

Rakesh Mehta
Chief Secretary, Delhi
January 2009

CONTENTS

1. FOREWORD BY CHIEF MINISTER DELHI	
2. CLIMATE CHANGE AGENDA FOR DELHI	05-19
AIR POLLUTION	05
WATER POLLUTION	09
NOISE POLLUTION	12
MUNICIPAL WASTE MANAGEMENT	14
GREENING	19
3. CLIMATE CHANGE ACTION PLAN	21-35
NATIONAL SOLAR MISSION	23
ENHANCED ENERGY EFFICIENCY	24-25
SUSTAINABLE HABITAT	26-29
MISSION FOR GREEN INDIA	30-31
NATIONAL WATER MISSION	32-33
MISSION FOR STRATEGIC KNOWLEDGE	34-35
4. LIST OF WATER BODIES	36-57
5. INTERCEPTOR SEWER PROJECT	60-61
6. NEW INITIATIVES OF GOVERNMENT OF DELHI	62-66
7. BASIC WASTE DATA ON DELHI	67
8. DEPARTMENT WISE ACTION PLAN	68-75

PHOTO CREDITS

AJAY AGGARWAL [10-13(t)-20] • ARVIND YADAV [6 (l)] • DIRECTORATE OF INFORMATION & PUBLICITY [60] • HARAN [7-8-11-13(b)-16-18-24-62-63-66(r)]
• IDEA WORKS [58-66(l)] • INDIAN EXPRESS [1] • SUDHIR KUMAR [Cover -15-17-46-47-59] • UDAY SAHAY [Inside Cover-X-02(bg)-3-6(r)-36-65-76-77]
• S. BARAMAULA [Inside Back Cover] • S.N. UPADHAYAY[2]



FOREWORD



Sheila Dikshit
Chief Minister, Delhi

I am happy that Shri Rakesh Mehta, Chief Secretary Government of National Capital Territory of Delhi has written this monograph titled “**Climate Change Agenda for Delhi 2009-2012**”. Climate Change is on top of the development debate these days because of the unpredictable consequences it can have on our habitat.

As a developing mega city each citizen has to contribute to ensure that adverse impacts of Global Warming observed and predicted by the global scientific community, are mitigated by taking measures which help to reduce Green House Gases. This monograph clearly brings out the actions necessary as outlined in the Prime Minister's National Action Plan on Climate Change, and creates a framework for implementing a series of actions by different departments of the Government of Delhi. The monograph highlights the activities already being done by the government to achieve those ends and the further measures that need to be taken over the next few years.

It is action at the ground which makes all the difference in achieving our goals. In this, every citizen has a role to contribute. I hope this monograph will encourage all civil society groups and government departments to forge a set of programs which can make Delhi a mega city which balances the needs of development, aspirations of the people and addresses the concerns of our planet, mother earth.

It is the right time to incorporate the concerns of climate change in our development agenda and this monograph attempts to do that. With the citizens cooperation it is possible to address all the issues comprehensively. I hope this document will be read and discussed by all civil society groups and within the government, before its successful implementation.

Sheila Dikshit

CLIMATE CHANGE AGENDA FOR DELHI 2009-2012



Rakesh Mehta
Chief Secretary Delhi
January 2009

The challenge of Climate Change has become one of the critical issues of planet Earth. This Blue Dot sustains our life on earth and provides us with all our needs. But in our desire to get most out of it, we have neglected its health and as per the report of the United Nations Inter-Governmental Panel on Climate Change, planet earth needs urgent resuscitation to continue to provide for our needs. It seeks to redefine the growth imperatives for mankind, by ensuring sustainability of planet earth's bio diversity and natural balance, as part of the development process. This will mean asking many questions on development policy, and the remedial measures suggested in the Prime Ministers National Action Plan on Climate Change are a good beginning in this direction. The policy prescriptions given in the document need to be adopted and implemented as part of our development goals. It will mean a new thinking to be infused in our planning processes and harnessing new technologies as well as making innovative programs, which can meet the objectives set forth by us.

Each one of us has a responsibility to preserve the planet and our self-sustainability depends on our lifestyle. We have borrowed the earth from our ancestors and we need keep the trust put in us by future generations to give them a planet which is worth living in for them. The government cannot be immune to this urgent task. In fact government has a duty to respond imaginatively to the growing challenge and evolve policies which take the right steps in incremental proportions to create a new agenda for progress and change which reflects the big issues of Climate Change.

It is now well recognized that the only way to ensure that the global balance of factors which can arrest the worsening trends towards climate change, is the need to cut down on the emission of Green House Gases or those emissions which destroy the Ozone layer and accelerate the pace of Global Warming. While there is raging debate on application of the Polluter Pays Principle in this area and hence a heated debate on who should start first, namely developed countries or emerging economies, the time to act is now. Each of us as citizens, planners, policy makers, administrators, business people, and students can enhance our ability to contribute to a more



environmentally friendly city, which can be a symbol of a responsible society. Let the debates continue, but let us not wait for the debate to settle, before we decide what to do and when to do so. Let us do our bit now for our city and our environment. This means putting in place small efforts which are encapsulated in a framework which makes it possible for each Delhite to become a part of the process of change which is globally acceptable for the future generations.

This document sets forth the ways in which Delhi's Development Agenda can be marshaled to meet the objective of preserving our planet. Unless each one can put the effort and be concerned about it, and contribute our mite to it, there can be irretrievable damage to mother earth. This can be our own tribute to those scientists who have toiled to put this agenda on the global stage and pressed hard for a rethink on our development policies and to rekindle the age old debate of Need vs Greed and the ability of our planet to renew itself for our benefit. The document sets out the goals, which are achievable in the next three years, and is intended to spark a debate on our development goals and make each citizen a Bhagidar in this effort.

GREEN AGENDA FOR DELHI

Under the environmental laws there are three areas which need to be addressed namely Air, Water and Noise. We need to add two more to our agenda for change namely Land and Knowledge. If we address each of these five areas in a holistic manner, and put in place an agenda to be implemented in the next three years, we can make a big difference to Delhi's environment. It is possible to build on this knowledge and policy perspectives over time and make the interventions both at citizens' level and at policy level, more meaningful. We have done a lot already and we need to be guided by our success to create greater waves of progress. If there are losers in this we need to find ways to make them partners in the change and make them inclusive in the process. Some policy and program initiatives that have been taken are listed below :-

- a) Air Pollution
- b) Water
- c) Noise
- d) Municipal Waste Management
- e) Greening



Fight for fresh air
Fight for fresh air

AIR POLLUTION

A) Transport : Delhi is well on its way to become the largest user of CNG vehicles in the world. Though it is a fossil fuel and contributes to green house gases, it is less harmful than burning diesel and has a minimal impact on the particulate emissions and nitrous oxide emissions. By 2010 there will be nearly 10,000 buses running on CNG. Promoting public transport is a major agenda of change which needs to be given a solid foundation. Surveys have shown that Delhiites are quite willing to switch to public transport provided a multi modal transport system is put in place which is comfortable, efficient, convenient and affordable. Using public transport is good for health because it encourages people to walk some distance which is good for health.

Delhi is launching a major public transport overhaul and in the next two years this is bound to have a beneficial impact on the environment. There are of course issues of the structure of public transport organization in Delhi, given the failure of Blue Line services and the public cost to the exchequer of running a fairly inefficient DTC. These issues are being addressed by all sections of planners, policy makers and advocacy organizations in a very constructive manner and solutions have been found which need to be implemented now. This requires resolve and dedication to the outcomes.

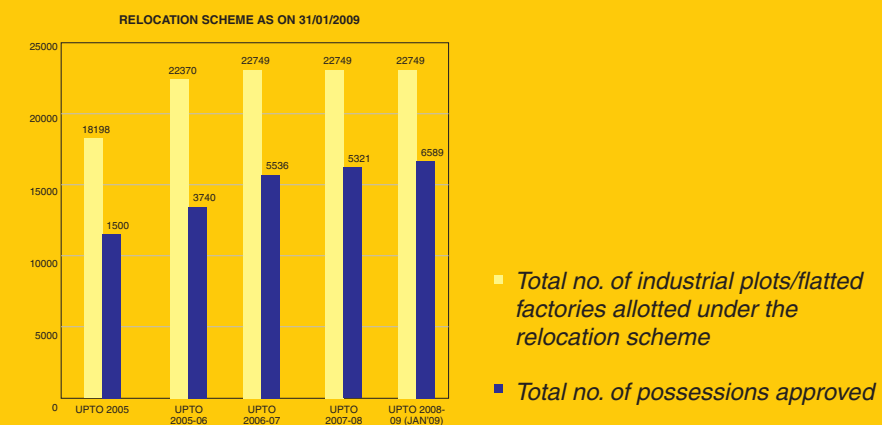


B) Air Ambience Fund has enabled the government to promote battery operated vehicles as a good beginning. The sale of battery operated cars and two wheelers has been encouraging. There is a refund of VAT of 12.5% on battery operated vehicles along with refund of registration charges. This gives a price advantage of nearly 30% on battery operated purchased vehicles. This needs to be further promoted. Delhi is the only city in India which has this type of fund to promote green transport usage. There is a need to convert the existing diesel operated transport vehicles like tempos and trucks to CNG and this will need greater policy initiatives. The road tax and registration of diesel and petrol cars needs to be enhanced to create a fund to promote public transport in the long term. There is a lot that needs to be done to create parking infrastructure for buses in Delhi and a policy in this regard has already been formulated but has not been implemented so far. This needs to be expedited. More than 15 year old commercial vehicles have been phased out but whether they have actually been disabled to ply on the roads is a moot point. **Government of India has decided to make the emission norms for fuel sold in the NCR to be reduced from 350 PPM sulphur content to 50 PPM sulphur content w.e.f. 1st April 2010.** The need for a coordinated approach to vehicle emissions and taxes is emphasized because of the integrated nature of the transport in Delhi and NCR area. In the capital the use of 50 ppm sulphur content diesel and petrol w.e.f. 2010 would have large beneficial impact on air pollution. This would enable the introduction of Bharat Stage IV emission norms in Delhi. 500 new pollution control centers have been set up and they are being networked for better analysis of data for emissions. The possibility of converting three wheeler autos to battery operated vehicles needs to be explored within the frame work of existing incentive under the Air Ambience Fund.



C) Industry : As a matter of policy, government does not allow polluting industries to be set up in Delhi hence there is no scope for large scale industries being set up in Delhi. However there are thousands of old industries running in non-conforming areas which have been shut down, but some are still operating under cover of darkness and by other means. Such industries must be identified and encouraged to change their production processes to be more environmentally, friendly. The working of CETPs needs to be monitored more effectively and the change of management structure in the industrial estates needs to be brought about. The process has been initiated by the Industries department, though belated. The need for better management of our industrial estates and to undertake measures related to energy conservation in the industrial processes has to be done in a focused manner.

There is prohibition on the use of diesel generator sets between 10.00 PM and 6.00 AM which corresponds to the ban on loudspeakers during these hours. The implementation of this needs the cooperation of the citizens.



A) Yamuna River: Delhi's water supply comes from the Yamuna river, yet it is this river which is the most polluted in Delhi. There are other areas which need attention like domestic sewage and industrial waste. The pollution of the river has reached such alarming proportions that it is just a dirty drain with high fecal coliform, high bio-chemical oxygen demand, low dissolved oxygen and toxic chemicals with heavy metals. The cleaning of river water is the top most priority for government. Some of the measures being taken are the interceptor sewers project which is being implemented by EIL for the DJB. This ambitious project is expected to set the framework for cleaning the river by ensuring that only treated waste water enters the river. There is also a move to construct dams on the Yamuna river to allow more water for dilution which is essential. **As a beginning, the Government of India has decided to treat the Renuka Dam project in the upper reaches of river Yamuna, as a national priority project and would fund 90% of the expenditure.** In the mean time the government of Delhi without waiting to address issues of water sharing which are being disputed by Haryana, has decided to fund the project in advance subject to adjustment, to plan to start construction of the Renuka Dam by July 2009. Land acquisition work has already started and it is hoped that the work would be commenced on time to provide the much needed water for Delhi's future needs. This process would ensure that the cost of the project does not escalate on account of delays.

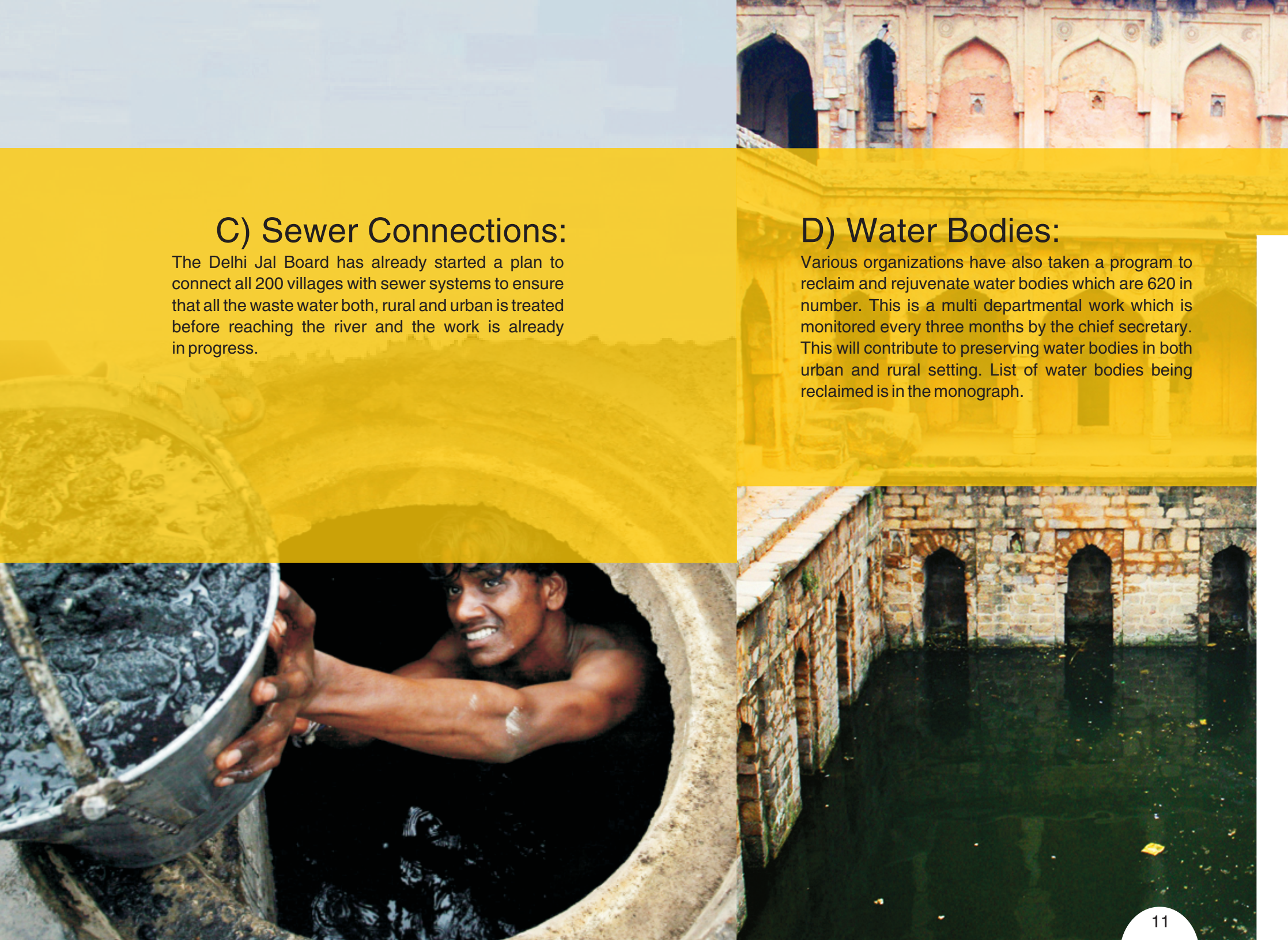
B) Waste Water: There is a need to promote decentralized waste water treatment systems to reduce the carriage cost and maintenance of large sewerage systems. The technologies for this need to be identified and integrated into the urban design framework of new constructions beyond certain standards. This would need a major change in our building industry and its way of looking at things. Today all waste generation is seen as the job of the government to solve. It is time the citizens and business people take some of the responsibility. If there are any incentives that need to be given to encourage treatment of waste water, by way of remission in property taxes, this needs to be considered. Perhaps higher FAR can be considered to densify construction, if decentralized waste water systems have been installed and would enable treatment of waste water locally.

C) Sewer Connections:

The Delhi Jal Board has already started a plan to connect all 200 villages with sewer systems to ensure that all the waste water both, rural and urban is treated before reaching the river and the work is already in progress.

D) Water Bodies:

Various organizations have also taken a program to reclaim and rejuvenate water bodies which are 620 in number. This is a multi departmental work which is monitored every three months by the chief secretary. This will contribute to preserving water bodies in both urban and rural setting. List of water bodies being reclaimed is in the monograph.





NOISE

Fight for Calm Environment

Noise pollution has only recently been taken seriously. It all began with the anti-cracker campaign launched in the early 2000s and became a huge success with school children. The Supreme Court has set the limits for noise and loudspeakers are banned between 10.00 PM and 6.00 AM. The use of noiseless generators was also mandated by environmental-laws. DPCC conducts ambient noise monitoring at 40 locations in Delhi. The noise levels are slightly exceeding the limits and there is a need for public awareness. Government has declared areas up to 100 meters around hospitals with 100 beds or more and educational institutions having more than 1000 students to be Silent Zones. Acoustic enclosures are mandatory for diesel generator sets to reduce sound pollution.



Fight for a Pure Earth

MUNICIPAL WASTE MANAGEMENT

A) Domestic Waste: This is primarily the responsibility of the municipal bodies like MCD, NDMC and Cantonment Board. The waste generation in Delhi is growing with the economic development and is around 7000 MT per day today and projected to grow to 17000 MT per day by 2024. The lack of landfill sites makes it mandatory to have a sustainable waste management policy. In this context a multi-pronged approach is being followed to handle different

types of waste. Domestic waste is being either sent to landfills or is going to be used for energy projects, two of which are under implementation through Public Private Partnership Model. Another project being tried is composting of municipal waste. There is a major overhaul of the waste management strategy required to be implemented by the municipal bodies. Hotels are experimenting with organic waste converters and vermi-composting.






B) Biomedical, Mercury and Electronic Waste:

Biomedical waste is being handled separately and two new sites for biomedical waste have been located. Electronic waste is growing in Delhi and the guidelines for handling E waste have been issued only recently by CPCB. The process involves collection, dismantling, extraction, recycling/reuse, and final disposal in an authorized landfill. This process needs to be speeded up. The increasing use of CFL has increased the mercury waste which is another challenge. This requires awareness and careful disposal of mercury present in bulbs and thermometers.



C) Construction Waste:

Construction and Demolition waste generated is nearly 880 MT per day. This is largely due to the construction activity in Delhi. This consists of 23% concrete, 36% sand, 31% bricks and masonry. The process of setting up a pilot plant of 500 TPD is in progress and land has been identified in Burari. This is expected to be operational by July 2009.



D) Plastic Waste:

Plastic waste generated is 580 MT per year and plastics below 40 microns are banned. The use of degradable plastics is being encouraged. Use of plastics in markets is banned but is still in use due to problems of implementation. There is a Delhi Degradable Plastic Bag (manufacture, sale and usage) and Garbage (control) Act 2000. to regulate this activity. Use of plastics in road making is being tried as an experimental measure.

“ Let each Delhiite make it a mission to replace plastic bags with use of jute, cloth or paper bags. ”

E) Hazardous Waste: There are nearly 2000 units in approved industrial areas generating hazardous waste of about 5300 MT per annum. The search for a hazardous waste site is in progress and it is to be seen what the outcome would be. There is a lot of resistance on the setting up of such a site due to the NIMBY factor. Delhi has to solve the problem of waste generation and this will only enhance the awareness about the need to handle waste effectively by every citizen.



GREENING

Fight for the Greens

Delhi has grown to be one of the greenest capitals in the world due to the consistent emphasis to grow more trees every year and strict monitoring of tree cutting permissions. This has been possible despite the infrastructure projects which are coming up due to the demands of the Commonwealth Games 2010. Delhi's green cover has grown from 36 sq kms in 1998 to 283 sq kms in 2005. It is now 300 sq kms or 20% of Delhi's land area. MCD has 14000 parks, NDMC has 1000 parks and DDA has many parks like regional parks, neighbourhood parks, city forests and biodiversity parks and other green belts. Delhiites should be proud of their green achievement ! The Parks and Gardens Society has been set up to coordinate the greening activities in Delhi. There is a plan to grow five million potted plants for the Commonwealth Games 2010. There are nine city forests and two biodiversity parks in Delhi. Nine more city forests are planned to be created. There is a need to identify vacant areas which can be put under the green cover. The entire ridge area needs to be greened and it is about 6000 hectares. The Eco Task Force is doing commendable work in greening the Delhi Ridge. Relocation of nearly 10000 monkeys from urban areas to the ridge area has also contributed to improving the habitat in the ridge area.



CLIMATE CHANGE

Combating climate change effects

Fight for a Clear Sky

Climate Change

is the top agenda for the global society and every city has to contribute to the mitigation of the adverse effects of Climate Change. There is a need to integrate the agenda for Climate Change into the policy framework of Delhi's development in the future. This needs to have an operational plan which gets reflected in every department which has related works to be undertaken. Climate Change is a global challenge and needs a positive development policy response to ensure that the objectives of growth with equity are achieved while at the same time to ensure long term sustainability of the environment. We need to keep in mind Mahatma Gandhi's wise dictum that the earth has enough resources to meet people's needs, but will never have enough to satisfy people's greed. **Defining needs and meeting them while avoiding greed at all costs must be our defining agenda.** This can be done by developing an agenda for development, which encompasses the key elements outlined in the Prime Minister's National Action Plan for Climate Change. There are eight National Missions which have been set up to tackle the issue. These are:

Solar Mission;

Enhanced Energy Efficiency Mission;

Sustainable Habitat including public transport;

Water Mission; Himalayan Ecosystem;

Green India; Sustainable Agriculture; and

Strategic Knowledge for Climate Change.

Out of the eight national missions, barring two namely Himalayan Ecosystem and Sustainable Agriculture, all the other six missions have a direct relevance to Delhi.

It is essential to draw up an Action Plan for the next three years bringing out the concrete actions to be taken to meet well defined goals set up in the NAPCC. These are outlined under the five titles of AIR, WATER, LAND, NOISE AND KNOWLEDGE. Each of these five are organically linked to the six aspects of NAPCC of Water Mission. Greening, Solar Mission, Energy Efficiency, Sustainable Habitat, and Strategic Knowledge. Two areas which do not come within the jurisdiction of Delhi namely Agriculture and Himalayan Eco System have been left out of this document. The Action Plan for the most part brings out efforts already started by various departments as part of their current development efforts, but it emphasizes the need to focus more vigorously and integrate the plans and programs in the annual plans, which would be made by the departments. There are some new programs which have been added too. The emphasis is on a broad based approach and the need to carry civil society groups along with the policy making process as it would impact on the life of the citizens directly.

Each department is expected to incorporate the objectives in their annual plans and make efforts to fulfil the targets in a systematic way. If this is done, there will be a paradigm shift in our development goals towards a sustainable global city of the future. There are sixty five objectives which have been identified. Each objective would correspond to each year of our independence in 2012. **Let us pledge to fulfil these, one objective for each year of our democratic history, to redefine the city's growth for the next sixty five years.**

1. National Solar Mission:

Solar Energy has a lot of potential in Delhi. It reduces the dependence on coal fired electricity and hence contributes to reduction in Green House Gases which is one of the main elements of the NAPCC. Under the Energy Conservation Act 2001, the use of solar water heating devices has been made compulsory in all industries, hostels, educational institutions, hotels, canteens, and residential buildings on plots above 500 sq meters. There is a subsidy of Rs. 6000 per consumer as grant on a unit of 100 liters capacity. This works out to nearly one third subsidy on purchase of solar water heating system. There is a subsidy of up to Rs. 60,000 on solar heating systems for institutional uses in incremental proportions of Rs. 6000 per 100 litres up to 1000 liters capacity. The list of identified suppliers as approved by MNRE is also available and financing tie-ups with banks has also been done to ensure easy installation of the units.

While these steps have created awareness about solar water heating systems, but a lot remains to be done to make this part of the development agenda. There are a number of areas where solar water heating systems are not yet adapted like group housing societies, and resettlement colonies where availability of direct sun light may be an issue. How solar water heating can be made into a household requirement even at the stage of housing construction needs to be figured out. The need to constantly upgrade the new technologies, needs to be addressed. The fact that in some areas of Delhi, the water is hard water and has impact on the heating water pipes and corrosion, needs to be addressed. Overall a more aggressive policy on use of solar water heating devices needs to be initiated. This will take care of the constant problem of high demand for electricity during the very cold winter mornings when the demand for hot water is high. Ultimately this will lead to grid stability in the winter months.

DELHI CLIMATE CHANGE ACTION PLAN

S.No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
1	Solar Mission	WATER	Building construction solar water heating	50,000 litres of capacity for water heating set up	5 lakh litres capacity	Existing incentives of Rs 6000 per house hold and upto Rs 60,000 for upto 1000 litres capacity for institutional and group housing and social welfare institutions needs to be better marketed by the Renewable Energy Management Center of Environment Department to increase the capacity by ten times to five lakh litres of solar water heating capacity.	i) Environment ii) EEREMC iii) PWD iv) MCD
2	Solar Mission	AIR	Renewable energy use	Not assessed	5% of all energy	DERC to set standard to encourage use of renewable energy in tariff order.	i) DERC ii) Power
3	Solar Mission	AIR	Energy efficiency	Not assessed	10% of all energy	DERC to set standards for energy efficiency in tariff order, including Time of Day metering for industrial and domestic use.	i) DERC ii) Power iii) DISCOMs iv) EEREMC
4	Solar Mission	WATER	Solar water in government building construction	Very few	Install solar water heating in all government buildings	Make solar water heating a well accepted technology to save energy.	i) PWD ii) MCD iii) CPWD iv) NDMC

2. Enhanced Energy Efficiency:

The need for promoting energy efficiency is linked to the reduction of GHG. This can go a long way in making energy use efficient and save natural resources. In this regard the government has promoted the use of Compact Fluorescent Lamps. The private power distribution companies have tied up with manufacturers of CFL bulbs to give bulk discounts on purchase of such lamps and have also opened sale counters in various consumer drop off points to buy such bulbs at a discount. This has enabled nearly 5 lakh bulbs to be sold in Delhi. The large buildings have been identified for taking up energy audits to reduce the energy consumption by almost 30% in these buildings. These include hospitals, corporate buildings, malls, hotels, office buildings, markets, etc. All the street lights on major roads covering nearly 700 kms are being replaced by energy efficient lighting systems identified after going through a process of consultations with the Lighting Association of India and finalizing the specifications to improve the lux levels and conserve energy. In the long term this alone will save nearly 100 MW of electricity per annum. The new system includes the installation of computer controlled remote controlled switching systems which would ensure that the lights are switched on and off only when needed. The use of LED lamps is also being experimented but the high cost and technological adaptability are issues which need to be addressed.

“ *The private power distribution companies have tied up with manufacturers of CFL bulbs to give bulk discounts on purchases of such lamps. This has enabled nearly 5 lakh CFL bulbs to be sold in Delhi.* ”



DELHI CLIMATE CHANGE ACTION PLAN

S.No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
5	Enhanced Energy Efficiency	LAND	Building retrofitment for energy efficiency in existing buildings	Few buildings only	100 such buildings to be taken up	Enlist a number of Energy Service Companies and special financing options through Delhi Financial Corporation and if necessary create a new fund under Energy Management Centre to introduce such measures including tariff rebate from DERC for such adoptions by institutions and to the use of new instruments to introduce Energy Efficiency in existing buildings of large size having covered area above 10,000 sq feet.	i) EEREMC ii) PWD iii) Environment iv) MCD
6	Enhanced Energy Efficiency	AIR	Building retrofitment for use of Compact Fluorescent Lamps & LEDs	5 lakhs bulbs replaced	25 lakhs bulbs to be used in three years	CFL and LED bulbs can be promoted in all buildings and even in advertising to reduce energy consumption. DERC must make a policy in this regard and get NDPL and BSES to further promote rebate in use of CFL lamps as in the past.	i) DISCOM ii) EEREMC iii) Environment
7	Enhanced Energy Efficiency	LAND	Use of CFL and recovery of mercury from CFL lamps	None at present	100% recovery to be aimed at	Industry, labor organisers should be able to cooperate in this by creating a system of replacing old bulbs for new to enable recovery of mercury after bulbs are fused. Needs a vast army of rag pickers to be involved. This needs to be initiated for safety of citizens while ensuring reuse of mercury.	i) Environment ii) DPCC iii) Manufacturers iv) DISCOM
8	Enhanced Energy Efficiency	LAND	Treatment of Electronic waste facility.	None at present but is done in informal sector with hazard to health	100% treatment facility	To set up a electronic waste treatment facility in Delhi in collaboration with NGOs and other players active in this. To set up a treatment facility in Delhi where use of computers and other electronic products is increasing.	i) Environment ii) DPCC
9	Enhanced Energy Efficiency	AIR	Star rating of all electrical equipments	To be done by BEE	To promote all products through a systematic campaign	Draw up a clear strategy for creating awareness about the role of BEE and to promote the star rating of products rated by the BEE and improve public awareness about the star rating of electrical products.	i) BEE ii) EEREMC
10	Enhanced Energy Efficiency	AIR	Energy Conservation Awards to encourage conservation consciousness.	Energy Management Center Nil now	Implement them in 2009	This will create awareness in incentives for residential colonies and institutional buildings to take up energy conservation measures as listed in this action plan and to activate the institution of awards for energy conservation since the awards have been decided but not implemented.	i) Environment ii) EEREMC
11	Enhanced Energy Efficiency	AIR	Create data base on energy consumption to promote energy efficiency	Energy Management Centre to register ESCOs to do energy measurement in large buildings	Data of 500 buildings to be collected and energy conservation	Encourage government buildings to take a lead in this, like government offices, hospitals, as well as corporate offices and malls and hotels and restaurants. This will enable large buildings to save energy bills and become conscious about conservation	i) Environment ii) EEREMC

3. Sustainable Habitat:

For a mega city like Delhi, this is one of the most important challenges. To meet the aspirations of 15 million people, likely to grow to 24 million by 2021, in a predominantly urban environment means making provisions of infrastructure, water, power and transport as well as welfare sector services like education, health and social security, so that the citizens continue to be productive and engaged in the life of the city. Sustainable development needs not only adoption of new technologies but also the institutional and legal changes which make it possible to implement the change envisaged.

The adoption of the Green Building Code is a good starting point and the star rating of electrical equipments is a good message to use energy efficient appliances and technology for the purpose. The Bureau of Energy Efficiency has made excellent strides in star rating of electrical appliances. The large scale adoption of green building code to incorporate elements of energy efficiency and renewable energy, would hike up the cost of the building and would need to be incentivised. The Energy Conservation Building Code of BEE needs to be incorporated into the building plans of the local bodies. This is directly linked to the building Bye-Laws which are old, having been drafted in 1983 called the Unified Building Bye-Laws. A new set of Bye-Laws are currently pending with the Ministry of Urban Development for the past one year and no progress seems to have been made on it. In order to make the implementation of the Climate Change Mission on Sustainable Habitat a reality, the promulgation of modern building bye laws is a must. Both the Ministry of Home Affairs and Ministry of Urban Development need to expedite this matter.

There is also a need to promote standardization of construction materials incorporating various elements of green building code in it. This can be done by undertaking a program of intensive

interaction with the manufacturers of building materials and taking up pilot projects with fiscal incentives to promote green buildings. The Mahatma Gandhi Institute of Climate Change Challenge can do a lot to promote partnerships between building material manufacturers, industry associations and local bodies to pursue the green building agenda in urban habitats. This includes issues like reuse of waste water, water harvesting structures in buildings, efficient effluent treatment of waste water and recycling efforts. The list is endless and the rewards are manifold if only we could create a focus group to address the manifold issues in this area.

As part of the initiative of the government to infuse energy efficiency in new buildings, the buildings and stadia being constructed for the Commonwealth Games 2010 are all Green buildings incorporating the latest energy efficiency standards. These buildings are Thygaraja Stadium, Delhi International Airport building; Civic Center of MCD; Chattarsal Stadium, and new building being constructed by Delhi Transco Limited for its corporate office.

DELHI CLIMATE CHANGE ACTION PLAN

S.No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
12	Sustainable Habitat	AIR	Transport gets more CNG buses	3000 CNG buses	12000 buses	Augment public transport on CNG and Restructure bus transport system and start infrastructure projects like bus parkings, CNG stations, common ticketing and automatic fare collection.	Transport
13	Sustainable Habitat	AIR	Transport funding public transport	Financing mechanism for public transport	Rs. 1000 crores	Finance public transport by creating a Transport Development Fund and transfer some tax receipts from registration charges and Air Ambiance Fund to TDF.	Transport
14	Sustainable Habitat	AIR	Transport expansion of Delhi Metro	Expand Delhi Metro to promote use of metro with bus transit system presently 65 kms	Expand to 150 kms	To enable commuters to use multi modal transit system and enhance ridership from current level of 8 lakhs to 28 lakhs per day and provide funds to expand to NCR towns of Faridabad, Gurgaon, Ghaziabad, and new areas of Delhi as follows : Central Sectt to Badarpur; Rajiv Chowk to airport; and other areas of Delhi.	DMRC
15	Sustainable Habitat	AIR	Fuel Quality for reducing air pollution	Use of 50 ppm sulphur diesel/petrol from current level of 350 ppm sulphur diesel/petrol	By March 2010	Request oil companies to supply low sulphur diesel/petrol through dedicated refineries and mandate cleaner fuel to reduce the amount of exhaust/ tail pipe emissions substantially.	i) Environment ii) Transport
16	Sustainable Habitat	AIR	Congestion tax to check growth of vehicle population	Very low as compared to buses	Substantially increase the road tax on cars	To send a clear message to people that government is keen to promote greater use of public transport and discourage use of private cars by increasing tax on private cars to contribute to Transport Development Fund and to discourage use of private vehicles.	i) Transport ii) Finance iii) Planning
17	Sustainable Habitat	AIR	Tax concessions for clean fuel vehicles	100	25000	To encourage use of zero emission vehicles run on batteries by reimbursement of VAT, road tax and excise duty on battery operated vehicles.	i) Finance ii) Trade & Taxes iii) Environment iv) Transport
18	Sustainable Habitat	AIR	Promote use of bio fuel	None at present	10% of all use of fossil fuel to be replaced by bio fuel	Take up with Government of India to speed up the process of using biofuel as additive in petrol/diesel to encourage the reduction of use of fossil fuels through the use of bio fuels in the fossil fuel as additive.	i) Environment ii) Higher Education/College iii) Industries
19	Sustainable Habitat	AIR	Check all industrial units for clean air	Very insufficient	100% monitoring	To reduce the air pollution and improve the air quality in Delhi by encouraging all industrial units to conform to the air pollution norms of DPCC.	i) Environment ii) DPCC iii) DSIIDC
20	Sustainable Habitat	AIR	Power generation to close coal fired power plants in next 5-6 years	Two coal based power plants at Raj Ghat and IP station generate 200 MW for Delhi at present	To be done by 2009 for IP station and by 2014 for Raj Ghat or earlier.	Both the coal based power plants need to be shut down and the plant and machinery can be auctioned and the land can be put to alternative uses and augment capacity with CNG based power plants.	i) Power ii) PGCL iii) PPCL

DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
21	Sustainable Habitat	AIR	To reduce car use in Delhi	2,00,000 cars in Delhi	Keep cars at same level	Examine and implement car purchase with availability of parking spaces. The GIS data being collected by GeoSpatial Delhi could be used to calculate number of parking spaces available in each colony, commercial areas to reduce car ownership by holding the numbers at the current level. Only new way is to increase registration and tax on cars.	i) Transport ii) GeoSpatial Delhi iii) IT Deptt.
22	Sustainable Habitat	LAND/ AIR/ WATER	Building construction to introduce green building technology	Nil	250 green buildings	To reduce the energy consumption in these buildings by 30 - 40 % in relation to conventional buildings and make at least 250 green buildings by adopting the green building standards and 50% buildings to be retrofitted for this and another 50% new buildings to be made.	i) EEREMC ii) MCD iii) PWD iv) BEE
23	Sustainable Habitat	LAND	Bio-medical waste treatment facility	One facility works and partly treats the waste	100% treatment of biomedical waste	One treatment facility is to be closed down and two facilities are to be opened. Sites have been identified and the facility has to be set up by health department to ascertain 100% treatment of bio medical waste to be done by the health department.	i) Health ii) DPCC
24	Sustainable Habitat	LAND	Industrial waste and hazardous waste treatment facility	None at present	100% treatment of hazardous waste	The process of land identification and setting up the facility has to be done by Environment department to setup a hazardous waste treatment facility by 2010.	i) Environment ii) DSIIDC
25	Sustainable Habitat	LAND/ WATER	Animal waste and pollution to land, air and water by shifting abattoir to Ghazipur modern plant and shut down Idgah abattoir	Partial at present	Idgah to be shut down to comply with SC order	More new modern abattoirs to be set up in Delhi to meet the full needs fo the city and Idgah abattoir to be closed down and modern facility as per Euro standard set up at Ghazipur by MCD as per Supreme Court order.	i) MCD ii) Environment
26	Sustainable Habitat	LAND/ WATER	Modernised chicken dressing plant in Ghazipur	Managed by Agricultural Marketing Board needs to be modernised	100% modernisation	Must be done in a time bound manner by the Agricultural Marketing Board of Delhi and covert the facility into a modern facility with Effluent Treatment Plant and dressing plant.	i) DAMB ii) Revenue
27	Sustainable Habitat	LAND/ WATER	Animal waste treatment in unauthorized dairies	MCD must close down illegal dairies and shift them to Ghogha and set up modern facility of treatment of waste of animals	100% relocation and treatment of animal waste	MCD must take this work seriously in a time bound manner as it has already been monitored by the High Court of Delhi and this relocation must include the treatment of animal waste like dung and conversion into methane gas for power generation and use of milk in modern chilling plant.	i) MCD

DELHI CLIMATE CHANGE ACTION PLAN

S.No	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
28	Sustainable Habitat	LAND	Building materials waste to be used by setting up C & D waste facility	Set up one facility to treat 500 MT of C & D waste	25% C&D waste to be processed and treated for use in the construction industry	Set up a facility at Burari by July 2009 for the 500 MT capacity initially and install a system for collection of the waste for treatment and review regulation for use of end product. Facility to be setup by IL & FS.	i) MCD
29	Sustainable Habitat	LAND	Green delhi to reduce use of wood in constructions.	Substitutes are available but are not fully used	Maximum impact	Involve the construction industry in adopting standardisation of products like doors, windows, railings, floorings etc. and to launch a campaign to stop using wood and go in for wood substitutes in construction activity in Delhi.	i) PWD ii) Environment iii) MCD iv) DDA
30	Sustainable Habitat	NOISE	Use of sound protected generators	Whole of Delhi but not effectively imposed	Full implementation with strict penalties	To launch a campaign for voluntary registration of organisation using generators and ensure that they use noise protected generators and are penalised for violations. A help line to be set up to receive complaints against violators and take action post the event based on such complaints. To ensure that all users insist on noise protected generators particularly tent wallahs.	i) Environment ii) DPCC iii) Police
31	Sustainable Habitat	NOISE	Implement SC order strictly restricting noise levels at night	Whole of Delhi	Effective and full implementation	Launch a public campaign to educate people to follow SC order and care for the neighbours. Temples, mosques, and religious insitutions to be involved and ensure all users of parks, community halls comply with SC order on controlling noise pollution.	i) Environment ii) DPCC iii) Police
32	Sustainable Habitat	NOISE	To promote cracker free Diwali amongst children	Whole of Delhi should be aware of harmful effects of crackers on noise and air quality	Effective campaign in Delhi	Involve schools, and other institutions and launch a campaign against it and ensure use of crackers with proper decibel levels.	i) Education ii) Schools
33	Sustainable Habitat	NOISE	Promote less use of horns in vehicles	Whole of Delhi for cars and two wheelers	Full campaign in Delhi	Launch a campaign to educate public owning vehicles to restrict use of horns and notify all horn free areas for public and to educate people not to unnecessarily use loud horns to clear the way and show patience. The use of pressure horns is banned in Delhi.	i) Police ii) DPCC

4. Mission for Green India:

Delhi has taken the lead in Greening with the effective green cover increasing from 26 sq kms to 300 sq kms in ten years which is 20% of the area of Delhi. This is proposed to be increased to 33% over time as per the target set out in the National Green Mission. This is proposed to be done by a series of measures which includes more effective greening of existing greens, opening of new city forests and intensifying the green cover over the entire ridge area of Delhi which covers nearly 6000 hectares. Each department

has a target to fulfil and this is checked by the forest department. The setting up of the Delhi Parks and Gardens Society is meant to coordinate the greening efforts to reach the target figure of 33%. An ambitious target of five million potted plants has been fixed for Commonwealth Games to beautify the city during the Games. Delhi has already earned the sobriquet of one of the greenest cities of the world. Effective use of waste water can do a lot to increase the efforts in this direction and this is one of the objectives.

DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
34	Green India	LAND/AIR	Forest Greening of Delhi	289 Sq kilometers under green cover or 20% of Delhi is green covered	500 sq kilometers by 2012	Involve all departments like DDA, PWD, CPWD, DMRC, NDMC, Parks and Gardens Society, MCD and RWAs. Identify barren land area specially along the Yamuna River and Ridge area for intensive greening. Increase the green cover to 33% of land area of Delhi as per the NAPCC.	i) Forest ii) DDA/MCD/ NDMC/ DMRC/PWD/ DP&GS
35	Green India	LAND/AIR	City forests for greening	Nine city forests plus two bio-diversity parks existing	Three city forests and one bio-diversity park	More City forests to be opened by forest department and bio-diversity park by DDA. To open nine more city forests and one bio-diversity park in Delhi to add to the carbon sinks.	i) Forest
36	Green India	LAND/AIR	Parks and gardens in colonies	Rejuvenate existing parks and gardens of which there are 14000 already	1000 parks to be rejuvenate	Involvement of communities is essential as this will create awareness about climate change and create interest in the community bhagidari about greening parks in colonies. To identify parks and involve communities to maintain parks and give them financial assistance to do so and have a trophy for encouraging efforts of RWAs.	i) DP&GS ii) MCD iii) DDA iv) NDMC

DELHI CLIMATE CHANGE ACTION PLAN

S.No	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
37	Green India	LAND/AIR	Greening for Commonwealth Games	Currently nil but five million potted plants to be prepared	Five million potted plants to be prepared	Many departments are involved like Conservator of Forest, PWD, MCD, DDA, CPWD, NDMC, Parks and Gardens Society and targets for each has been fixed and prepare for Commonwealth Games 2010 for beautifying various areas with flowering potted plants in various locations.	i) Forest ii) MCD iii) DDA iv) NDMC v) PWD vi) DP&GS
38	Green India	LAND/AIR	Greening the Delhi Ridge area of South Delhi through Eco Task Force	Open a new Eco task force of army	Will cover an area of 1000 hectares for afforestation	Work can be taken up once the new eco task force is in position to do the work in order to increase and intensify the greening of Delhi ridge area for which the new Eco Task Force is needed.	i) Environment ii) Forest
39	Green India	LAND/AIR	Greening Delhi by Delhi Parks & Gardens Society and RWAs	Nil now	1000 parks to be developed using help of RWAs	The framework for giving assistance has been provided and it needs to be done and implemented by the Parks and Gardens Society and increase the number of parks in colonies which can be developed into carbon sinks.	i) DP&GS
40	Green India	LAND	Green Delhi campaign to compost dry leaves and green waste	Leaves are burnt in some cases and this causes pollution	All colonies to start composting of leaves in government colonies and public parks	Create a nucleus group to make the business of selling compost to the community and compost leaves at the same time. Each colony must be encouraged to have its own compost pit for green leaves and garden cuttings which can provide compost to the community for their gardens in kitchens.	i) Environment ii) DP&GS iii) Community
41	Green India	LAND	Green Delhi in schools by growing vegetable in school lands	None now	1000 schools to start	Provide help of temporary malis to take up the work with the help of schools to encourage schools to set up kitchen gardens in schools to provide food for the common kitchen in the school.	i) Education ii) DP&GS
42	Green India	LAND	Green Delhi campaign by setting up herbal gardens	Few now	10 herbal gardens to be set up	Provide growers new income and expertise to encourage herbal gardens in Delhi's schools and parks.	i) MCD ii) Environment iii) DP&GS iv) Education
43	Green India	LAND	Green Delhi campaign in low income colonies by providing assistance	All F,G, H colonies to be involved	100% in all colonies	The Samajik Suvidha Kendras can seek assistance of Delhi Parks and Gardens Society to start a campaign of greening all such colonies and involve the communities in the greening initiatives.	i) DP&GS ii) MCD
44	Green India	LAND	Green Delhi campaign	In NDMC area	Fully developed Commonwealth	This would be a show case for Commonwealth Games 2010 by NDMC.	i) NDMC

5. National Water Mission:

Water is the life blood of Delhi. Delhi depends on the river Yamuna for its water needs but the disputes between the basin states of Himachal, Punjab, Haryana, Rajasthan, Uttaranchal and Delhi have made the utilization of the Yamuna contentious and unlike the Ganga, there are no storage dams to conserve water for the benefit of the riparian states. The National Water Mission has proposed increase in water use efficiency of 20% through better regulatory mechanisms with differential entitlements and pricing. Today whether it is the rich or poor all pay the same cost and while the distribution system in rich areas is better and hence the availability, the same is not true of poorer

areas of the city. New strategies need to be tried out to conserve water and use waste water efficiently since 80% of raw water is waste water and its effective use can achieve the target set by the water mission. A new management strategy needs to be devised for this with an effective regulatory mechanism.

Cleaning the river Yumana must be on top priority. The recent initiative of Delhi Jal Board for interceptor sewers to trap the waste water and treat it before discharge in the river will hopefully achieve this objective. Measures for treatment of industrial waste water in Effluent Treatment Plants need to be enforced strictly.

DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
45	Water Mission	WATER	Water use efficiency	At present not calculated	20% efficiency of water use as per NAPCC	Leakages to be checked and high end users to be encouraged to use recycled water for toilet, gardens, washing and cooling. Detailed plan to be drawn up by DJB since National Action Plan has a target of 20% efficiency of use and this is achievable.	i) DJB
46	Water Mission	WATER	Water recharge systems to be installed	Not very sustained	1000 buildings to adopt water recharging systems with DJB providing technical support and incentives	DJB will identify technical agencies which can set up water recharging systems including training to be arranged if they are not available and compile a list of such buildings to ensure that all hospitals, schools, large buildings having covered area above 10,000 sq feet adopt water recharge structures.	i) DJB
47	Water Mission	WATER	Waste water re-use to be started	None at present	Pilot project to be initiated in ten new buildings	This requires a policy framework which needs to be created to incentivise the re-use of waste water with technical input including double piping in some buildings and changes in bye laws.	i) DJB ii) MCD iii) DDA iv) PWD v) Urban Development

DELHI CLIMATE CHANGE ACTION PLAN

S.No	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
48	Water Mission	WATER	Waste water treatment through interceptor Sewers	None at present	Complete interceptor sewers to be done and project Completed.	The work has already begun and funds could be taken from JNNURM for the purpose. The interceptor sewer technology is being implemented by EIL for DJB and needs to be monitored closely.	i) DJB ii) EIL
49	Water Mission	WATER	Waste water treatment by connecting all houses to existing sewer systems	Not universal	Complete sewer connections	In many cases residents do not connect houses to sewer lines and discharge into drains and this needs to be stopped. To ensure 100% connections to sewer lines wherever existing.	i) DJB
50	Water Mission	WATER	Waste water treatment for industry by improving works of ETPs	11 ETP s are running in industrial estates but success is limited	Make the ETP fully operational in all industrial estates	This requires very close follow up because 15% of pollution in river Yamuna is on account of industrial pollution and it needs to be addressed or else the interceptor sewer project will not be very successful in checking the pollution in river Yamuna. To examine how the ETPs can be made fully effective and bring forth a viable plan.	i) DSIIDC ii) Industries
51	Water Mission	WATER	Water recharging by restoring water bodies	All water bodies to be restored	All water bodies to be restored and made green and areas of attraction	This is an important process of restoration of water bodies and a third party inspection is needed to assess its restoration. 620 water bodies have been identified and are being reclaimed by many institutions like Irrigation dept, DDA, DSIIDC, MCD, PWD etc.	i) Environment ii) DSIIDC iii) I & FC iv) MCD v) DDA vi) DJB
52	Water Mission	WATER	Enhance water availability for Delhi by constructing Renuka Dam	Start dam construction in Himachal Pradesh	To be 80% completed	This is an important plan to rejuvenate the river Yamuna and needs to be followed up regularly. To try to complete the dam and start the process of laying the pipe line to Delhi.	i) DJB ii) UD
53	Water Mission	WATER	Treatment of all the waste water by setting up STPs in villages	Start work in all the villages for providing sewage connections	The work is to be completed by DJB	Villages have been neglected and the process of urbanisation is putting enormous pressure on rural villages and the need to provide sewage connections cannot be underestimated. All villages and unauthorised colonies need to be provided with sewage connections and this is an important project.	i) DJB
54	Water Mission	WATER	Collect storm water from villages and provide proper drainage	All villages to be included particularly villages around the airport	All villages to be included in the program	The MCD is the local body which has to complete this task. Storm water needs to be collected so that it can be trapped for taking to the river and is not mixed with sewage water as it aggravates the pollution of the river.	i) MCD

6. Mission for Strategic Knowledge:

In order to tackle the problem of climate change effectively in an urban environment, there is a need to evolve effective policies which can be reflected in the development plans along with relevant technologies. This needs an effective knowledge base and real time management of the processes. Delhi has taken the lead in identifying the Mahatma Gandhi Institute of Climate Change Challenge in Bakoli as the field level institution which will pioneer efforts in creating strategic knowledge about climate change. To make this possible the Energy Efficiency and Renewable Energy Management Center has been placed under the MGICCC to coordinate the activities of climate change and energy management in a holistic manner. The Centre will partner with leading institutions in creating awareness and conducting research in this area.

DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
55	Strategic Knowledge	LAND/WATER	Biofuel usage to be encouraged by converting waste oil from restaurants/hotels into biofuel	Nil at present but has huge potential	100 restaurants and hotels to join in this program and identify relevant technology	There is a need for collaboration between a scientific institution and business with an entrepreneur to do this including mandating use of biofuel by the Government in some applications and to encourage restaurants to sell their waste fat and oil to an agency which can convert this into biofuel in collaboration with the Delhi College of Engineering.	i) Environment ii) Engg. College iii) MGICCC
56	Strategic Knowledge	STRATEGIC KNOWLEDGE	Education and training	All civil society groups	Full campaign in Delhi	This is a long process of education and awareness and this will need to involve every citizen of Delhi like communities, NGOs, schools and colleges. A massive campaign of awareness about the NAPCC and our targets for the same to be launched.	i) Education ii) MGICCC
57	Strategic Knowledge	STRATEGIC KNOWLEDGE	Bhagidari to increase awareness of climate change issues	Involve all RWAs in awareness	Full campaign in Delhi	This education program is important for building up ownership for the programs. Bhagidari for awareness and ownership to be done in all colonies.	i) Bhagidari Cell ii) EEREMC
58	Strategic Knowledge	STRATEGIC KNOWLEDGE	How to restrict use of fossil fuels in Delhi	Discuss in Delhi among user groups like SIAM, etc	Delhi	Prepare background paper and hold conference to increase awareness and response of the public. Discuss the impact of use of biofuels and other stringent fuel quality norms and their effects.	i) Transport ii) CSE iii) Environment iv) MGICCC

DELHI CLIMATE CHANGE ACTION PLAN

S.No	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
59	Strategic Knowledge	STRATEGIC KNOWLEDGE	Study and create data base for mercury waste handling	Delhi	Delhi	Hold discussions and seminar on the problem to find a solution and create a knowledge base about the problem of mercury in CFL lamps.	i) Environment ii) MGICCC
60	Strategic Knowledge	STRATEGIC KNOWLEDGE	Study and discussion on waste handling processes	Delhi	Delhi	Create a data base of alternative technologies and management practices and involve MCD,NDMC and Environment groups to discuss optimum ways to handle waste.	i) MCD ii) Environment iii) NDMC iv) DPCC
61	Strategic Knowledge	STRATEGIC KNOWLEDGE	Study and prepare projects on bio-fuel manufacture and use in industry & transport	Delhi	Delhi	Start a pilot project for manufacture of small facility for biofuel and see how it can generate employment for small scale sector by involving industry and hotels and restaurants and other study institutions.	i) Engg. College ii) MGICCC iii) Environment
62	Strategic Knowledge	STRATEGIC KNOWLEDGE	Study and set up a system for regulation and energy bench marking for government and other buildings	Delhi to start	Delhi	Prepare the background for setting bench marking standards by involving educational institutions in the process of setting standards and take up a few buildings.	i) EEREMC ii) BEE
63	Strategic Knowledge	STRATEGIC KNOWLEDGE	CDM credits to study and set up a system for government	Delhi	Delhi	Make progress in creating a data base for preparing projects by involve institutions to train staff to prepare projects for CDM.	i) Environment
64	Strategic Knowledge	STRATEGIC KNOWLEDGE	Hold one international conference in two years	Delhi	Delhi	This would expose intellectuals and administrators to the future course of actions needed for a mega city like Delhi and involve the best international community to debate future of cities in energy crisis and climate change issues and carbon footprints.	i) Environment
65	Strategic Knowledge	STRATEGIC KNOWLEDGE	Hold one Asian Conference in three years	Delhi	Delhi	This would bring together planners and thinkers in the Asian context and the future of Asian cities to interact with major Indian and Asian cities on how	i) Environment

LIST OF WATER BODIES

Note: Data on water bodies is still to be completed based on full verification.



S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
A	Distt. South-West				
1	Kapashera	7-3	Wet		
2	Kapashera	0-4	Dry		
3	Kapashera	0-15	Dry		
4	Samalka	26-4	Dry	No	School exists
5	Samalka	8-4	Dry	No	Plots allotted under 20 point programme
6	Samalka	7-18	Dry	No	No addl. source of water for development of johar
7	Mahipalpur	27-3	Dry		
8	Mahipalpur	1-6	Dry	No	No addl. source of water for development of johar
9	Rangpuri	6-9	Dry	No	
10	Rangpuri	12-12	Dry	No	No addl. source of water exists for the dry.
11	Rangpuri	4-16	Dry	No	No addl. source of water exists for the dev. of johar
12	Rangpuri	4-16			

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
13	Rangpuri	4-16	Dry	No	
14	Rangpuri	4-16			
15	Rangpuri	4-16			
16	Rangpuri	4-16			
17	Rangpuri	4-16			
18	Rangpuri	4-16			
19	Rajokari	4-11	Wet		
20	Rajokari	13-11	Dry	No	Heavily built up
21	Rajokari	40-18	Dry		Under litigation Jeev Ashram Exists
22	Rajokari	5-13	Dry		
23	Rajokari	11-4	Wet		
24	Rewla Khanpur	4-16	Wet		
25	Rewla Khanpur	11-12	Wet		
26	Rewla Khanpur	61-10	Dry	No	1/2 portion got merged in nalla. Some of the portions got merged in the footpath of nalla.
27	Rewla Khanpur	7-15	Wet		
28	Rewla Khanpur	15-3	Wet		
29	Rewla Khanpur	12-8	Wet		
30	Rewla Khanpur	5-8	Wet		
31	Rewla Khanpur	3-3	Wet		
32	Kangan Heri	4-4	Dry	Yes	
33	Kangan Heri	13-10	Dry		Extended Lal Dora
34	Kangan Heri	4-16	Wet		
35	Kangan Heri	4-12			
36	Kangan Heri	8-5	Dry		
37	Badu Sarai	4-10	Dry	Yes	
38	Badu Sarai	5-5	Wet		
39	Badu Sarai	13-0	Dry		
40	Sikarpur	17-18	Wet		
41	Sikarpur	10-6	Wet		
42	Daulatpur	8-14	Dry	Yes (work completed)	
43	Daulatpur	11-13	Wet		
44	Daulatpur	6-12	Dry	Yes (work completed)	
45	Daulatpur	6-12	Dry	Yes (work completed)	

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
46	Pindwala Kalan	14-4	Dry	No	No additional source of water for the development of johar
47	Pindwala Kalan	17-6	Wet		
48	Khaira	5-5	Wet		
49	Khaira	2-13	Wet		
50	Khaira	8-6	Dry		
51	Kh.Kh. Nahar	5-11	Wet		
52	Kh.Kh. Nahar	2-3	Dry		
53	Kh.Kh. Nahar	15-9	Wet		
54	Ghuman Hera	Not visible	Dry		
55	Ghuman Hera	8-8	Wet		
56	Ghuman Hera	4-10	Dry	No	Near Abadi
57	Ghuman Hera	16-15	Wet		
58	Ghuman Hera	4-16	Wet		
59	Ghuman Hera	10-12	Wet		
60	Ghuman Hera	8-13	Dry	No	No addl. source of water for the development of johar
61	Darya Pur Khurd	23-9	Dry	Yes (work completed)	
62	Darya Pur Khurd	11-1	Wet		
63	Darya Pur Khurd	not visible	Wet		
64	Darya Pur Khurd	2-9	Wet		
65	Ujwa	23-15	Dry & Dirty	Yes (work completed)	
66	Ujwa	9-12	Wet		
67	Ujwa	6-0	Wet		
68	Ujwa	4-0	Wet		
69	Ujwa	9-0	Wet		
70	Ujwa	3-12	Wet		
71	Ujwa	20-18	Wet		
72	Ujwa	16-24	Wet		
73	Ujwa	4-11	Dry		
74	Goela Khurd	5-12	Dry		
75	Goela Khurd	10-9	Wet		
76	Tajpur Khurd	18-16	Wet		
77	Chawla	19-15	Wet		
78	Chawla	12-6	Wet		

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
79	Chawla	4-16	Dry	No	Extended Lal Dora inside abadi.
80	Chawla	14-17	Dry	No	Need not be revived as it is already in the form of Johar
81	Chawla	12-8	Wet		
82	Chawla	9-18	Wet		
83	Chawla	5-15	Dry		
84	Hassan pur	9-7	Wet		
85	Hassan pur	4-12	Wet		
86	Jhul Jheli	14-6	Wet		
87	Jhul Jheli	1-6	Wet		
88	Jhul Jheli	2-0			
89	Jhul Jheli	1-0	Dry	No	No addl. source of water exists for the development of johar
90	Rawta	3-7	Wet		
91	Rawta	1-0	Wet		
92	Rawta	1-7	Wet		
93	Rawta	3-12	Wet		
94	Malikpur	19-1	Wet		
95	Malikpur	5-1	Dry	No	Near Abadi
96	Malikpur	4-16	Dry	Work completed	No addl. source of water exists for the development of johar
97	Malikpur	5-0	Dry		
98	Malikpur	4-13	Dry	Work completed	
99	Samaspur Khalsa	5-5	Wet		
100	Samaspur Khalsa	7-15	Dry	Work completed	
101	Samaspur Khalsa	15-12	Wet		
102	Sarang Pur	1-16	Wet		
103	Galib Pur	12-1	Wet		
104	Galib Pur	12-11	Wet		
105	Jaffarpur Kalan	6-9	Dry	No	
106	Jaffarpur Kalan	13-6	Dry	No	
107	Jaffarpur Kalan	6-1	Wet		
108	Jaffarpur Kalan	7-16	Dry	No	No addl. source of water exists for the development of johar
109	Dichan Kalan	7-9	Wet		
110	Dichan Kalan	5-14	Wet		
111	Dichan Kalan	4-5	Wet		

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
112	Dichan Kalan	22-7	Wet		
113	Daurala	4-12	Dry		
114	Daurala	3-9	Wet		
115	Daurala	7-5	Dry	Yes	
116	Daurala	8-10	Dry	Yes	
117	Ghitorni	17-9	Wet		
118	Dhulsiras	8-9	Wet		
119	Dhulsiras	7-13	Wet		
120	Dhulsiras	0-14	Dry	No	No addl. source of water exists for the development of johar
121	Dhulsiras	0-15	Dry		
122	Dhansa	11-14	Dry	Work completed	
123	Dhansa	3-4	Dry	Work completed	
124	Dhansa	9-12	Dry	50% Work completed	
125	Dhansa	13-0	Dry 50% were completed		
126	Nangli Sakrawati	3-10	Dry	Yes	
127	Nangli Sakrawati	3-9	Wet		
128	Asalatpur Khawad	3-0	Wet		
129	Asalatpur Khawad	4-16	Dry	Yes	
130	Asalatpur Khawad	4-16	Dry	Yes	
131	Asalatpur Khawad	4-16	Dry		
132	Kh.Kh. Rond	20-18	Dry	Yes (work completed)	
133	Bakargarh	9-14	Wet		
134	Bakargarh	5-12	Wet		
135	Bakargarh	5-8	Dry		
136	Kh. Kh. Jatmal	5-5	Wet		
137	Issapur	24-8	Dry	Yes	
138	Issapur	12-13	Dry & Dirty	Work completed	
139	Issapur	9-16	Dry		
140	Issapur	6-13	Dry		
141	Issapur	1-16	Dry	Work completed	
142	Issapur	10-9	Dry	Yes	
143	Mundhella Khurd	0-18	Wet		

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
144	Mundhella Khurd	2-13	Wet		
145	Mundhalla Khurd	24-13	Wet		
146	Khera Dabar	16-4	Dry	No	Ashram exists
147	Khera Dabar	10-1	Wet		
148	Khera Dabar	18-3	wet		
149	Surakhpur	7-4	Wet		
150	Surakhpur	4-6	Dry & Dirty	No	
151	Jhorda Kalan	13-9	Wet		
152	Jhorda Kalan	9-4	Wet		
153	Jhorda Kalan	13-6	Dry	Work completed	
154	Jhorda Kalan	11-9	wet		
155	Jhorda Kalan	2-18	Wet		
156	Jhorda Kalan	28-5	Wet		
157	Jhorda Kalan	1-14			
158	Jhorda Kalan	4-18	Wet		
159	Jhorda Kalan	4-16			
160	Jhorda Kalan	4-16	Dry	No	CRPF(Police Training Centre exists)
161	Jhorda Kalan	4-16			
162	Qutab Purr	22-5	Wet		
163	Kair	12-17	Wet		
164	Kair	2-13	Wet		
165	Kair	5-4			
166	Kair	8-10	Dry & Dirty	Work completed	
167	Kair	7-4	Dry & Dirty	Work completed	
168	Kair	21-2	Wet		
169	Kair	0-17	Wet		
170	Mundhella Kalan	7-16	Wet		
171	Mundhella Kalan	29-10	Wet		
172	Mundhella Kalan	4-17	Dry		
173	Mundhella Kalan	6-17	Wet		
174	Mundhella Kalan	3-9	Dry	No.	No additional source of water exists for the development of johar
175	Surhera	51-14	Dry	Work completed	
176	Surhera	3-16	Wet		

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
177	Surhera	17-14	Wet		
178	Surhera	13-5	Wet		
179	surhera	7-3	Dry & Dirty		
180	Paprawat	0-9	Dry		Extended Lal Dora
181	Paprawat	6-15	Wet		
182	Paprawat	6-11	Wet		
183	Paprawat	22-6	Wet		
184	Paprawat	2-100	Wet		
185	Paprawat	0-5	Wet		
186	Paprawat	4-1	Wet		
187	Mitraon	9-1	Wet		
188	Mitraon	18-4	Wet		
189	Mitraon	9-11	Dry		
190	Mitraon	187	Wet		
191	Dindarpur	28-8	Wet		
192	Dindarpur	5-6	Dry	No	
193	Salahpur	5-4	Dry	No	No addl. source of water exists for the development of johar
194	Jhatikara	6-5	Wet		
195	Jhatikara	19-4	Dry	No	No addl. source of water exists for the development of johar
196	Jhatikara		Wet		
197	Pindwala Khurd	4-15	Dry		No addl. source of water exists for the development of johar
198	Bindapur	0-5	Wet		
199	Qazipur	9-2	Dry		
200	Qazipur	0-4			
201	Qazipur	5-6			
202	Sahbad Md. Pur B.	8-19	Wet & Dirty		Allotment under 20 pt. Programme
203	Karawal Nagar	2-10	Dry	No	Yes
204	Karawal Nagar	4-16	Dry	No	Allotted
205	Sabhapur	5-2	Dry	No	Yes
206	Gokul Pur	0-18	Dry	No	Yes
207	Gokul Pur	0-12	Dry	No	Yes
208	Gokul Pur	2-4	Dry	Yes	No
209	JohriPur	1-05	Dry	No	Yes

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
210	Jeevan Pur	2-16	Dry	No	Yes
211	Mustafabad	28-0	Dry	No	Yes
212	Babarpur	2-02	Dry	No	Yes
213	Babarpur C.	3-05	Dry	Yes	Only 0-5 encroached
214	Kondli D.	Not visible properly	Dry	No	Yes
215	Burari	12-15	Wet	No	Nil
216	Burari	8-11, 7-13	Wet	No	Nil
217	Buari	8-2	Wet	No	No
218	Burari	24-8	Wet	No	No
219	Kamalpur	15-10	Wet	No	No
220	Mukandpur	4-6	Wet	No	No
221	Mukandpur E.	4-1	Wet		
222	Alipur	19-0	Wet	Yes	No
223	Ghevra	11-3	Wet		No
224	Ghevra	4-18	Wet		No
225	Ghevra	22-0	Wet		No
226	Sawda	38-18	Dry	Yes	No
227	Khanjawala	9-0	Wet		No
228	Bhorgarh	6-12, 6-12			-
229	Bakhtawar Pur	22-4	Dry	Yes	Yes
230	Bakhtawar Pur	19-4	Dry	Yes	No
231	Bakhtawar Pur	18-16	Wet		Yes
232	Bakhtawar Pur	4-18	Dry	Yes	No
233	Bakhtawar Pur	9-10	Wet		No
234	Pooth Khurd	27-2	Wet		Yes
235	Pooth Khurd	7-19			Yes
236	Barwala	30-18	Wet		No
237	Barwala	8-10	Wet		No
238	Lampur	5-6	Wet		Nil
239	Lampur	14-16	Wet		Nil
240	Lampur	6-11	Dry	No.	Yes

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
241	Lampur	2-1	Dry	No.	agri
242	Lampur	1-3	Dry	No.	agri
243	Lampur	21/6			
244	Sultampur Dabas	30-11	Wet		No
245	Sultampur Dabas	5-2	Dry	Yes	No
246	Sultampur Dabas	7-16	Wet		No
247	Daryapur Kalan	19-17	Wet		No
248	Daryapur Kalan	36-9	Wet		Yes
249	Daryapur Kalan	9-12	Dry		Yes
250	Daryapur Kalan	2-3	Dry	Yes	No
251	Bawana	9-10	Wet		No
252	Bawana	3-16	Wet		No
253	Bawana	7-3	Wet		No
254		Not visible properly			Yes
255		Not visible properly			
256		Not visible properly			Yes
257		Not visible properly			No
258	Nangal Thakram	24-7	Wet		No
259	Nangal Thakram	17-4	Wet		No
260	Nangal Thakram	4-17	Dry		No
261	Nangal Thakram	23-9	Wet		No
262	Nangal Thakram	9-7	Wet		No
263	Bajitpur Thakram	9-12	Wet		No
264	Bajitpur	5-14	Wet		No
265	Bajitpur	4-14	Wet		No
266	Bajitpur	8-14	Wet		Yes
267	Naya Bans	16-7	Wet		No
268	Naya Bans	5-17	Wet		No
269	Naya Bans	1-17	Wet		No
270	Naya Bans	7-5	Wet		No
271	Khera Khurd	28-16	Wet		No
272	Khera Khurd	8-13	Dry		No
273	Khera Khurd	7-14	Wet		No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
274	Khera Kalan	27-3	Wet		
275	Khera Kalan	6-10	Dry		
276	Khera Kalan	18-16	Wet		
277	Karala	107-6	Wet		No
278	Nizampur	21-8	Wet		-
279	Nizampur	6-10	Wet		-
280	Nizampur	4-16			Yes
281	Nizampur	8-13	Wet		Yes
282		Asked			No
283	Nizampur	13-7	Dry		-
284	Nizampur	4-8	Dry		-
285	Nizampur	61-9	Wet		-
286	Nizampur	5-5	Dry		-
287	Nizampur	14-8			
288	Holambi kalan	15-10	Wet		Yes
289	Holambi Khurd	19-2, 43-8	Wet		Yes
290	Mubarak Pur	1-1	Wet		No
291	Chand pur	5-1, 0-11	Wet		No
292	Sannothe	36-4	Wet		No
293	Bankner	28-12	Dry	No	-
294	Bankner	23-18	Dry	No	-
295	Bankner	14-4	Wet	-	Yes
296	Prahlad Pur Banger	10-18	Wet		No
297	Prahlad Pur Banger	9-16			
298	Siraspur	Not visible properly			
299	Hameed Pur	9-16	Wet		Yes
300	Hameed Pur	10-18			
301	Katewra	19-4	Wet		No
302	Katewra	4-16	Dry		No
303	Katewra	7-11	Dry		No
304	Qutab Grah	5-19	Dry		No
305	Qutab Grah	11-13	Wet		No
306	Mungespur	4-16	Wet		No

Contd...



S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
307	Mungespur	4-16	Wet		No
308	Mungespur	12-17	Wet		
309	Mungespur	6-16	Wet		No
310	Auchandi	5-5	Wet		No
311	Auchandi	7-1	Wet		No
312	Auchandi	10-3	Wet		No
313	Auchandi	25-10	Wet		No
314	Harewali	9-17			
315	Harewali	9-12	Wet		
316	Tatesar	19-4	Wet	Yes	No
317	Punjab Khore	7-1			
318	Punjab Khore	19-17	Wet	No.	No
319	Ladpur	10-0	Wet	Yes	Yes
320	Ladpur				No
321	Ladpur	14-5	Wet	No	No
322	Ladpur	4-9	Wet	No	No
323	Ladpur	3-5	Wet	No	No
324	Jaunti	9-14	Dry	Yes	No
325	Jaunti	29-7	Wet	-	No
326	Jaunti	14-16	Dry	Yes	Yes
327	Jaunti	2-2	Dry	No.	-
328	Jaunti	1-9	Dry	Yes	Yes
329	Jaunti	9-15	Dry	Yes	Yes
330	Jaunti	2-11	Dry	Yes	Yes
331	Jatkhori	7-14	Wet		-
332	Jatkhori	6-9	Wet		-
333	Jatkhori	Not visible properly			Yes
334	Jatkhori	Not visible properly			Yes
335	Jatkhori	Not visible properly			
336	Jatkhori	Not visible properly			
337	Budan Pur	34-9	Wet		Yes
338	Budan Pur	21-5	Wet		Yes

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
340	Budan Pur	21-5	Wet		Yes
341	Budan Pur	9-12	Wet		Yes
342	Rani Khera	9-18	Wet		
343	Rani Khera	17-18	Wet		
344	Rani Khera	3-9	Wet		
345	Rani Khera	2-4	Wet		No
346	Rani Khera				
347	Rasool Pur	5-19	Wet		No
348	Rasool Pur	5-10	Wet		No
349	Rasool Pur	5-9	Wet		No
350	Rasool Pur	2-15	Wet		No
351	Madan Pur Dabas	9-14	Wet		No
352	Madan Pur Dabas	21-13	Wet		No
353	Madan Pur Dabas	10-16	Wet		No
354	Nithari	10-7	Dry	Yes	-
355	Nithari	26-14	Wet		-
356	Nithari	4-16	Wet		-
357	Kirari	18-5	Wet		No
358	Kirari	17-11	Wet		Yes
359	Kirari	10-00	Wet		Yes
360	Kirari	3-17	Wet		-
361	Kirari	4-15	Wet		Yes
362	Ghogha	17-11	Wet		Yes
363	Ghogha	5-11	Wet		No
364	Zind Pur	Not visible properly	Dry	No	Yes
365		2-2	Dry	Yes	Yes
366	Begum Pur	Not visible properly			-
367	-	Not visible properly			
368	-	Not visible properly			
369	-	Not visible properly			
370	-	Not visible properly			
371	Nangli Poona	3-15	Wet		No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
373		3-10	Wet		Yes
374	Hiranki	12-13	Wet		-
375	Hiranki	10-7	Wet		-
376	Akbarpur Majra	6-10	Wet	Yes	Yes
377	Akbarpur Majra	0-9	Dry	Yes	No
378	Tajpur	7-17	Wet	Yes	Yes
379	Tajpur	6-13	Wet		No
380	Tajpur	6-13	Wet		No
381	Singhola	6-16	Wet		No
382	Singhola	12-1	Wet		No
383	Singhola	0-4	Dry	No	-
384	Mohmadpur Majri	16-7	Wet		No
385	Mohmadpur Majri	15-8	Wet		No
386	Garhi Randhala	9-11	Wet		Yes
387	Garhi Randhala	4-16	Dry	Yes	
388	Budh pur	8-12	Wet		No
389	Tigipur	1-4	Dry	No	-
390	Tigipur	5-10	Dry	No	-
391	Tigipur	3-14	Dry	Yes	No
392	Tikri Khurd	4-16	Wet		No
393	Tikri Khurd	10-0	Wet		No
394	Singhu	9-19	Dry	Yes	No
395	Singhu	9-1	Dry	Yes	No
396	Singhu	3-12	Dry	Yes	No
397	Mubarak Pur Dabas	2-4	Wet		No
398	Mubarak Pur Dabas	1-1	Wet		No
399	Pooth Kalan	4-2	Wet		No
F.	Distt. South				
400	Fatehpur Beri	5308	Wet		No
401	Aya Nagar	13569	Wet		No
402	Neb Sarai	3538	50%Wet/50%Dry	Yes	No
403	Asola	27263	30%Wet/70Dry	Yes	No
404	Dera Mandi	16561	30%Wet/70Dry	Yes	Yes
405	Jonapur	9564	60%Wet/40% Dry	Yes	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
406	MadanGari	27305	50%Wet/50%Dry	Yes	Yes
407	Satbari	4256	50%Wet/50%Dry	Yes	No
408	Aya Nagar	17699	20%Wet/80% Dry	Yes	No
409	Dera Mandi	4841	50%Wet/50%Dry	Yes	No
410	Chandan Hola	5008	50%Wet/50%Dry	Yes	No
411	Rajpur Khurd	6569	50% Wet/50% Dry	No	Yes
412	Sultanpur	20179	Dry	No	No
413	Aya Nagar	2348	Dry	No	-
414	Fethepur	Not visible properly	Dry	No	-
415	Bhatti	1811	Dry	No	-
416	Asola	1595	Dry	No	Yes
417	Asola	585	Dry	No	Yes
418	Asola	1428	Dry	No	-
419	Neb Sarai	885	Dry	Yes	No
420	Bhatti	1811	Dry	Yes	-
421	Jonapur	13144	Dry	Yes	-
422	Asola	18075	Dry	Yes	-
423	Asola	84	Dry	Yes	-
G.	Distt. West				
424	Nangloi Jat	1-0	Dry	No	No
425	Nangloi Jat	1-5	Wet	N.A.	No
426	Kamruddin Nagar	10-0	Wet	N.A.	No
427	Ranholla	3-13	Dry	No	N.A.
428	Ranholla	13-12	Dry	No	N.A.
429	Ranholla	11-0	Dry	No	Yes
430	Tikrikalan	0-1, 2-0	Dry	No	No
431	Tikrikalan	5-6	Dry	Yes	No
432	Tikrikalan	10-7	Dry	Yes	No
433	Tikrikalan	4-0	Wet	No	No
434	Tikrikalan	18-7.5	Wet	No	No
435	Tikrikalan	6-14.5	Wet	No	No
436	Tikrikalan	9-3	Wet	No	No
437	Tikrikalan	4-16	Wet	No	No
438	Tikrikalan	11-12	Wet	No	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
439	Tikrikalan	2-14	Wet	No	No
440	Mundka	3-1	Dry	No	No
441	Mundka	4-16	Wet	No	No
442	Mundka	1-19	Wet	No	Yes
443	Mundka	15-18	Wet	No	Yes
444	Mundka	16-5	Wet	No	Yes
445	Mundka	11-8	Wet	No	No
446	Bakkerwala	4-4	Wet	No	No
447	Bakkerwala	9-2	Wet	No	No
448	Bakkerwala	6-3	Wet	No	No
449	Bakkerwala	1-10	Wet	No	No
450	Bakkerwala	Not visible properly	Wet	No	No
451	Hirankudna	16-10	Wet	No	No
452	Hirankudna	3-6	Wet	No	No
453	Hirankudna	11-16	Wet	No	No
454	Hirankudna	2-0	Dry	Yes	No
455	Hirankudna	16-5	Wet	No	No
456	Neelwal	14-7	Wet	No	No
457	Neelwal	8-11	Wet	No	No
458	Nilothi	5-8	Dry	No	No
459	Tilangpur Kotla	9-1	Wet	No	No
460	Baprolla	4-16, 4-16, 4-14, 3-8	Wet	No	No
461	Baprolla	4-16	Wet	No	No
462	Baprolla	4-0			
463	Baprolla	0-8, 0-8, 0-16, 0-8	Wet	No	No
464	Baprolla	1-0	Wet	No	No
465	Baprolla	1-0	Wet	Yes	No
466	Hasisai	3-16	Dry	No	Yes
467	Hasisai	1-16			
468	Hasisai	4-14, 2-7, 4-16, 6-2, 5-4	Wet	No	Yes
469	Mauala	4-16	Dry	No	No
470	Mauala	9-17	Dry	No	No
471	Nawada	6-19	Dry	No	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
472	Nawada	4-6	Dry	No	No
H.	ASI				
473	Gandhak Ki Baoli, Mehrauli	2200 sqm.	Wet	-	No
474	Hauz-i-Shamsi, Mehrauli	2000 sqm.	Wet	-	Not visible properly
475	Rajon ki Baoli, Mehrauli	858.36 sqm.	Wet	-	No
476	Tughluqabad Fort, Baoli	840 sqm.	Dry	No	No
477	Baoli, Tughlaqabad	414 sqm.	Dry	No	No
478	Baoli village	1551 sqm.	Wet	-	No
479	Baoli village	22500 sqm.	Wet	-	No
480	Uggarsen Ki Baoli, CP	435 sqm.	Wet	-	No
481	Kotla Firoz Shah Baoli	876.13 sqm.	Wet	-	No
482	Hazrat Nizamuddin Baoli	657.80 sqm.	Wet	-	No
483	Wazirpur Ka Gumbad Baoli	350 sqm.	Wet	-	No
484	Arab ki Sarai	54.64 sqm.	Wet	-	No
485	Purana Qila Baoli	675 sqm.	Wet	-	No
486	Bara Hindu Rao	1250 sqm.	Wet	-	No
487	Red Fort Baoli	597 sqm.	Wet	-	No
I.	IIT				
488	I.I.T.	3000	Wet	No	No
J.	DDA				
489	Sanjay Lake (a)	1,70,000	Wet	-	-
490	Avantika (b)	2000	Sunken Lawn	No	No
491	Avantika (a)	15000	Sunken Lawn	No	No
492	District Park Rohini (a)	10000	Wet	Yes	No
493	Swaran Jayanti Park (b)	7000	Wet	Yes	No
494	Paschim Vihar (a)	17-4	Wet		No
495	Bhagwati Tanks (a)		Wet	Yes	No
496	Adjoining Pooth Kalan (a)	30313 sqm.	Wet	Yes	No
497	Khooni Jheel (a)	6839.26 sqm.	Wet	No	No
498	Serpentine Lake (a)	3844.56 sqm.	Wet	No	No
499	Hauz Khas	80000 sqm.	Wet	No	No
500	Hauz Khas	7500 sqm.	Wet	No	No
501	Das Ghara	2.768 hact.	Wet	No	No
502	Dhaura Kuan (a)	5.89 hact.	Wet	No	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
503	Purana Quila (a)		Wet	No	No
504	Hari Nagar (a)	Same as Tihar Lake	Wet	No	No
505	Tihar Lake (a)		Wet	No	No
506	Prasad Nagar (a)	2800 sqm.	Wet	No	No
507	Satpulla dam Khirki (a)		Wet	Yes	No
508	Harsh Vihar (a)	2.47 acre.	Wet	No	No
509	Bharthal	3230 sqm.	Wet	Yes	No
510	Amberhai	2880 sqm.	Wet	Yes	No
511	Amberhai	3280 sqm.	Wet	Yes	No
512	Bijwasan	8160 sqm.	Wet	Yes	No
513	Tughlakabad (a)		Wet	No	No
514	Madangir (A)	10000 sqm.	Wet		No
515	Madangir (B)				
516	Madangir (C)				
517	Madangir (D)				
518	Madangir (E)				
519	Madangir (F)				
520	Hari Nagar (Ashram)	20000 sqm.	Dry	Yes	No
521	Masood Pur	37 Bigha 83 Biswa	Dry	Yes	No
522	Mehrauli (Baba Adhrang Nath)	13 Bigha 13 Biswa	Dry	No	No
523	Lado Sarai	1 Bigha 2 Biswa	Wet		No
524	Lado Sarai	2 Bigha 0 Biswa	Dry	Yes	No
525	Pochan Pur	7 Bigha 6 Biswa	Dry	Yes	No
526	Shabad Md. Pur	31 Bigha 6 Biswa	Dry	Yes	No
527	Mahipal Pur	4 Bigha 16 Biswa	Dry	Yes	No
528	Bamnoli	4 Bigha 16 Biswa	Dry	Yes	No
529	Najafgarh (d)	2368 sqm.	Wet	Yes	No
530	Najafgarh (e)				
531	Najafgarh (f)				
532	Bamnoli (a)	4-15	Wet	Yes	No
533	Bagrola (Dwarka Sector-8) (a)	13-09	Dry	Yes	No
534	Palam (CT) (a)	21-12	Dry	Yes	No
535	Palam (CT) (b)	20-15	Dry	Yes	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
536	Pochan Pur (a)	11-17	Dry	Yes	No
537	Pochan Pur (b)	11-14	Dry	Yes	No
538	Bagrola (Dwarka Sector-8) (b)		Dry	Yes	No
539	Nasir Pur (CT) (b)		Dry	Yes	No
540	Mahipal Pur (f)	4-16	Dry	Yes	No
541	Najafgarh (a)	1420 sqm.	Wet	Yes	No
542	Najafgarh (b)				
543	Najafgarh (c)				
544	Distt. Park Pitampura (a)	10 acre	Wet	No	No
545	Paschim Vihar		Wet	No	No
546	Jheel Park Madipur (a)	11 Bigha 10 Biswa	Wet	No	No
547	Jheel Park Madipur (a)	6 Bigha 2 Biswa			
548	Gopal Pur	3500 sqm.	Dry	Yes	No
549	Bhalswa Jahangir Pur	13-05	Wet	No	No
550	Vishnu Garden (a)	2-16	Dry	Yes	No
551	Dhirpur (b)		Dry	Yes	No
552	Dhirpur (c)		Dry	Yes	No
553	Pitampura (a)	10 acre	Wet	No	No
554	Dhirpur (a)	16-10	Dry	Yes	No
555	Siraspur (a)	10-04	Dry	Yes	No
556	Siraspur (b)	10-10	Dry	Yes	No
557	Mangolpuri Kalan (a)		Wet	Yes	No
558	Rithala (a)	75 Bigha 02 Biswa	Wet	Yes	No
559	Vinod Nagar (W) (a)	6600 sqm.	Dry	Yes	No
560	Ghazipur (a)	6620 sqm.	Dry	Yes	No
561	Sunder Nagri (a)	1500 sqm.	Dry	Yes	No
562	Maharaja Surajmal Park	2000 sqm.	Dry	Yes	No
563	Tahirpur (b)	1000 sqm.	Dry	Yes	No
564	Shastri Park (a)	1000 sqm.	Dry	Yes	No
565	NH-24 (a)	20000 sqm.	Dry	Yes	No
566	Khichripur (a)	1875 sqm.	Dry	Yes	No
567	Khichripur (b)	1500 sqm.	N.A.	N.A.	
568	Nand Nagri (a)	13500 sqm.	Dry	Yes	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
569	Vinod Nagar (W) (b)	31 Bigha 19 Biswa	N.A.	N.A.	No
570	Karkardooma (b)	3500 sqm.	N.A.	N.A.	
571	Tahirpur (a)	8400 sqm.	N.A.	N.A.	
572	Khichripur (c)	1000 sqm.	N.A.	N.A.	
573	Gharoli (e)	1002 sqm.	N.A.	N.A.	
574	Gharoli (f)		N.A.	N.A.	
575	Gharoli (g)		N.A.	N.A.	
576	Dallupura (a)	15900 sqm.	N.A.	N.A.	
577	Dallupura (c)		N.A.	N.A.	
578	Gharoli (a)	13380 sqm.	N.A.	N.A.	
579	Gharoli (b)		N.A.	N.A.	
580	Gharoli (c)		N.A.	N.A.	
581	Gharoli (d)	2000 sqm.	N.A.	N.A.	
582	Mangolpuri Kalan (b)	4 Bigha 16 Biswa			
583	Dhir Pur (d)		N.A.	N.A.	
584	Paschim Vihar (a)		N.A.	N.A.	
585	Basant Gaon (a)		N.A.	N.A.	
586	Sudershan Park (a)		N.A.	N.A.	
587	Kabir Basti (a)		N.A.	N.A.	
588	Bagrola (Dwarka Sector-8) (a)		N.A.	N.A.	
589	Nasir Pur (CT) (a)		N.A.	N.A.	
590	Palam (CT) (c)	13 Bigha 10 Biswa	N.A.	N.A.	
591	Shabad Md. Pur (a)	12 Bigha 12 Biswa	N.A.	N.A.	
592	Bharthal (a)	2 Bigha 8 Biswa	N.A.	N.A.	
593	Dwarka Palam Village Sec.-7 (a)		N.A.	N.A.	
594	Dwarka Palam Village Sec.-7 (b)		N.A.	N.A.	
595	Dwarka Palam Village Sec.-7 (c)		N.A.	N.A.	
596	Mahipal Pur (c)	1 Bigha 14 Biswa	N.A.	N.A.	
597	Mahipal Pur (d)	27 Bigha 3 Biswa	N.A.	N.A.	
598	Kishan Garh (a)		N.A.	N.A.	
599	(Not in list) (b)		N.A.	N.A.	
600	Badarpur Marshes (b)		N.A.	N.A.	
601	Munirka (a)	8 Bigha 7 Biswa	Dry	No	No

S. No.	Name of Village/location	Area (in Bigha & Biswas / sq. Mtr.)	Whether dry/wet	If dry whether can be revived (Yes/No)	Whether encroached (Yes/No)
602	Vasant Kunj Opposite Sahar Res (not in list) (a)	7 Bigha 18 Biswa	Dry	No	No
603	Shyam Nagar Lake (a)		N.A.	N.A.	-
K.	Forest Deptt.				
604	Asola	14-9	Dry	No	No
605	Bhatti	15-7	Wet	-	No
606	Bhatti	102-9	Wet	-	No
607	Madan Garhi	34-13	Dry	No	No
608	Madan Garhi	1-14	Dry	No	No
609	Madan Garhi	0-9	Dry	No	No
610	Madan Garhi	12-2	Dry	No	No
611	Madan Garhi	Not visible properly	Wet	-	No
612	Neb Sarai	12-9	Dry	No	No
613	Rajokari	4-7	Dry	No	No
614	Rajokari	32-16	Wet	-	No
615	Rajokari	1-18	Dry	No	Land locked
L.	PWD, GNCT				
616	Vasant Kunj on Aruna Asaf Ali Road	16000	Wet	N.A.	No
617	Naraina on Ring Road	36000	Wet	N.A.	Yes, Partly
M.	CPWD				
618	Vijay Ghat	16500	Wet	-	No
619	Shanti Van	13000	Wet	-	No
620	Shakti Sthal	10500	Wet	-	No
621	Rajghat	2000	Dry/Wet (as per availability of water)	man made lotus pond	No





Delhi Jal Board

DELHI JAL BOARD PROJECT CLEANING YAMUNA THROUGH INTERCEPTOR SEWERS

Treated effluent from the STPs is discharged into open drains that finally discharge into the River Yamuna. This mixing of untreated sewage with treated effluents negates the pollution control efforts. For reduction of pollution in River Yamuna, DJB evolved a new concept of “Interceptor Sewer” along the three major drains to check untreated sewage from flowing into the Yamuna.

1. SALIENT FEATURES OF THE PROJECT :

- (i) Laying of interceptor sewers in a length of around 50 Kms along three major drains of Irrigation & Flood Control Department (i.e. Najafgarh, Supplementary and Shahadra) to Intercept sewage flowing in their subsidiary small drains and conveying to the nearest Sewage Treatment Plants for treatment to ensure that only treated sewage is discharged into drains.

- (ii) Augmentation of the existing capacity of Sewage Treatment Plants at the mouth of Delhi Gate drain and Dr. Sen Nursing Home drain constructed as Pilot plants under YAP-I, from existing 2.2 MGD to 15 MGD at each plants.
- (iii) Intercepting 13 small drains into Bela Road and Ring Road Trunk sewer after rehabilitation. The work of rehabilitation is being carried out under YAP-II.
- (iv) Construction of additional Sewerage Treatment Plants after fully utilization of the capacity of the existing plants.

2. ADVANTAGES OF THE PROJECT :

- a) Both the river as well as the major drains would be protected and would not carry any untreated effluent.
 - b) There would be no duplication of effort regarding treatment of effluent as would be the case if STPs were set up at the mouth of the drain.
 - c) Since new STPs would only be put up after the capacity of the existing underutilized STPs is fully utilized, it would have a positive impact on the cost factor.
 - d) This would ensure that the three major drains, which account for 70% of the pollution problem, receive only treated effluent and, therefore, the quality of water entering the river will improve substantially.
3. The work has been awarded to M/s Engineers India Ltd. for complete project management consultancy service @ 9% of the project cost; right from planning to commissioning of the projects. The consultancy work is limited to Laying of Interceptor Sewer along three major drains. The other components of work i.e. construction of STP at the mouth of Delhi Gate and Dr. Sen Nursing Home drains, Ring Road and Bela Road trunk sewers and construction of other STPs will be handled by DJB.
 4. The entire project has been scheduled for completion in 48 months (12 months for pre-construction activities and 36 months for execution). The cost of this project is around Rs. 1500 crores. The work of refurbishment and augmentation of treatment capacity of the Sewage Treatment Plants shall be co-terminus with commissioning of Interceptor sewers.

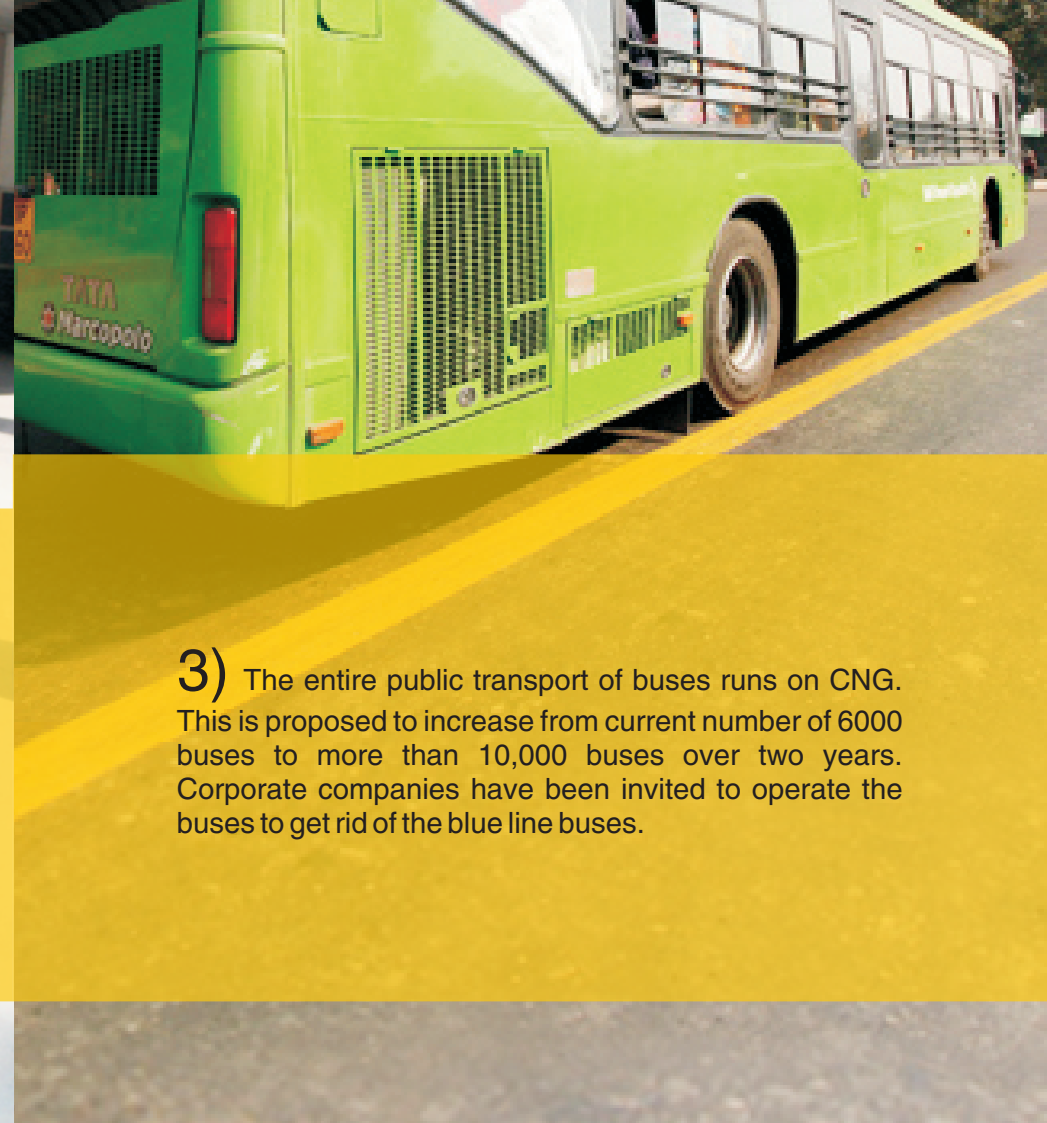
NEW INITIATIVES OF GOVERNMENT OF DELHI



1) Use of solar water heaters is mandatory in all buildings above 500 sq meters area. There is a subsidy of Rs. 6000 for 100 litre capacity solar water heating system for domestic use. There is a subsidy of upto Rs. 60,000 for 1000 litre solar water heating system in institutional buildings like educational buildings, charitable organizations running large kitchens, hospitals and nursing homes etc.



2) An Air Ambiance Fund has been set up under the Air Act to provide support for battery operated vehicles. Battery operated vehicles like cars, scooters, and tempos can get their VAT and registration charges refunded in full from the fund. This reduces the price by 30% on average for battery operated vehicles.



3) The entire public transport of buses runs on CNG. This is proposed to increase from current number of 6000 buses to more than 10,000 buses over two years. Corporate companies have been invited to operate the buses to get rid of the blue line buses.



4) Use of Compact Fluorescent Lamps is being encouraged by the distribution companies in order to reduce the energy consumption. Manufacturers of CFLs are giving attractive discounts of upto 30% and above on their products.

5) Two Waste to Energy projects have been successfully bid out to private companies to convert nearly 3000 MT of municipal waste into electricity. 32 MW of electricity would be generated from municipal solid waste. More such projects are on the anvil.

6) Nine city forests exist and nine new city forests are planned. This and other greening efforts have increased the green cover in Delhi from 26 sq kilometers to 300 sq kilometers which is 20% of the land area. This is planned to be increased to 33% of land area as per the target set by NAPCC.

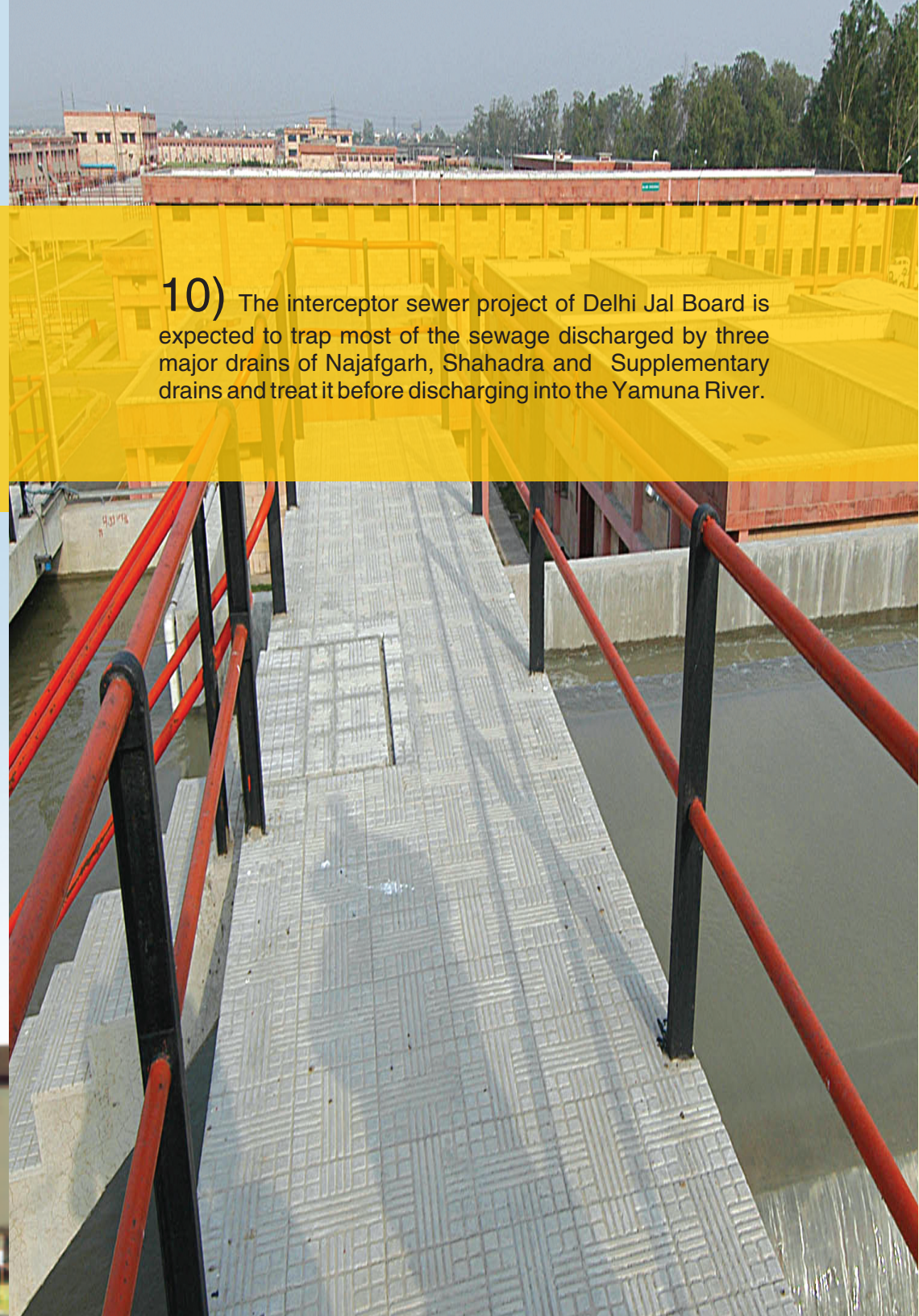
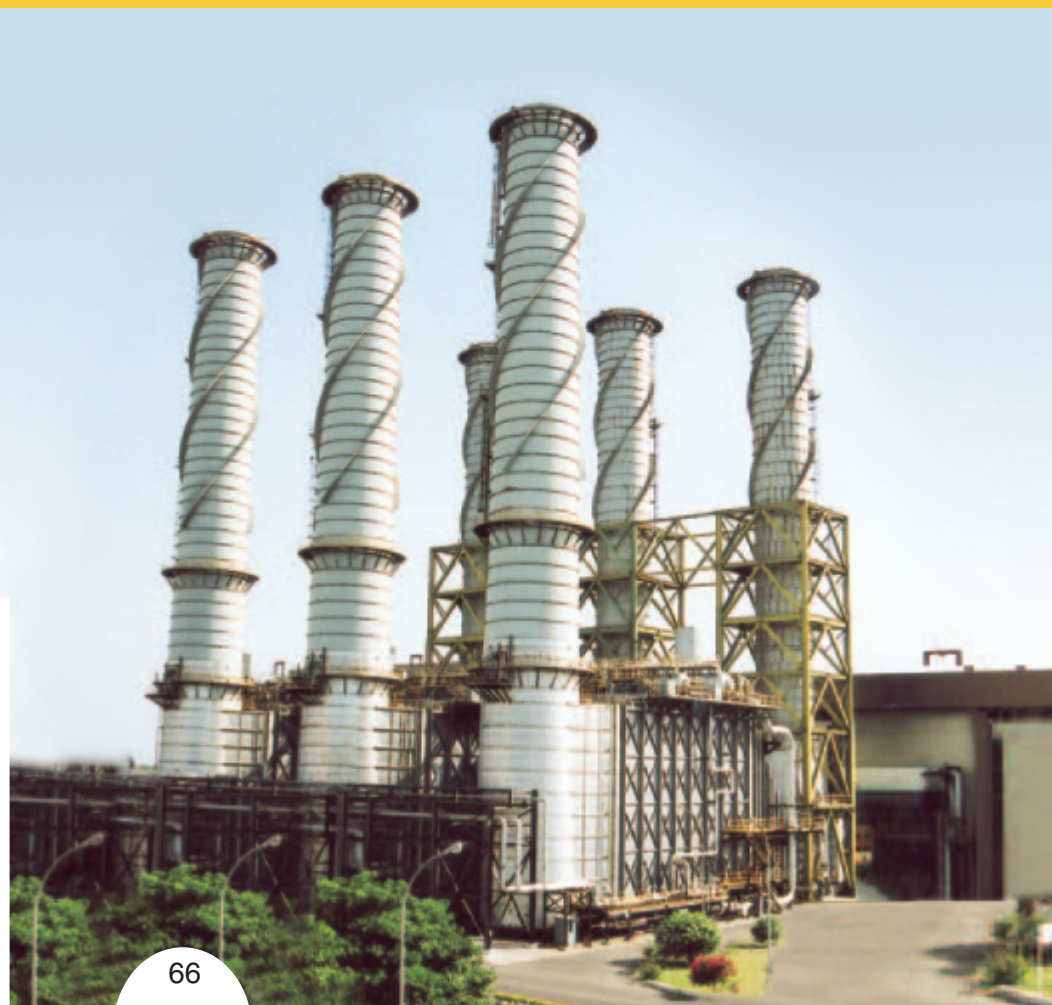
7) The Mahatma Gandhi Institute of Climate Change Challenge Bakoli would be the nodal institution to take up research and application development activities to be implemented through the Energy Efficiency and Renewal Energy Management Centre of MGICCC Bakoli.

8) Eco clubs have been set up in 1000 schools to create awareness about our environment among school children.



9) It is proposed to shut down both the coal fired power plants of Indraprastha Power Company Limited (a Government of NCT Public Sector entity) and replace them with CNG based power plants of higher capacity.

10) The interceptor sewer project of Delhi Jal Board is expected to trap most of the sewage discharged by three major drains of Najafgarh, Shahadra and Supplementary drains and treat it before discharging into the Yamuna River.



BASIC WASTE DATA ON DELHI

1. Municipal Solid Waste

	Generated	Treated
2005-2006	2.15 MT	91250 MT
2006-2007	1.99 MT	109500 MT
2007-2008	1.50 MT	127750 MT
2. Construction and Demolition Waste

2005-2006	1.50 lakh MT
2006-2007	1.65 lakh MT
2007-2008	1.87 lakh MT
3. Biomedical Waste generated by 1700 healthcare establishments is 8880 kg of waste per day or three lakh kg per year approximately.
4. Treatment capacity of waste to energy projects under implementation

A)	Timarpur 650 Tpd	Power to be generated nil
B)	Okhla 1300 Tpd	Power to be generated 16 MW
C)	Ghazipur 1300 Tpd	Power to be generated 16 MW
Total		3251 Tpd Power to be generated 32 MW
5. Compost plants capacity :

Okhla	200 Tpd MSW
Tikri	125 Tpd MSW
APMC	125 Tpd MSW
Bhalaswa	600 Tpd MSW
6. Yamuna River Quality Data

PH	7.5 to 7.8
TSS January	25-45
August	600-700
COD	20-30
BOD	38

PS. There are variations in data at different locations as the data is collected from Palla, Wazirabad, Najafgarh, Kudesia Ghat, ITO bridge,

DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
1	Sustainable Habitat	AIR	Transport get more CNG buses	3000 CNG buses	12000 buses	Augment public transport on CNG and Restructure bus transport system and start infrastructure projects like bus parkings, CNG stations, common ticketing automatic fare collection.	Transport
2	Sustainable Habitat	AIR	Transport Funding public transport	Financing mechanism for public transport	Rs. 1000 crores	Finance public transport by creating a Transport Development Fund and transfer some tax receipts from registration charges and Air Ambiance Fund to TDF.	Transport
3	Sustainable	AIR	Fuel Quality for reducing air pollution	Use of 50 ppm sulphur diesel/petrol from current level of 350 ppm sulphur diesel/ petrol	By March 2010	Request oil companies to supply low sulphur diesel/petrol through dedicated refineries and mandate cleaner fuel to reduce the amount of exhaust/ tail pipe emissions substantially.	i) Transport ii) Environment
4	Sustainable Habitat	AIR	Congestion tax to check growth of vehicle population	Very low as compared to buses	Substantially increase the road tax on cars	To send a clear message to people that government is keen to promote greater use of public transport and discourage use of private cars by increasing tax on private cars to contribute to Transport Development Fund and to discourage use of private vehicles.	i) Transport ii) Finance iii) Planning
5	Sustainable Habitat	AIR	To reduce car use in Delhi	2,00,000 cars in Delhi	Keep cars at same level	Examine and implement car purchase with availability of parking spaces. The GIS data being collected by GeoSpatial Delhi could be used to calculate number of parking spaces available in each colony, commercial areas to reduce car ownership by holding the numbers at the current level. Only new way is to increase registration and tax on cars.	i) Transport ii) GeoSpatial Delhi iii) IT Deptt.
6	Sustainable Habitat	AIR	Promote use of biofuel	None at present	10% of all use of fossil fuel to be replaced by bio fuel	Take up with Government of India to speed up the process of using biofuel as additive in petrol/diesel to encourage the reduction of use of fossil fuels through the use of biofuels in the fossil fuel as additive.	i) Environment, ii) Higher Education/ College, iii) Industries
7	Sustainable Habitat	AIR	Check all industrial units for clean air	Very insufficient	100% monitoring	To reduce the air pollution and improve the air quality in Delhi by encouraging all industrial units to conform to the air pollution norms of DPCC.	i) Environment, ii) DPCC iii) DSIIDC
8	Enhanced Energy Efficiency	LAND	Use of CFL and recovery of mercury from CFL lamps	None at present	100% recovery to be aimed at	Industry, labor organisers should be able to cooperate in this by creating a system of replacing old bulbs for new to enable recovery of mercury after bulbs are fused, needs a vast army of rag pickers to be involved. This needs to be initiated for safety of citizens while using the lamps.	i) Environment ii) DPCC iii) Manufacturers iv) DISCOM
9	Enhanced Energy Efficiency	LAND	Treatment of Electronic waste facility	None at present but is done in informal sector with hazard to health	100% treatment facility	To set up a electronic waste treatment facility in Delhi in collaboration with NGOs and other players active in this and to set up a treatment facility in Delhi due to increasing use of computers and other electronic products.	i) Environment ii) DPCC

TRANSPORT

ENVIRONMENT

DELHI CLIMATE CHANGE ACTION PLAN

S.No	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
10	Sustainable Habitat	LAND	Industrial waste and hazardous waste treatment facility	None at present	100% treatment of hazardous waste	Fifty acres are needed to set up such a facility in Delhi and the process of land identification and setting up the facility has to be done by Environment department to setup hazardous waste treatment facility site.	i) Environment ii) DSIIDC
11	Strategic Knowledge	LAND/ WATER	Biofuel usage to be encouraged by converting waste oil from restaurants/ hotels into biofuel	Nil at present but has huge potential	100 restaurants and hotels to join in this program and identify relevant technology	There is a need for collaboration between a scientific institution and business with an entrepreneur to do this including mandating use of biofuel by government in some applications and to encourage restaurants to sell their waste fat and oil to an agency which can convert this into bio fuel in collaboration with the Delhi College of Engineering.	i) Environment ii) Engg. College iii) MGICCC
12	Strategic Knowledge	STRATEGIC KNOWLEDGE	Study and discussion on waste handling processes	Delhi	Delhi	Create a data base of alternative technologies and management practices and involve MCD, NDMC and Environment groups to discuss optimum ways to handle waste.	i) Environment ii) EEREMC iii) NDMC iv) DPCC
13	Strategic Knowledge	STRATEGIC KNOWLEDGE	CDM credits to study and set up a system for government	Delhi	Delhi	Make progress in creating a data base for preparing projects by involve institutions to train staff to prepare projects for CDM.	i) Environment
14	Strategic Knowledge	STRATEGIC KNOWLEDGE	Hold one international conference in two years	Delhi	Delhi	This would expose intellectuals and administrators to the future course of actions needed for a mega city like Delhi and involve the best international community to debate future of cities in energy crisis and climate change issues and carbon footprints.	i) Environment
15	Strategic Knowledge	STRATEGIC KNOWLEDGE	Hold one Asian conference in three years	Delhi	Delhi	This would bring together planners and thinkers in the Asian context and the future of Asian cities to interact with major Indian and Asian cities on how they see climate change in Asian perspective.	i) Environment
16	Green India	LAND/ AIR	Forest Greening of Delhi	289 sq kilometers under green cover or 20% of Delhi is green covered	500 sq kilometers by 2012	Involve all departments like DDA, PWD, CPWD, DMRC, NDMC, Parks and Gardens Society, MCD and RWAs. Identify barren land area specially along the Yamuna River and Ridge area for intensive greening increase the green cover to 33% of land area of Delhi as per the NAPCC.	i) Forest ii) DDA/MCD/ NDMC/DMRC/ PWD/DP&GS
17	Green India	LAND/ AIR	City forests for greening	Nine city forests plus two bio-diversity parks existing	Three city forests and one bio-diversity park	More city forests to be opened by forest department and bio-diversity park by DDA. To open nine more city forests and one bio-diversity park in Delhi to add to the carbon sinks.	i) Forest
18	Green India	LAND/ AIR	Greening the Delhi ridge area of South Delhi through Eco Task Force	Open a new EcoTask Force of army	Will cover an area of 1000 hectares for afforestation	Work can be taken up once the new Eco Task Force is in position to do the work in order to increase and intensify the greening of Delhi ridge area for which the new Eco Task Force is needed.	i) Forest ii) Environment

ENVIRONMENT

FOREST

DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
19	Sustainable Habitat	LAND/AIR/WATER	Building construction to introduce green building technology	Nil	250 green buildings	To reduce the energy consumption in these buildings by 30 - 40 % in relation to conventional buildings and make at least 250 green buildings by adopting the green building standard and 50% buildings to be retrofitted for this and another 50% new buildings to be made.	i) EEREMC ii) MCD iii) PWD iv) BEE
20	Solar Mission	WATER	Building construction solar water heating	50,000 litres of capacity for water heating set up	Five lakh litres capacity	Existing incentives of Rs 6000 per house hold and upto Rs 60,000 for up to 1000 litres capacity for institutional and group housing and social welfare institutions needs to be better marketed by the Energy Management Center of Environment Department to increase the capacity by ten times to five lakh litres of solar water heating capacity.	i) EEREMC ii) Environment iii) PWD iv) MCD
21	Enhanced Energy Efficiency	LAND	Building retrofit for energy efficiency in existing buildings	Few buildings only	100 such buildings to be taken up	Enlist a number of Energy Service Companies and special financing options through Delhi Financial Corporation and if necessary create a new fund under Energy Management Centre to introduce such measures including tariff rebate from DERC for such adoptions by institutions and to the use of new instruments to introduce Energy Efficiency in existing buildings of large size having covered area above 10,000 sq feet.	i) EEREMC ii) PWD iii) Environment iv) MCD
22	Enhanced Energy Efficiency	AIR	Building retrofit for use of Compact Fluorescent Lamps & LEDs	5 lakhs bulbs replaced	25 lakhs bulbs to be used in three years	CFL and LED bulbs can be promoted in all buildings and even in advertising to reduce energy consumption. DERC must make a policy in this regard and get NDPL and BSES to further promote rebate in use of CFL lamps as in the past.	i) EEREMC ii) DISCOMs iii) Environment
23	Enhanced Energy Efficiency	AIR	Star rating of all electrical equipments	To be done by BEE	To promote all products through a systematic campaign	Draw up a clear strategy for creating awareness about the role of BEE and to promote the star rating of products rated by the BEE and improve public awareness about the star rating of electrical products.	i) EEREMC ii) BEE
24	Enhanced Energy Efficiency	AIR	Energy Conservation Awards to encourage conservation consciousness	Energy Management Center Nil now	Implement them in 2009	This will create awareness in incentives for residential colonies and institutional buildings to take up energy conservation measures as listed in this action plan and to activate the institution of awards for energy conservation since the awards have been decided but not implemented.	i) EEREMC ii) Environment
25	Enhanced Energy Efficiency	AIR	Create data base on energy consumption to promote energy efficiency	Energy Management Centre to register ESCOs to do energy measurement in large buildings	Data of 500 buildings to be collected and energy conservation advice to be given	Encourage government buildings to take a lead in this, like government offices, hospitals, as well as corporate offices and malls and hotels and restaurants. This will enable large buildings to save energy bills and become conscious about conservation and add to their profits by saving costs.	i) EEREMC ii) Environment

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DELHI CLIMATE CHANGE ACTION PLAN

S.No	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
26	Strategic Knowledge	Strategic Knowledge	Study and set up a system for regulation and energy bench marking for government and other buildings	Delhi to start	Delhi	Prepare the background for setting bench marking standards by involving educational institutions in the process of setting standards and take up a few buildings.	i) EEREMC ii) Education
27	Solar Mission	AIR	Renewable energy use	Not assessed	5% of all energy	DERC to set standard to encourage use of renewable energy in tariff order.	i) EEREMC ii) Power iii) DERC
28	Solar Mission	AIR	Energy efficiency	Not assessed	10% of all energy	DERC to set standards for energy efficiency in tariff order, including Time of Day metering for industrial and domestic use.	i) EEREMC ii) Power iii) DISCOM iv) DERC
29	Sustainable Habitat	LAND/WATER	Animal waste and pollution to land, air and water by shifting abattoir to Ghazipur modern plants and shut down Idgah abattoir	Partial at present	Idgah to be shut down to comply with SC order	More new modern abattoirs to be set up in Delhi to meet the full needs to the city and Idgah abattoir to be closed down and modern facility as per Euro standard set up at Ghazipur by MCD as for Supreme Court order.	i) MCD ii) Environment
30	Sustainable Habitat	LAND/WATER	Animal waste treatment in unauthorized dairies	MCD must close down illegal dairies and shift them to Ghogha and set up modern facility of treatment of waste of animals	100% relocation and treatment of animal waste	MCD must take this work seriously in a time bound manner as it has already been monitored by the High Court of Delhi and this relocation must include the treatment of animal waste like dung and conversion into methane gas for power generation and use of milk in modern chilling plant.	i) MCD
31	Sustainable Habitat	LAND	Building materials waste to be used by setting up C & D waste facility	Set up one facility to treat 500 MT of C & D waste	25% C&D waste to be processed and treated for use in the construction industry	Set up a facility at Burari by June 2009 for the 500 MT capacity initially and install a system for collection of the waste for treatment and review regulation for use of end product. Facility to be setup by IC & FS.	i) MCD
32	Water Mission	WATER	Collect storm water from villages and provide proper drainage	All villages to be included particularly villages around the airport	All villages to be included in the program	The MCD is the local body which has to complete this task. Storm water needs to be collected so that it can be trapped for taking to the river and is not mixed with sewage water as it aggravates the pollution of the river.	i) MCD
33	Water Mission	WATER	Water use efficiency	At present not calculated	20% efficiency of water use as per NAPCC	Leakages to be checked and high end users to be encouraged to use recycled water for toilet, gardens, washing and cooling. Detailed plan to be drawn up by DJB since National Action Plan has a target of 20% efficiency of use and this is achievable.	i) DJB

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DELHI CLIMATE CHANGE ACTION PLAN

S. No.	NAPCC Code	Sector	Sub Sector	Target 2009	Target 2012	Objective and Strategy to be adopted	Department(s)
34	Water Mission	WATER	Water recharge systems to be installed	Not very sustained	1000 buildings to adopt water recharging systems with DJB providing technical support and incentives	DJB will identify technical agencies which can set up water recharging systems including training to be arranged if they are not available and compile a list of such buildings to ensure that all hospitals, schools, large buildings having covered area above 10,000 sq feet adopt water recharge structures	i) DJB
35	Water Mission	WATER	Waste water reuse to be started	None at present	Pilot project to be initiated in ten buildings with provision to promote it in new buildings like housing societies	This requires a policy framework which needs to be created to incentivise the reuse of waste water with technical input including double piping in some buildings and changes in bye laws. This is a complex process and needs to be started for water conservation..	i) DJB ii) MCD iii) DDA iv) PWD v) Urban Development
36	Water Mission	WATER	Waste water treatment through interceptor sewers	None at present	Complete interceptor sewers to be done and project complete. monitored closely.	The work has already begun and funds could be taken from JNNURM for the purpose. The interceptor sewer technology is being implemented by EIL for DJB and needs to be	i) DJB
37	Water Mission	WATER	Waste water treatment by connecting all houses to existing sewer systems	Not universal	Complete sewer connections	In many cases residents do not connect houses to sewer lines and discharge into drains and this needs to be stopped. To ensure 100% connections to sewer lines wherever existing.	i) DJB
38	Water Mission ii) DSIIDC	WATER	Water recharging by restoring water bodies	All water bodies to be restored	All water bodies to be restored and made green and areas of attraction	This is an important process of restoration of water bodies and a third party inspection is needed to assess its restoration. 600 water bodies have been identified and are being reclaimed by many institutions like Irrigation dept, DDA, DSIIDC, MCD, PWD etc.	i) DJB iii) I & FC iv) MCD v) DDA vi) Environment
39	Water Mission	WATER	Enhance water availability for Delhi by constructing Renuka Dam	Start dam construction in Himachal Pradesh	To be 80% completed	This is an important plan to rejuvenate the river Yamuna and needs to be followed up regularly. To try to complete the dam and start the process of laying the pipe line to Delhi.	i) DJB ii) UD
40	Water Mission	WATER	Treatment of all the waste water by setting up STPs in villages	Start work in all the villages for providing sewage connections	The work is to be completed by DJB	Villages have been neglected and the process of urbanisation is putting enormous pressure on rural villages and the need to provide sewage connections cannot be underestimated. All villages and unauthorised colonies need to be provided with sewage connections and this is an important project.	i) DJB
41	Green India	LAND/AIR	Parks and gardens in colonies	Rejuvenate existing parks and gardens of which there are 14000 already	1000 parks to be rejuvenated	Involvement of communities is essential as this will create awareness about climate change and create interest in the community bhagidari about greening parks in colonies. To identify parks and involve communities to maintain parks and give them financial assistance to do so and have a trophy for encouraging efforts of RWAs.	i) DP&GS ii) MCD iii) DDA

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42	Green India	LAND/AIR	Greening for Commonwealth Games	Currently nil but five million potted plants to be prepared	Five million potted plants to be prepared	Many departments are involved like Conservator of Forest, PWD, MCD, DDA, CPWD, NDMC, Parks and Gardens Society and targets for each has been fixed and prepare for Commonwealth Games 2010 for beautifying various areas with flowering potted plants in various locations.	i) DP&GS ii) MCD iii) DDA iv) NDMC v) PWD vi) Forest
43	Green India	LAND/AIR	Greening Delhi by Delhi Parks & Gardens Society and RWAs	Nil now	1000 parks to be developed using help of RWAs	The framework for giving assistance has been provided and it needs to be done and implemented by the Parks and Gardens Society and increase the number of parks in colonies which can be developed into carbon sinks.	i) DP&GS
44	Green India	LAND	Green Delhi campaign to compost dry leaves and green waste	Leaves are burnt in some cases and this causes pollution	All colonies to start composting of leaves in government colonies and public parks	Create a nucleus group to make the business of selling compost to the community and compost leaves at the same time. Each colony must be encouraged to have its own compost pit for green leaves and garden cuttings which can provide compost to the community for their gardens in kitchens.	i) DP&GS ii) Environment iii) Community
45	Green India	LAND	Green Delhi in schools by growing vegetable in school lands	None now	1000 schools to start	Provide help of temporary malis to take up the work with the help of schools to encourage schools to set up kitchen gardens in schools to provide food for the common kitchen in the school.	i) DP&GS ii) Education
46	Green India	LAND	Green Delhi campaign by setting up herbal gardens	Few now	10 herbal gardens to be set up	Provide growers new income and expertise to encourage herbal gardens in Delhi 's schools and parks.	i) DP&GS ii) Environment iii) MCD
47	Green India	LAND	Green Delhi campaign in low income colonies by providing assistance	All F,G, H colonies to be involved	100% in all colonies	The Samajik Suvridha Kendras can seek assistance of Delhi Parks and Gardens Society to start a campaign of greening all such colonies and involve the communities in the greening initiatives.	i) DP&GS ii) MCD
48	Strategic Knowledge	STRATEGIC KNOWLEDGE	Education and training	All civil society groups	Full campaign in Delhi	This is a long process of education and awareness and this will need to involve every citizen of Delhi like communities, NGOs, schools and colleges. A massive campaign of awareness about the NAPCC and our targets for the same to be launched.	i) MGICCC ii) Education
49	Strategic Knowledge	STRATEGIC KNOWLEDGE	How to restrict use of Fossil fuels in Delhi	Discuss in Delhi among use Groups like SIAM, etc	In Delhi	Prepare background paper and hold conference to increase awareness and response of the public. Discuss the impact of use of biofuels and other stringent fuel quality norms and their effects.	i) MGICCC ii) CSE iii) Environment iv) Transport
50	Strategic Knowledge	STRATEGIC KNOWLEDGE	Study and create data base for mercury waste handling	Delhi	Delhi	Hold discussion and seminar on the problem to find a solution and create a knowledge base about the problem of mercury in CFL lamps.	i) MGICCC ii) Environment

DELHI CLIMATE CHANGE ACTION PLAN

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51	Strategic Knowledge	Strategic Knowledge	Study and prepare projects on bio-fuel manufacture and use in industry & transport	Delhi	Delhi	Start a pilot project for manufacture of small facility for bio fuel and see how it can generate employment for small scale sector by involving industry and hotels and restaurants and other study institutions.	i) MGICCC ii) Engg. College iii) Environment M G I C C C
52	Sustainable Habitat	Noise	Use of sound protected generators	Whole of Delhi but not effectively imposed	Full implementation with strict penalties	To launch a campaign for voluntary registration of organisation using generators and ensure that they use noise protected generators and are penalised for violations. A help line to be set up to receive complaints against violators and take action post the event based on such complaints. To ensure that all users insist on noise protected generators particularly tent wallahs.	i) DPCC ii) Environment iii) Police D P C C
53	Sustainable Habitat	Noise	Implement SC order strictly restricting noise levels at night	Whole of Delhi	Effective and full implementation	Launch a public campaign to educate people to follow SC order and care for the neighbours. Temples, mosques, and religious institutions to be involved and ensure all users of parks, community halls comply with SC order on controlling noise pollution.	i) DPCC ii) Environment iii) Police D P C C
54	Sustainable Habitat	Land	Green Delhi to reduce use of wood in constructions.	Substitutes are available but are not fully used	Maximum impact	Involve the construction industry in adopting standardisation of products like doors, windows, railings, floorings etc. and to launch a campaign to stop using wood and go in for wood substitutes in construction activity in Delhi.	i) PWD ii) Environment iii) MCD iv) DDA P W D
55	Solar Mission	Solar Mission	Solar water in Government building construction	Very few	Install solar water heating in all Government buildings	Make solar water heating a well accepted technology to save energy	i) PWD ii) MCD iii) CPWD iv) NDMC P W D
56	Sustainable Habitat	Air	Tax concessions for clean fuel vehicles	100	10000	To encourage use of zero emission vehicles run on batteries by reimbursement of VAT, road tax and excise duty on battery operated vehicles.	i) Finance, ii) Trade & Taxes F I N A N C E
57	Sustainable Habitat	Air	Power generation to close coal fired power plants in next 5-6 years	Two coal based power plants Raj Ghat and IP Stn generate 200 MW for Delhi at present	To be done by 2009 for IP station and by 2014 for Raj Ghat or earlier if Replacement	Both the coal based power plants need to be shut down and the plant and machinery can be auctioned and the land can be put to alternative uses and augment capacity with CNG based power plants.	i) Power ii) PGCL & iii) PPCL P O W E R
58	Sustainable Habitat	Land/Water	Modernise chicken dressing plant in Ghazipur	Managed by Agricultural Marketing Board needs to be modernised	100% modernisation	Must be done in a time bound manner by the Agricultural Marketing Board of Delhi and convert the facility into a modern facility with Effluent Treatment Plant and dressing plant.	i) DAMB ii) Revenue D A M B

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59	Water Mission	Water	Waste water treatment for industry by improving works of ETPs	11 ETP s are running in industrial estates but success is limited	Make the ETP fully operational in all industrial estates	This requires very close follow up because 15% of pollution in river Yamuna is on account of industrial pollution and it needs to be addressed or else the interceptor sewer project will not be very successful in checking the pollution in river Yamuna. To examine how the ETPs can be made fully effective and bring forth a viable plan.	i) DSIIDC ii) Industries I N D U S T R Y
60	Strategic Knowledge	Strategic Knowledge	Bhagidari to increase awareness of climate change issues	Involve all RWAs in awareness	Full campaign in Delhi	This education program is important for building up ownership for the programs. Bhagidari for awareness and ownership to be done in all colonies.	i) Bhagidari Cell ii) Education B H A G I D A R I
61	Sustainable Habitat	Air	Transport expansion of Delhi Metro	III) Expand Delhi Metro to promote use of metro with bus transit system presently 65 kms	Expand to 120 kms	To enable commuters to use multi modal transit system and enhance ridership from current level of 8 lakhs to 28 lakhs per day and provide funds to expand to NCR towns of Faridabad, Gurgaon, Ghaziabad, and new areas of Delhi as follows : Central Sectt to Badarpur; Rajiv Chowk to airport; and other areas of Delhi.	DMRC D M R C
62	Sustainable Habitat	Land	Bio-medical waste treatment facility	One facility works and partly treats the waste	100% treatment of biomedical waste	One treatment facility is to be closed down and two facilities are to be opened. Sites have been identified and the facility has to be set up by health department to ascertain 100% treatment of bio medical waste to be done by the health department.	Health H E A L T H
63	Sustainable Habitat	Noise	To promote cracker free Diwali amongst children	Whole of Delhi should be aware of harmful effects of crackers on noise and air quality	Effective campaign in Delhi	Involve schools, and other institutions and launch a campaign against it and ensure use of crackers with proper decibel levels.	i) Education ii) Schools E D U C A T I O N
64	Sustainable Habitat	Noise	Promote less use of horns in vehicles	Whole of Delhi for cars and two wheelers	Full campaign in Delhi	Launch a campaign to educate public owned vehicles to restrict use of horns and notify all horn free areas for public and to educate people not to unnecessarily use loud horns to clear the way and show patience. The use of pressure horns is banned in Delhi.	i) Police ii) DPCC P O L I C E
65	Green India	Land	Green Delhi campaign	In NDMC area	Fully developed Commonwealth garden	This would be a showcase for Commonwealth Games 2010 by NDMC.	NDMC N D M C



