

Patna City Development Plan Appraisal Report

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Introduction¹: The City Development Plan (2006-2012) for Patna prepared under the JNNURM program covers all relevant aspects of city development exhaustively. The plan is based on an analysis of the existing situation and adopts a consultative process. A vision and the infrastructure requirements to achieve the Plans have been identified and investment plans have been arrived at.

The situation analysis covers social, economic, cultural, heritage and environmental aspects in detail. Aspects related to urban poverty have also been addressed, though not in sufficient detail. The CDP does provide a broad direction for the city's development and presents an ambitious investment plan.

Planning Area, Period and Participating Agencies: The City Development Plan for Patna 2021 is envisaged to cover the urbanized portion of Patna Regional Development Authority region (PRDA-234.7 Sq.Km) which includes areas under the jurisdiction of Patna Municipal Corporation (PMC-99.45 Sq.Km), Danapur Nagarpalika (11 Sq. Km), Phulwari Sharif Nagarpalika (6.48 Sq. Km), Danapur Cantonment Area (3.42 Sq. Km), Khagaul Nagarpalika (3.66 Sq. Km) and the agglomerated area/outgrowths. According to 2001, exiting population of this PRDA area was 16.97 lacs and the population of PMC was 13.66 lacs. While the plan has been prepared for 2021, certain investment proposals included in the plan covers upto 30 years!

The plan has been prepared through the initiative of Government of Bihar (Department of Urban Development). PRDA, PMC, Danapur Nagarpalika, Phulwari Sharif Nagarpalika, Danapur Cantonment Area, Khagaul Nagarpalika, Bihar Rajya Jal Parishad (BRJP), Public Health Engineering Department (PHED) and Public Works Department are other participating agencies. As, the CDP is related to several ULBs (Multi-municipal/agency), the commitment of these agencies to the document, its vision, strategy is important for carrying this initiative forward.

Stakeholder Consultation: The report provides details of consultative process. Wide-ranging Stakeholder consultations have been undertaken. The stakeholders include elected public representatives, heads of government departments, NGOs, Trade/business/industry Associations, Welfare Associations, Urban Poor (through ward meetings) and professional bodies. In addition to consultations within the participating agencies, series of meetings were organized with stakeholders separately covering Bihar Industrial Association (BIA) and Professional Bodies, Automobile Association of East India (AAEI), Experts in Heritage conservation and Forest, Discussion with ward councilors, citizen (in various localities) and NGOs. The consultative process covered the issues related to master plan preparation, basic Infrastructure & services, environmental concerns, economic activities etc. The issue of the cost recovery mechanism and peoples willingness to pay for the services were also covered in the discussions.

Demography: The Population of the city has grown from 6.02 lakh to 16.97 lakh during 1971-2001 periods. The population in 1991 was 11.47 Lakh. The decadal growth rates have been high during the past three decades (50%+). Expecting the trend to continue the population estimate for 2011 is 22.5 Lakh people and 2021 is 28.0 lakh people. Given the fact that state has a large area as economically depressed rural hinterland the push factor is likely to be strong and the urban population growth rates are likely to be higher as expected. Present Gross density in PMC area is about 137 persons per hectare.

The city receives a floating population estimated at about 2 lakhs per day. The numbers are likely to increase. Their service and infrastructure requirements are to be incorporated in the plan.

¹ A preliminary report and draft report had been submitted by the consultants/city (September' 06 and October'06 respectively). CEPT appraised the reports and detailed comments/ observations were sent to the city/State Government and the consultants. A final report has been submitted by the consultant (25th November'06). The observations and recommendations are based on the final report.

Growth Management: The growth of the city, despite the 'broad brush master plan' has been hapazard (CDP report). A framework has been provided under the Bihar Regional Development Authorities Act to prepare landuse plans. A draft plan for 2021 has been prepared and is currently open for public consultations/review. Building Permission procedure is managed by PRDA. Protection measures are to be institutionalized fully into the development regulations were framed along with development plan. Strengthening this aspect is necessary. Patna is a multi-hazard prone urban area. It is placed in Seismic Zone-IV and also is faced with high levels of flood. The city is also exposed to wind hazard of moderate severity.

City Economy: Patna being the only important city in the state, has acquired the strong position in regional trade and business. It is also the centre for education and health facilities. A software technology park is located in the city and more thrust for IT has been envisaged. The concentration of industrial activities in Patna is low. Few industries existing include steel casting, cotton mills, warehousing, electronics, leather & shoes etc. CDP also annexed list of more than 250 industries (mostly SSI) in and around city.

The state government is under process of drafting a new industrial policy which is expected to promote agro-products, food processing, medical plants, sugar, tea, jute and related industries in the region. It is also mentioned that the Sonapur and Hajipur (satellite towns of Patna) are likely to be the industrial Hubs with improved infrastructure and linkages to city and to other important town/cities in the State/ Region.

Urban Poor and Slums: According to CDP report an estimated 65 % of the population of Patna resides in slums, squatters and other poor quality settlements. This includes the urban villages. About 25 % of the population resides in slums and squatters. The plan is to improve the quality of housing and services in these areas so that by 2021 the population living in such condition comes down to 40%. More detailed studies and analysis are required to prepare a sound plan improving urban poor conditions.

The CDP also estimates that the BPL population is about 2.86 lakhs in PUA area and 2.50 lacs in PMC area. The City has envisaged the schemes for improvement of situation in the slums either through in-situ upgradation or by relocation. Six night shelters have also been included in the investment plan for street dwellers at cost of Rs. 15 cr. The direct identifiable investment proposed in CDP in for these improvements is Rs. 200 crores. Overall effort, given the magnitude of task, appears to be on the lower side.

Heritage and Tourism: Based on a study by INTACH, the CDP has detailed the exiting heritage resources and tourism opportunities in and around the city. Additionally Patna has 6 monuments of national importance closely linked to (Patliputra in 5-6 BC) Ashoka's time The CDP has compiled the issues related to heritage and tourism in a fairly detailed manner and generally in line with the JNNURM guidelines.

As the Heritage and tourism is of additional advantage to enhancing the city's economy, inclusion of Buddhist circuit, Nirvana Circuit and Tirtranthkar circuit in the CDP can provide a larger contribution to the city's economic base. The city has proposed to take-up the heritage conservation schemes at total cost of Rs. 108 Cr for seven important heritage sites. These precinct sites are Agam Kuan, Durakhi Devei Temple, Choiti Patandevei, Begu Hajjam's Mosque, Kamaldah Jain Temple, Gol ghar and Har Mandir Takht.

Patna Vision - 2021: 'The more optimistic of Patna's citizens, aware of the settlements unbroken tryst with history as an apex capital, seek revival of Patna as a focus for global investments in quality activities, tourism, health and education through clean environments, inter and intra city accessibility and quality infrastructure and Governance'.

This vision although is broadly in line with draft Master plan 2021, it appears to be slightly more optimistic, which may work well to drive the city towards betterment. The CDP has attempted to explain the vision in backdrop of recent bifurcation of the State loss of resources, Patna's importance in the region, primate perspective and natural setting (page 121-122). The vision envisaged in the CDP emphasizes on the efficiency improvement, institutional/ governance improvements and infrastructure investment. The CDP has attempted to identify and outline the Developmental Issue of the Patna in a sectoral manner but the integration among all these may be a good idea.

Urban Infrastructure and Services: Sectoral description of existing status, gaps and requirements have been provided.

Water Supply: BRJP is responsible for designing and implementation of water supply infrastructure in Patna. The operation and maintenance of the systems are undertaken by PMC in its jurisdiction and BRJP

in other areas. There is no Master Plan or DPR for Water Supply sector in Patna. The CDP draws mainly from the information contained in the feasibility report prepared (2006) for funding (JBIC proposal). Recently consultants have been retained for preparation of DPR for Water Supply.

The analysis covers PMC and Parishads of Danapur, Khagul, Phulwarisharif (an area of 146 sq.km). The coverage under water supply (as stated) is estimated to be about 52%. The city has high dependability on ground water sources with 89 tube wells drawing about 375 mld water. Out of the total water drawn, 40% is lost during transit and actual quantity of water reaching to tap-end is about 175 mld. Discussions with PMC officials suggest that the main reasons for high leakage is due to bursting of pipelines during the operations as the design mismatch exists in the pump capacity and the pipelines capacity creating high pressure in certain areas and low pressure in some other.

- Patna has about 90,000 number of connections (as opposed to 2.2 lakh households in PMC and 2.7 lakh in PUA 2001), out of which 80 % are for domestic purpose. There 1500 standposts discharging about 18 mld . The quality of ground water is good.
- The city has only 1.8 mld storage capacity in 4 OHSR.
- The distribution network includes 700 km long water lines (50-350 mm dia), 1500 stand post and 284 hand pumps. The distribution network runs along 40 % of road length in city.
- The service level during 6 hours supply in PMC area is 107 lpcd and other area is meager 43 lpcd only (standards of 90-135 lpcd). Due to low pressure the population is dependent on multiple sources (40% on stand post) also.
- About 20 % depend only on stand post (300 persons per stand post in slums areas) and rest 40 % has their own private bore wells.
- Cost recovery rate is low at 12% of annual O&M expenditure. Water Charges collected in PMC area are 13.96 Crores in 5 years i.e 2.8 Cr. per year.
- CDP summarizes the service efficiency in water supply covering the Income Expenditure pattern, efficiency indicators, tariff structure (as part of property tax) collection performance (45 % with 32% of arrears). Low tariffs are un-viable and posing serious constraint to raise internal resources for further augmentation of water supply infrastructure. Presently PMC is charging 2% of the property tax as water charges. The charges are recovered along with property taxes. The proposal is to charge Rs. 100 per month for domestic and Rs. 150 per month for other connections. The connection charges are proposed to be revised and to be increased from the current Rs.1000 to Rs. 2000.

Investment plan proposes an outlay of Rs. 175 crores. The items include:

- Water treatment plant (Rs. 20 crores),
- Tubewells/Pumps (Rs. 4.3 crores),
- Central Water reservoirs (Rs. 25 crores),
- Overhead reservoirs (Rs. 3.6 crores),
- Augmentation and new distribution network (Rs. 31.50 crores)
- Bulk Meters (Rs. 2.8 crores) and consumer meters (5.0 crores)
- Civil/electrical works (40.20 crores)
- **Land acquisition (8.5 crores)**
- Leak detection study/rehabilitation of WSS (10 crores)

Sewerage and Sanitation: BRJP is responsible for designing, implementation, operation and maintenance of the sewerage systems in Patna.

The issues related to sewerage and sanitation systems are well conceived. The general ground level (except in old city) is below the high flood level (HFL) of River Ganges and slopes towards north to south and from west to east. Availability of sewerage system is limited to PMC area (27 km main sewer) and that too covering only 9.2% of population (21,884 no. of connections). The rest of the population (about 58,300 HHs) use septic tanks and rest is disposed into open storm water drains. About 85% of population have individual arrangements (including septic tank 68 % and UGD covered 17%) and rest 14% uses the public toilets or go out in the open.

The total sewage generation is estimated to be 170 mld and estimates for 2021 are 269 MLD. The present sewerage system established in 1936 is old and has severely degraded in several places. The total treatment capacity in city is 105 mld. Distributed over three STPs of 35 mld each, the STPs are located at

Saidpur, Beur and Pahari. The combined load factor for these plants is 50 % i.e actual treatment is being given for 60 mld only.

There is no Master Plan or DPR for Sewerage System. The CDP draws mainly from the information contained in the pre-feasibility report prepared (in July 2006). As per the pre-feasibility report the requirements are upto 2021 and 2042 in two modules of Rs. 175 Cr and 135 Cr. Respectively (i.e total of Rs. 310 Crores). CDP Investment plan proposes an outlay of Rs. 443 crores!

The items include:

- Sewerage Treatment Plant 183.75 crores
- Disposal network 157.35 crores
- Individual sanitation system 76 crores
- Development of O&M system/Miscellaneous 26.30 crores

Storm Water Drainage: The analysis and proposals is based on a pre-feasibility report prepared in June 2006 incorporating infrastructure requirement upto 2021. DPR preparation has been entrusted to consultancy agency.

At the broad level, the situation analysis in case of Storm water system is satisfactory. The topography of the city is saucer shaped posing difficulty in flushing out the water. This further gets aggravated by the fact that the railway line divides the city into two half causing additional inundation. The city receives about 1100 mm of rainfall and flooding in the city is annual. The southern portion of city remains water logged and under flood during major part of the year.

The existing storm water drainage system is limited to certain areas and over the years heavy siltation has taken-place choking the existing drains. The existing system is divided into four zones, covering 1800 km (127 % of road length) in the PMC area and 43 km (52 %) in other 4 nagarpalika areas.

As per the pre-feasibility report, the requirement for storm water drainage system has been placed at the cost of 1263.1 Cr in two modules of Rs. 731.5 Cr to be completed by 2011 and Rs. 531.5 Cr. This cost estimates includes the enhancement by about 40 % in each module, which pertains to escalation (15%), centage (8%), cross department damage cost payment (2%) and land acquisition (15%). The city estimates the total cost storm water drainage infrastructure at 1527.0 Cr, which appears to be high.

Roads, Street lighting and Traffic:The total road length is about 1500 km (over 1315 km in PMC area). The city has only 4.5% of land area under circulation. The wholesale market and transport market located close to each other creates high traffic between these two. The public transport is non existent in the city and most common mode of transport are non-motorized/slow moving vehicles and shared IPTs.

City traffic has increased tremendously (by 67 fold) in last two decade and presently more than 2.9 lacs vehicle are registered in Patna. The major increase in vehicular population is due to exponential increase (more than 5.5 %) in private vehicle (cars and 2 wheelers) and in public transport (jeeps). The city has proposed short term, medium term and long term measures for improvement of traffic system and Transportation infrastructure in the city at the total outlay of Rs. 602 Cr.

The proposals for the short term is Rs. 11 Cr, and includes removal of encroachment, traffic regulation, signages, narrow dividers, road widening in PUA, and intersection improvements. The proposed medium term measures estimated at Rs. 301 cr. includes construction of 13 flyovers (166 cr.), new roads of 55 km length (60 cr.) and widening of existing by passes (60 cr.) in the city. The long term measures (Rs. 290 cr.) has a major component of a road (Rs. 240 Cr.) named as 'Ganaga Expressway' along the bed of river Ganga. The benefit of this and the integration with the existing city roads needs to be examined by the city. The city has already taken-up a package of 29 road sections as part of the first phase during year 2006-07 at cost of Rs. 150 Cr and tendering process has been completed. City has proposed 75 km of major roads and about 254 new road of minor nature. to be constructed new n PUA area.

In a city where the most common mode of transport are non-motorized/slow moving vehicles and shared IPTs the focus has to be on developing the public transport system and facilities for NMVs. Utility of building flyovers and expressways in urban areas need careful examination.

Solid Waste Management: Till recently SWM practice in the city was almost non-existence. Door-to-door collection campaign is underway in a major way. City generates about 680-850 MT/d with average per

capita generation of 331 gm/d. The waste is generally disposed on the roads by the households and subsequently collected by street sweeping staff of PMC. Efficiency of street cleaning is low. The required equipments and infrastructure are not available with PMC.

There is no disposal site identified by the city for disposal of the Solid Waste. The solid waste collected by PMC finds its way to low lying areas, road sides and other open spaces in unhygienic and unscientific manner causing risk for health and environmental hazards. The waste characteristics as stated in CDP is putrescible (49 %), combustible (12.5 %) and non-combustible (38.5 %).

The estimated quantity of SW for the year 2021 for a population of 28 lacs is 1089 MT/d, as against present SW generation of about 700 TPD from a population 17 lacs. City estimate the total funding requirement for the SWM at Rs. 92 Cr, covering the primary/secondary collection (Rs. 80 cr.), transportation (5 Cr.) and Disposal System (3.5 cr.). The estimation of equipments appears to be on slightly on higher side.

It is notable that the city has proposed to take-up the SWM on the Public-Private partnership basis.

River Front Development: The city has conceptualized a River Front Development under the head of City Environment at total cost of 300 Cr, which is proposed to be taken-up on PPP mode. The current stage of the project is only at concept level and needs to be examined carefully in view of hydrological nature of Ganges and Gandak River. Linkages with storm drainage, sewerage and road network plan is to be seen.

Other Projects: The City has planned to upgrade the outlook of the city by landscaping and maintenance of parks, street furniture, sinages etc. at total cost of Rs. 17.00 Cr. Other project proposed are Bus stands, Slaughter house, Dairy areas, and industrial development at cost of Rs. 50 Cr..

Institutional Framework: The CDP document provides details of the functioning of the existing following institutions related to urban governance:

- Patna Municipal Corporation (PMC)
- Patna Regional Development Authority (PRDA)
- Bihar Rajya Jal Parishad (BRJP)
- Public Health Engineering Department
- Nagar Parishads

The institutional role and responsibility of various state agencies, parastatal agencies, and municipal departments has been attempted to draw a picture on the strengths and weaknesses. PMC is weak and the state is yet to devolve the responsibilities as per 74th constitutional amendment. Overlapping responsibilities is a major institutional weakness. As understood, main agencies for infrastructure development, services delivery and urban governance are PMC/Nagar Parishads, PWD, BRJP and PHED.

It is understood that the several PMC's positions are vacant or have not been carved out to take care of proper distribution of work, due to which a significant portion is from the State departments. PMC needs to be strengthened with more professionalism, staff and other infrastructure so as to perform its responsibilities in a more effective manner. There is clear need to strength the capacity of PMC for effective urban governance by way of building the professionalism in dealing with the envisaged infrastructure projects under the JNNURM.

The city has shown keen interest for urban governance related projects such as E-Governance, Mapping, Capacity building and Urban Management Institute, with total cost of Rs. 102.7 crores.

- The elections are held regularly. The last elections were held in 2002 and the next election is to be held in Jan/Feb 2007.
- There have been no instances of dissolution, under Article 243U during the past one year or since the launching of the JNNURM.
- No instance of any hiatus at all between the completion of a municipality's term of five years and the holding of elections thereafter has occurred.
- MPCs have not been constituted
- The Ward Committees are not constituted as follow-up of 74th Amendment of Constitution, instead there are several committees to look into the various aspects of PMC's activities. Devolution of powers to PMC for effective management of affairs in its jurisdiction is under consideration at State level.

- Planning functions are with PRDA.
- Suitable amendment to Rent Control Act and Stamp Duty Acts is under consideration.
- E-governance is yet to be introduced.

The State Government and PMC are committed to the reform agenda, which has already received the acceptance from state govt. and elected parties/bodies. The Urban Land Ceiling Act has already been repealed in the State.

Urban Finance: Resource base of PMC is very Low (Revenue 21 Cr. and expenditure 25 Cr.). Of the revenue income of 21 cr. About 17 Cr. is from its own resources and grants contribute to 2.8 cr. The city generates 70% of its own income from the property/other taxes and rest from non tax revenue. The revenue and expenditure figures during the last four year remained inconsistent for generating a pattern of financial resource mobilization and utilization by PMC. The revenue income has been declining at the rate of 6% (average).

Of the expenditure establishment cost (75%) is high straining the PMC. The revenue expenditure has been increasing at the rate of 12% per annum. The O&M expenditure is about 2.2 Cr. (9%) of revenue expenditure. Total debt liabilities on the PMC are in tune of 14.5 Cr. and servicing of debt is not regular.

As per the CDP, the implementing agencies proposed are Government agencies such as PMC, PRDA, BRJP, PWD PHED etc. ??????

Capital Investment Plan: The city has proposed a total investment of Rs. 3618 Cr over the next five years to meet the commitments as per the CDP. The cost will be shared by mechanism PMC, Centre and State govt. as per JNNURM norm i.e 30% (PMC), 20% (State) and 50 % (Center). The State government is committed to provide the capital investment on part of PMC and is also committed to provide the support to the O& M of Infrastructure created with the State share.

The proposed investment plan is for about Rs. 3600 which has been phased out in 5 years. Of this, the share of Patna Municipal Corporation is Rs. 858 Crores and the state is Rs. 2279 Crores. Of this, Rs. 588 Crores and Rs.1971 Crores as sustainable investment levels by the local body and the state government respectively. Projects have been phased out in 5 year period.

The city has not made any major infrastructure investments during the analysis period (2001-05) the capital outlay by the local body have been meager (Rs. 2 Crores to Rs. 6 Crores). Given the low levels of investments, infrastructure gaps have grown justifying requirement of high levels of capital inputs. However, financial sustenance and absorption capacity is also very limited..

The O & M cost is estimated to be of the order of Rs. 107 Cr (page 165), out of which PMC has O& M of Rs 8.6 Cr and the rest Rs. 98.4 Cr. is proposed to be borne by the State. While, this model is not sustainable, the proposed support from JNNURM along with reforms will enhance the capacities to be self sufficient.

Recommendation: The plan is recommended for approval primarily to provide an opportunity for Patna to enhance its capacity and initiate management reforms. The Plan should be seen as a way to address the concerns expressed on sustainability. Following are important aspects to be taken into consideration.

1. The estimates of the infrastructure requirements, especially in case of Storm Water Drainage, sewerage/sanitation, Riverfront development and Roads & Transportation seem to be on the higher side. The project components, unit costs and phasing needs to be looked into in detail at DPR preparation stage.
2. The plan is financially not sustainable within the existing institutional arrangements. There is a need to put in place pricing and cost recovery mechanisms and functional devolution as per 74th constitutional amendment at the earliest.
3. Prioritization of the projects has not been done.
4. Projects, especially related to urban transport need to be evaluated in detail with regard to their compliance with National Urban Transport Policy.
5. Focus on urban poor is inadequate.
6. Human resource development aspects have to be taken up on priority.
7. The local government should revise its CDP within a period of one year incorporating all the issues identified in this report.