Review of Gorakhpur Master Plan 2021

The Gorakhpur Master Plan of 2001-2021 is a renewal of the previous Master Plan of 1971-2001. Some critical points for review of this Master Plan are indicated below.

Land Use

A review of the previous Plan indicates (Table 1) that the achievement of targets set in that plan has been as high as 91.98% for Residential use; but dismally low at 25.33% for Commercial and 30.85% for Recreational use; and somewhat higher for Industrial (61.85%); Government (68.92%); Public/semi-public (68.75%); and Transport and Communication (50.01%) uses. Table 4 indicates that as much as 27% of the actual developed land was for unauthorised uses. The ***causes*** for this lack of performance should have been analysed to make adequate provisions for the future plan.

However, as a comparison of Tables 2 and 11 illustrates, except for small increases in the provision for residential and transport uses, the remainder show a marked decline. [It should also be noted that the Geohydrological study commissioned by the Gorakhpur Environmental Action Group (GEAG) provides a contrary figure of 72% of land being put to residential use (Table 3).]

Land Use	***1971-2001***	***2001-2021***
Total (ha)	6128.01	11188.33
Residential	49.34	51.14
Commercial	4.06	4.76
Industrial	11.40	5.24
Government	7.97	5.68
Public use	8.07	7.25
Recreation	13.40	8.75
Transport	3.76	6.27
Railways		3.68
Other		7.23

Population

While the projections for the future population are based on different modes and an average figure has been accepted, what is of concern is that while the workforce reduced from 26.38% in 1971 to 24.08% in 1981; yet it is projected to rise to 29.5% in 2021; and 89% of this will be in the tertiary sector (#2.2.2). In other words, the planners expect that there will be a greatly increased number of workers and the majority of them will be in the informal sector. But the Plan then does not make adequate provision for this insecure and vulnerable population.

Housing

Thus Table 8 gives a distribution for shelter as only 15% for EWS, 35% for LIG, 40% for MIG, and 10% for HIG. But this will not be adequate for the increasingly vulnerable population who will require affordable and accessible shelter. LIG houses, for instance, are generally out of the reach of working class families. This has to be placed against the increasing housing deficit (#2.3.3) which was 2,792 (5.65%) in 1981; 4,823 (6.03%) in 1991; and 10,215 (9.29%) in 2001. In addition, GEAG's vulnerability study estimates that 33% of the population was living in 110 slums in 2001; although it assesses from its own physical verification survey that 20% of the population was considered to be in HIG housing; 50% was in MIG; and 30% was in LIG. These figures need to be reconciled if there has to be a realistic assessment of housing stock requirements.

Commercial and Industrial

Similarly, (#2.4) there are reported to be 17,344 registered shops in the city (with only 6,807 workers); while another 30,000 are estimated to be unregistered (with 10,000 workers). Of the 12,661 industrial units recorded in 2001 (#2.5), 9,598 were in the handloom sector, and 3,051 in the small scale sector. At

the same time the large fertiliser plant had closed in 1990; growth was low in handlooms; and, with the establishment of the GIDA estate 8km from Gorakhpur in 1989, industrial development had been diverted out of the city. This reinforces the argument that the growth of the unorganised and self-employed labour will be significant in the city but the Master Plan has not only not analysed the past and future trends but it has failed to make the required provisions for this growth.

Transport and Communication

As given in #1.6.7, only 1 out of 4 bye-passes, no bus and truck depots, and 1 out of 3 overhead bridges were constructed as per plan during the period 1971-2001. #2.8.1 identifies existing infrastructure of 4 regional highways, 19 city roads, 24 local roads, 35 cross-roads etc, but once again, without identifying the cause for past failures, the Master Plan merely goes on to propose the construction of further infrastructure up to 2021.

Future Policy

Thus, the 2021 Plan clearly identifies several violations of the previous Plan, as well as the failure of the administration to fully implement the legal provisions contained therein. But instead of proposing corrective measures based on a rational analysis of past trends, the Policy formulations (#3.3.1 to #3.4.6.1) are all for Regularisation of all unauthorised uses on payment of requisite dues. In other words, actual use of land is to be condoned without understanding why it does not conform to the planned use.

Urban Services

The 2021 Master Plan states that Water Logging, Sewerage & Sanitation, Drinking Water, and Disposal of Solid Wastes are the major problem areas facing the city. But there is no real estimate of what is the extent of the problem. Thus, the section on Public & Semi-public uses (pg 18) – that includes water supply, sewerage, drainage – and the section on Utilities and Services (page 20) only state that "it will be necessary to make adequate provisions", with a total of 398.32 ha (7.01%) for Public & Semi-public Utilities (pg 21) and 811.30 ha (7.25%) for Public Services (pg 45), but there are no further details. 16.85 ha have been earmarked for burial/cremation grounds; but there is no provision for landfills. 943.92 ha were provided for Parks & Open spaces (pg 38-39) in the 2001 Master Plan but were not developed accordingly; the 2021 Master Plan only specifies that it "has to be provided for".

Drainage

GEAG's Vulnerability Assessment records that, according to the GMC, water logging takes place at 59 points, while the original 103 water bodies have reduced to 20-25. Even the Geohydrological study suggests that water bodies have been reducing since 1916 in the central city; the Rapti river bed has been shifting and rising; and hence the mitigation of water logging through 5 regulators and 10 pumping stations into the river is no longer able to tackle the problem. But the 2021 Master Plan makes no attempt to provide for restoration of the old water bodies or provision of new ones that would serve both as a cushion against waterlogging as well as recharge the ground water (particularly since the percolation rate us high). Jal Nigam's proposal for dredging the Ramgarh Tal (to an average 1m depth) for increasing storage capacity, and the dredging of Godhaiya Nala (approximate depth of 2m) to improve drainage will cost a substantial estimated amount of Rs 124crores and Rs 307crores respectively and still not prevent flooding in the low lying areas of the city.

Water Supply

At present, according to the 2021 Master Plan, the Water supply (pg 20) depends upon 14 Overhead tanks and 1 Underground tank, fed by 68 Tube wells (that are mostly tapping the third aquifer which is consequently decreasing – according to the GEAG Geohydrological study). 65% of city area is supplied by the municipality; the rest are dependent on private supplies with 17,252 connections in 89,785 houses – i.e. only 19.21% are connected – and from 432 public taps. Jal Kal estimates a current supply of 79 mld from ground water sources, and a demand of 105 mld based on a per capita consumption of 150 lcpd. But given that GEAG's Gegohydrological study found that 34% of the households use less than 500 lpd – which works out to less than 100 lcpd assuming an average family size of at least 5 – it should be assessed whether the norm of 150 lcpd is a realistic one that can be achieved. If the actual consumption of 100 lcpd is taken as the

norm, not only does it reduce the future demand assessment by one-third (and well within the current supply levels provided the water is distributed equitably in all wards and households), but also significantly impacts the requirements for sewerage. This will also reduce the financial burden on the city administration.

Sewerage

For the current stage of Sewerage the 2021 Master Plan states (pg 20) that only 22% of city area is sewered and serviced by 4 STPs (although GEAG's study claims that there are no STPs); and the rest of the population is serviced either through private tankers or open drains. The open drains are often blocked, and hence the Master Plan states that it is "necessary to make adequate provisions in Master Plan for underground sewerage, extension of sewer system, and STPs". Further, the Jal Nigam has planned for sewer lines with gravity flows, but with 19 intermediate pumping stations; and 3 STPs in the north – 1 discharging into the Rohin, and 2 into Ramgarh Tal; and 3 more STPs in the south – 2 discharging into the Rapti, and 1 into Ramgarh Tal. The sewerage estimate is also based on a supply norm of 150 lcpd. However, as mentioned earlier, if a norm of 100 lcpd is taken to be adequate, not only will the sewerage requirement come down, but it is also possible to plan for more toilet complexes and septic tanks in suitable areas, as also local biological treatment units in depressed areas linked to local water bodies. This would not only cut down enormously on civic body investments into underground sewerage as well as energy costs of pumping, but probably be within the management capacity of the existing 1561 municipal workers (although, as per norms, 1744 are required)

Solid waste

Curiously, the 2021 Master Plan has little to say about solid waste management. GEAG's study cites GMC estimates that the quantity of solid waste is 291 tpd, and 45% of this is biodegradable. However, GEAG's own findings that the generation of waste is higher from lower income groups (LIG=0.3kpcd, MIG=0.26kpcd, and HIG=0.25kpcd) seems to be somewhat suspect. In fact, a later study by GEAG itself gives figures of 1.1, 1.2, and 1.5 kph respectively, while the biodegradable content goes up to 70%. Therefore, these figures need to be re-checked. They could then pave the way for a more intelligent approach to solid waste management than the current proposal to set up 4 landfills at vulnerable spots near the rivers and water bodies. There could, for instance, be provision for segregation at source and compost pits in every neighbourhood to usefully convert the biodegradables, linked to the Master Plan proposal (pg 45) for preserving the current open spaces and providing adequate in appropriate locations (amounting to a land use of 979.03 ha, or 8.75% of the total). There could also be a corresponding provision for providing appropriate space for sorting, storing, and recycling the recyclables linked to junkyards and kabadkhanas (pg 56); labour welfare centres (pg 57); social welfare centres (pg 60); dumping grounds, waste bins, and compost plants (pg 61).

As GEAG's studies suggest, the above recommendations would also influence the adaptation measures for potential climate change impacts through schemes for assessing risk and vulnerability; public education; improving water quality and health; insuring against losses; and preserving livelihoods

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