

**A People's Master Plan for Delhi**  
**A critical look at urban planning**  
**with special emphasis on water consumption and supply**

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City planners plan cities, they do not make them. Cities have their own organic logic of growth. Different interests compete with each other to make the city the way they want it to be for their own survival. The more planners begin to understand this, the more they will be able to plan for the city as it is actually growing, rather than for an idealised notion of what the city should be. Those planners who fail to see this central truth eventually end up catering to the needs of those whose interests are most powerful.

Nothing illustrates this better than the history of the city of Delhi, the area where the *Pandavas* possibly built their *Indraprastha* on the banks of the Yamuna river. The architect of this capital, the first city planner, was, appropriately enough, a “demon” named *Maya*.

**The Growth of Medieval Delhi**

The names associated with a city may often tell us much about its history. Delhi's name may have come from Raja Dillu's *Dilli* (100 BC), or from *Dhilba* founded by the Tomar Rajputs (736 AD). And some say it came from the medieval town of *Dhillika* located near present day *Mehrauli*. Clearly the city has an ancient past. Other settlements which have left their imprint on the land are the forts of *Qila Lal Kot* (1024 AD), built by Anangpal, and *Qila Rai Pithora* (1170 AD) of Prithviraj Chauhan. Qutb-ud-din Aibak built his citadel and the *Qutb Minar* in the same area in 1199. All these cities were built on the *Kohi* (hilly) area in the south where the northern end of the long Aravali ridge intrudes into the Gangetic plain as a series of rocky outcrops. Thus, the town planner of that time was obviously strategically locating for defence, as well as looking for sources of water which could be entrapped.

It was in 1302 that Ala-ud-din Khilji cautiously descended from the Aravali uplands into the more fertile basin to the north and built a new capital at *Siri*. But for the water supply to his new city his engineers had to also construct the imaginative *Hauz Khas* on one of the many streams leading into the Yamuna. Perhaps this city was plagued by problems of defence, because in 1320 Ghiyas-ud-din Tughluq moved back south on to the *Kohi* and built *Tughluqabad* with its massive fortifications. However, the Tughluqs had to abandon this fort within five years because of a shortage of water, and Muhammad Shah Tughluq moved back to the area lying between *Siri* and *Rai Pithora*, constructed connecting fortifications, and thus built the city of *Jahanpanah* in 1334. His son, Firoz Shah Tughluq, conceived of the idea of diverting the water of the Yamuna into an old bed of the river and bringing it all the way south, irrigating prime agricultural land up to the Sahibi nadi and adding considerably to the revenues of the state. It was perhaps in order to be closer to this productive venture that his planners created *Firozabad* in the north in a wedge between the river and the Ridge of the Aravalis.

In 1530, Humayun, the second of the Moghuls, built his *Deenpanah (Purana Qila)*, on top of a mound immediately south of *Firozabad* where the river provided a first line of defence and water was available in wells. The Afghan King, Sher Shah Suri, settled his *Dilli* next to this fort in 1542. Shahjahan moved further north into the apex of the wedge to build *Shahjahanabad* between 1638-44 with the *Lal Qila*, or Red Fort, as its fulcrum and a ring of satellite forts at *Tihar*, *Palam*, and *Patparganj* to protect the trade routes. For water, the city planners constructed a series of tanks and wells and extended the old Tughluq canal all the way into the heart of the city at *Chandni Chowk*. All these cities felt secure enough not to retreat back into the *Kohi* but the necessities of defence, trade, revenue, and water kept them located within the strategic basin to the east of the Ridge. These cities had elaborate layouts and considerable engineering but we do not know enough about the principles of city planning in that period. However, much could possibly be interpreted from what remains of the original constructions, particularly in the old city of *Shahjahanabad* and its surrounding hinterland.

**Colonial Delhi**

By the end of the eighteenth century the East India Company had begun making its deep inroads into the territories of Mughal India. This necessitated the planning and construction of barracks and Company quarters near every large town. The confluence of the newly-commissioned Grand Trunk road and Bombay-Agra road made Delhi a place of crucial military importance. The aftermath of the Mutiny of 1857 led to further enforcement of control and the area around the Red Fort was cleared to enable the military to assert its supremacy. Civil administration was centred around the Secretariat built next to the northern Ridge within the safe confines of the Civil Lines. The new Viceregal Lodge with its protective barracks was built at an even safer distance across the ridge on the old alluvial plain of the Yamuna. Thus, the imperatives of colonial rule began to fashion the rules of town planning. This was reflected in the formation of the Delhi Municipal Committee in 1874. In the next decade the Committee proposed construction of a commercial square outside *Lahore Gate*, continuing into a new commercial quarter between the Gate and *Sadar Bazar*. These were supposed to be profitable enterprises in the tradition of the East India Company. The close of the century also saw the intrusion of the railway line as it thrust through the ramparts of the Red Fort and *Shahjahanabad*. This new mode of transport began displacing the old trade routes with their *sarais*, since it generally followed the same alignments.

The railways continued their expansion in the beginning of the twentieth century and, in the process, the new planners pulled down the bastions of the Walled City and filled the city's protective ditches and canals. Thus, *Delhi Sadar* station was constructed between the old town and *Sadar Bazar*, disrupting the organic linkage between the two, while a Mercantile Boulevard was proposed between the *Kabul* and *Ajmer Gates*. A second city began rapidly growing in *Pahargunj*, *Sadar Bazar*, and *Sabzi Mandi* across the railway tracks. This led to the appointment of an Assistant Commissioner in 1908 as Officer on Special Duty to "plan the future expansion of Delhi on an orderly basis". This officer promptly recommended the westward expansion of the city across the ridge and the "improvement" of the older areas. By 1912 the dream of an Imperial city at Delhi was transformed into reality and a Town Planning Committee was appointed for the purpose.

This Committee oversaw the acquisition of extensive areas in the southern basin for the construction of New Delhi. The architects Baker and Lutyens located the new Viceregal palace on the imposing height of *Raisina* hill with the new city spread out at its feet. Huge acreages were laid aside for the bureaucracy and ruling elite with spacious avenues and parks dominating the landscape. In the process much of the earlier drainage pattern, which had taken the run-off from the Aravalis to the tombs and gardens of the earlier rulers, was destroyed to make way for a new regime of stormwater drains. The Committee also assigned the Western Extension Area (WEA) for expansion, particularly for settling the "poorer classes". It decided to completely demolish the remaining city wall "to provide access of air to the congested area". For the first time land was acquired on the east bank of the river next to the railway line.

### **Deterioration and Review**

We get a glimpse of the gap between planners and reality when, in 1924, the Harphool Singh slum clearance project was sanctioned to forcibly move the poor population to the WEA. But three years later, in 1927, it began to be reported that there was a population of 15,000 in the WEA living "in much discomfort owing to lack of services". Consequently, a northern expansion was recommended, beyond Civil Lines and across the Grand Trunk Road, on the outskirts of the old *Sabzi Mandi*. In spite of this, the Government had to agree to sanctioning 10 lakh rupees in 1930 for services in the WEA (although as much as 23 lakhs were required). Several new roads had been built into the new areas to ensure good communications and each one of these showed good financial returns. However, civic conditions continued to deteriorate so much that, in 1936, an ICS officer was specially appointed to go into the whole question of "congestion in Delhi" and suggest appropriate measures.

The recommendations of this officer eventually formed the basis for a further expansion of the city towards the Agricultural Institute in the west with adjacent industrial areas next to the railways. For this purpose, the *Najafgarh jheel* had to be drained and this was accomplished by digging a cut through the northern tip of the ridge. In tandem, the Western Yamuna canal was filled up up to the *Andha Mughal* bridge across the Sahibi (now reborn as the *Najafgarh nullah*). This also enabled a push into the north to the new University through the new colonies of Shaktinagar and Roshanara Extension, specially meant for the poor. These poor were evicted from "evil slum areas" of the Walled City (now no longer with walls).

Other areas from where the poor were displaced were the *Mohtaj Khana* next to the *Sabzi Mandi*, *Reharpura* in *Karol Bagh*, and *Kala Pahar* near *Sarai Rohilla*. The lands they vacated were converted gradually into middle-class residential areas. A vast area of prime agricultural land south of the Agricultural Institute was reserved for the army and there was even a minor thrust eastwards to found an industrial estate at *Shahdara*. All these developments were naturally shaped by the alignment of the railway lines and roads.

### **Post Independence Delhi**

The 1941 census revealed that, in 40 years, the population had more than doubled to 9.17 lakhs. The next few years were politically tumultuous years and there was little time for mundane matters like town planning. But, with the partition of the country in 1948, there was a mass exodus from across the border and 4.5 lakh refugees arrived almost overnight at Delhi. The Ministry of Rehabilitation was entrusted with the task of resettling this huge population and it accomplished this by setting up a circle of colonies around the periphery of the city, mostly within the boundary set by what is now Inner Ring Road. Not only were the displaced families rehoused but opportunities were also liberally made available for them to economically and socially rehabilitate themselves. The Ring Road itself acted as a spur to commercial development. So massive was the investment that, by 1951, the Ministry considered that its job was over.

However, this huge planned expansion had its corollary effect on the city. In 1955 there was an epidemic of jaundice within the core of the city and 700 people died. In the subsequent investigation it was discovered that considerable amounts of untreated sewage from some of the newly planned colonies were being discharged into the Najafgarh nala which, in turn, was releasing its load into the Yamuna just downstream of the pumping station at Wazirabad. The city's water supply was thus contaminated, resulting in the spread of the epidemic. In response to the disaster the Ministry of Health immediately set up a Town Planning Organisation (TPO) and a barrage was constructed across the river at Wazirabad to separate the nala discharge from the water intake. The TPO also produced an Interim General Plan in 1957, which is a good example of how planners respond to unplanned disasters.

### **The First Master Plan**

In order to provide better administrative and financial support to the planning exercise, Delhi was declared a Union Territory in 1956 and the Delhi Development Authority (DDA) was constituted in 1957 by an Act of Parliament "to check the haphazard and unplanned growth of Delhi . . . with its sprawling residential colonies, without proper layouts and without the conveniences of life, and to promote and secure the development of Delhi according to plan". For the next three years the TPO, guided by experts from the Ford Foundation, developed a Master Plan for Delhi for 20 years and this was presented along with maps and charts for unprecedented "public" discussion in 1960.

The public debate on this initial document elicited over 600 objections and suggestions from "the public, cooperative house-building societies, associations of industrialists, local bodies, and various Ministries and Departments of the Government of India". An ad-hoc Board was appointed to go into all these objections and it reportedly granted a personal hearing to all the objectors. In 1961 the Board reported its findings to the DDA and some proposals were modified while new ones were incorporated. Eventually the Master Plan of Delhi was formally sanctioned in 1962 and came to be known as MPD-62.

MPD-62 acknowledged that Delhi was likely to have an urban population of 56 lakhs by 1981 unless measures were taken to restrict it to 50 lakhs. This the planners proposed to do by building a 1.6 km wide green belt around Delhi and diverting the surplus population to the seven ring towns in Uttar Pradesh and Haryana. Within the city, it was decided that the walled city would be thinned out by relocating the population in New Delhi and Civil Lines. In 1961 there were estimated to be 8,000 industrial units which were located in non-conforming industrial areas. So several new industrial areas on 5800 acres were declared for accommodating these industries. The plan also provided for 85 sq.yd. plots with services for poorer families who were going to come to Delhi to work in these industrial areas and the commercial centres to be set up in different zones. In the process the DDA became the sole developer of the largest nationalisation of land in the world, outside the Communist nations.

But by 1971 itself it was becoming clear that the city was going to grow far beyond the conceptions of the planners. The total number of industries had increased to 26,000 and there was a huge spurt in the squatter population. So, in a frenetic burst of activity, the administrative machinery swung into action and, from 1975 to 1977, 1.5 lakh squatter families, consisting of a total population of 8-9 lakhs was forcibly moved out of the centre of the city into resettlement colonies on the periphery of the growing city. Each family was entitled to a plot of only 25 sq.yds. with common services, and 60,000 such plots were demarcated on the low-lying Yamuna flood plain alone. Interestingly enough, all the colonies were located very near the industrial areas. Also in 1977, the government regularised 567 unauthorised colonies, which had come up in contravention of the Master Plan, in order to make them eligible for minimal civic services.

### **The Second Master Plan**

A new Master Plan should have been ready by 1982. But, instead, the entire city was geared to host the Asiad Games that year. Numerous roads, hotels, flyovers, offices, apartments, and colonies were constructed to cater to the needs of the Games and the anticipated commercial spillover. The second Ring Road became a magnet for further commercial and residential development. This obviously called for a large labour force and it is estimated that 10 lakh workers came into Delhi during that period alone. But the city could not cope with this additional burden. In 1985, the National Capital Region Board was set up in an attempt to plan for the balanced growth of the extended region around the capital. Also in 1985, the first draft of the second Master Plan was published for comments. However, unlike the first Plan, this one was not summarised or translated into Hindi and Urdu, nor was it distributed publicly. Nevertheless, the draft came in for severe criticism from the government itself as being “conceptually defective” and the Delhi Urban Arts Commission (DUAC) was asked to prepare another plan.

The DUAC took a close look at the failures of the first Master Plan to detail its own Conceptual Plan. It was discussed in a select committee and modified to yield the second Master Plan, known as DMP-2001. This plan too called for limiting the urban population (to 112 lakh) by deindustrialisation, though it had nothing to offer for the non-conforming industrial units already existing (now estimated at 24,000). It also emphasised maintenance of ecological balance in the Ridge and Yamuna, decentralisation into districts, and provision of multi-nodal mass transport, with low-rise high-density urbanisation. Interestingly enough, it called for a special area status for the walled city as “it cannot be developed on the basis of normal planning policies and controls”.

Two years after the sanction of the new Plan, in 1988, there was an outbreak of cholera reminiscent of the 1955 jaundice epidemic. This time 1500 people died and they were all from the 44 resettlement colonies and 625 slum clusters where the poor lived. There was no concerted response from the administration. Even the disbursement of compensation was withdrawn, though it was recognised that the disease had spread through ground water contaminated by inadequate sanitation measures. This was inevitable given the nature of the low-lying areas in which the resettlement colonies had been located, by plan, in the first place. Thus, DMP-2001 was not only unable to tackle the problems created by the earlier period, it did not even incorporate its own analysis of the failures and weaknesses of past planning into its recommendations.

This systemic failure of planning is evident in the situation as it obtains today, three years short of the target date for a new Master Plan. Delhi has spread far beyond the confines of the Outer Ring Road. The green belt, that was specified in MPD-62, has largely fallen victim to land developers. The resettlement colonies and industrial areas, that were once supposed to be at the fringe of the city, have been drawn into its ambit. Narela, for instance, which was supposed to be a ring town under MPD-62, is now a connected suburb. Gurgaon, Faridabad, and Ghaziabad are contiguous urban sprawls and the arterial roads and national highways are the most congested in the region (Fig.9). And increasing numbers of the poor continue to live in shanty towns without services. It is presently estimated that there are over 1500 unauthorised colonies without civic amenities and as much as 60% of the population lives in sub-standard housing.

### **Norms and Normality**

What this brief overview of the actual growth of the city and the modern attempts at its planned growth reveals is that planners think that the city should grow in a particular way while the majority of the

population lives in a remarkably different manner. There is a gulf between the two because planners very often have no idea of what it is like to labour for a living under conditions of daily insecurity and uncertainty. Even the figures that planners play around with have little relationship to the actual struggle for survival. Thus the “norms” adopted by planners are distinctly different from the “normal” life of very “normal” people. This can be illustrated by taking the norms spelt out in the Master Plans and in official Government surveys, and comparing them with the data that emerges from other independent studies. Such a comparison is attempted in the Table given below.

Parameter	Government figures	Non-government figures	
<b>Employment</b> (workers per unit)	9	90 to 200 10 to 100 53	(168 units surveyed by DJAM) (300 units surveyed by CEC) (53 units surveyed at Khanpur)
<b>Wages</b> (Rs. per month)	1785 (legal minimum for unskilled work)	< 2000 < 1000 < 2000 < 900	(Nangloi unauthorised colony) (JJ Colony, Patparganj) (Khanpur non-conforming industries) (CEC survey - all Delhi)
<b>Transport users</b> (%)	<b>1961</b> <b>1981</b>	Nangloi	JJ Colony, Patparganj
Cycle	60    17	44	12
Bus	30    61	26	63
Car	10    {22	-	-
Scooter	-    {	-	-
Train	-    -	6	-
Walk	-    -	20	25
<b>Housing</b> (sq.m per family)	75 - Building Code 40 - DDA 48 - proposed	< 50 21	(Nangloi unauthorised colony) (Resettlement colonies)
<b>Residential area</b> (ha)	19,200 (1962) 25,500 (1986)	2,400 500	for 1500 unauthorised colonies housing 30 lakhs for 1000 jhuggi colonies housing 15 lakhs (both are rough estimates)
<b>Water use</b> (litres per capita per day)	100 (1941) 275 (1996)	35	(Nangloi unauthorised colony where 93% get water from hand pumps. Resettlement and jhuggi colonies at Patparganj report that 42% and 67% respectively are using hand pumps.)

The figures given above clearly indicate that an estimated 63 lakh people (almost 60% of the total population of the city) are living at levels far below what the planners have set. It is almost as if the planners have no idea of how people live and survive. Consequently, it should not come as a surprise if the Master Plans remain unfulfilled and unrealistic.

### Alternative Scenarios

Planners not only wrongly estimate how people live and what are the minimum requirements to be provided for the largest number of people, but they also then make overestimates of the resources required for providing services to the city. A simple illustration of this can be seen in the case of one of the basic requirements, water. There are, of course, different estimates that can be made of how many people there will be in the city in the future. Equally, there can be different estimates of how much water has to be supplied per person. Thus, at present, there are almost 100 lakh people in Delhi. Future projections vary from a low of 110 lakhs to a high of 150 lakhs. Similarly, daily water use per person could vary from the currently accepted norm of 275 litres to the actual amount of 35 litres that a vast majority actually get. This pattern of water use will also reflect in the amount of sewage produced which will have to be treated. In the following Table, an attempt is made to look at different scenarios if the norms are changed.

Scenario	I	II	III	IV	V
<b>Population</b> (lakhs)	110	110	110	150	150
<b>Water use norm</b>	275	35	95	105	150

(lpcd)					
<b>Water requirement (mld)</b>	3025	385	1045	1575	2250
<b>Sewage produced (mld)</b>	2420	308	836	1260	1800
<b>Water supply capacity (mld)</b>	2300	2000	2000	2000	2300
<b>Sewage treatment capacity (mld)</b>	1270	1270	1270	1270	1270

What this above table indicates is that if planners persist with the norm of providing 275 litres of water per person per day, then there is not enough supply capacity at present for a population of 110 lakhs. And for a future population of 150 lakhs, the requirement would be almost one-and-half times what is presently available. But if the norm is set at anything up to 150 litres - which is more than **four times** what 60% of the people are presently getting - then there is enough capacity now for even a future population of 150 lakhs. The same holds true for sewage treatment capacity. The present treatment plants can handle 1270 million litres per day. This would be adequate for a future population of 150 lakhs if the norm for water supply were set at 105 lpcd - **three times** what people are now getting.

What is interesting to note is that water supply is not only related to sewerage. It links up through the economic system into a whole set of other conditions. Thus, if the Delhi government were to obtain the over 3000 mld required for the year 2020 at the high norm of 275 lpcd, then water would have to come from schemes like Tehri, Renuka, and Kushau on the Ganga and Yamuna. These, in turn, would displace thousands of families who would then migrate to the cities in search of work - and Delhi is the largest urban magnet providing potential employment in the north. The water taken from the rivers would also deprive lakhs of farmers in Uttar Pradesh and Haryana of canal irrigation, forcing them to depend increasingly on tubewells and electricity supplies. These, in turn, would create even bigger demands on already collapsing infrastructures of energy, transport, and industry. The untreated sewage would also worsen the problem for downstream communities who depend on the rivers for their daily needs, enhancing conditions of poor health and nutrition. There would be associated problems of housing, employment, transportation, food supplies, and urban decay. But these are scenarios which the planners of Delhi just don't see because their vision is narrowed down to the "problem" of supplying vast quantities of water to elite colonies of central and south Delhi.

### **The Politics of Planning**

Planners will begin to "see" the larger problems only when their social base changes. As long as they identify with the needs of the rich they will continue to plan for supplying large quantities of resources, including land, water, electricity, roads, and houses, to those who are powerful and wealthy. The need is for planners to begin to identify with the problems of the poor, who constitute the majority of the urban population, and to understand that the business of public planning for provision of services should cater primarily to the basic needs of the population. It is only once these basic needs have been served, that the additional resources available can be offered at higher tariffs to those wealthy enough to afford them. But this change in the mind-set of planners will not occur voluntarily. It can only happen if either the planners themselves change or the poor organise themselves to assert their priorities and needs. In either case, the question is a political one.

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