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Towards Responsive Urban And Regional Planning…

Ministry of Urban Development
Town and Country Planning Organisation

Draft Report of the Sub Committee
On
Development of Sustainable Habitat Parameters in the Field of Urban Planning

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Ministry of Urban Development
Town and Country Planning Organisation

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Background

- The National Mission on Sustainable Habitat was launched in order to draw necessary action plans to achieve sustainability of human habitats.
- The Mission has identified key areas that require immediate interventions.
- The first Meeting of the Sub- Committee for the Development of Sustainable Habitat Parameters in the field of Urban Planning was held on 14th September 2010 under the Chairmanship of the Member Secretary, National Capital Region Planning Board [NCRPB].

- This document presents a framework for integrating sustainability issues as a key concern into all systems for planning, design, development, implementation, enforcement and management of cities. The document also makes an attempt to quantify all parameters of sustainability with measurable indicators to benchmark and monitor sustainability.

- This Reports attempts to present the sustainability of human habitats in India in four sections
- – **defining** sustainability – laying down the fundamentals;
- **achieving** and **enhancing** sustainability – articulating the key principles;
- **planning** for sustainability – formulating appropriate processes and
- **measuring** sustainability in terms parameters and indicators.
- While the term human habitat includes both urban and rural settlements, this Report deals primarily with cities and their hinterland i.e. regions and serves as a framework for guiding development processes at city level and at the regional level around cities.

Defining Sustainability

- Applied to the context of urban development, the most fundamental elements of sustainability are the utilization of natural resources in a city region most efficiently, most equitably across sections of society and in such a manner that the resources are conserved and renewed for future generations to meet their needs and aspirations.

Achieving and Enhancing Sustainability – Principles

- This sections attempts to capture all ideas of what constitutes sustainability, under five core principles:
- **Development**
- **Efficiency**
  - Land
  - Water
  - Energy
- **Equity**
- **Safety**
- **Harmony**

Planning for Sustainability

- **Legal and Institutional structure for planning**

  The legislation should ensure that the institutional set up for preparing the plans is established in a statutory manner.

  All plans so prepared need to be revised with a periodicity appropriate to each level of planning.

- **Information Base**

  Effective planning for sustainable habitats requires regular monitoring of all indicators of sustainability, periodic data collection, analysis and publication of outputs.

Land Use Planning

At all levels of planning, land use planning is required to be responsive to the following sustainability imperatives:

- Systematic, timely supply of appropriate land for urban uses as well as supporting uses
  - Promoting compact city development and limiting urban sprawl.
- Clear demarcation and protection of ecologically sensitive and risk prone areas.
- Density zoning with the following features:
  - Variable density across space corresponding to capacity of infrastructure.
  - Provisions for transfer of development rights as well as purchasable development rights to ensure equity in the allocation of these rights.
  - Land use transport integration by ensuring that the nature and intensity of land use is higher along higher capacity transportation corridors and vice versa.
- Appropriate mix of land uses designed to reduce trip lengths as well as the number of trips required on a daily basis.
- Redevelopment of land under inappropriate use or under low intensity use in high capacity locations.

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Sustainable Mobility Planning

Mobility Planning has to cover the following aspects:

- Provision of adequate road network with the following characteristics:
  - A pattern that distributes traffic and offers alternate routes of movement.
  - Adequate right of way to support public transport systems.
- Land use transport integration through density zoning in alignment with public transport systems.
- Adequate facilities for pedestrians and non-motorized vehicles, in coordination with public transport systems.
- Assessment of the carbon footprint of overall transportation system, segregated by public and private systems and by mode.
- Formulation of policies on pricing of public facilities and taxation of private ones with the objective of reducing the overall carbon footprint.
- Adoption and enforcement of pollution control norms on all vehicles.
- Active promotion of the use of more sustainable sources of energy for transportation.

Water and Wastewater Management

Planning for infrastructure has to expand its mandate from providing services to doing so in an environmentally sustainable manner. The following aspects are to be covered:

- Overall water balance in the city-region, considering precipitation, inter-basin transfers and ground water resources on the one hand and the consumption of water for urban functions on the other.
- Plans for sourcing, treatment, transportation and distribution of water for drinking and other urban uses in the most sustainable and decentralized manner possible.
- Collection of wastewater, its treatment, reuse and disposal in the most sustainable and decentralized manner possible.
- Protection and conservation of natural water bodies including their interconnections.
- Creation of green buffers along the banks of all natural and manmade water bodies and water channels to ensure their protection as well as to nurture the relationship of human beings with nature.

Waste Reduction and Waste Management

- Proactive measures need to be planned and implemented to reduce the generation of waste.
- Reduction of domestic waste generation by inducing behavioral changes related to consumption (*e.g.* plastic use reduction).
- Active promotion of decentralized recycling of recyclables including domestic and commercial wastes.
- Planning and implementation of waste reduction initiatives for industry using concepts like industrial ecology.
- Planning and implementation of efficient and effective systems for collection, transportation, treatment, recycling and reuse or disposal of municipal solid waste in the most sustainable and decentralized manner possible.

Energy Planning and Conservation

- Interventions for energy planning and conservation include both direct ones as well as interventions in other verticals of urban development. Some of the most important measures are listed below:
- Systematic planning for energy in urban areas
  - Detailed estimates of demand and supply.
  - Formulation of strategies for demand management and supply management.
  - Preparation of policies and projects.
- Promotion of energy efficiency in building design and construction through appropriate incentive frameworks
  - Reducing the need for artificial lighting, air conditioning and other forms of energy consumption in buildings.
  - Use of materials with lower levels of embodied energy in construction materials.
- Promoting the use of sustainable sources of power such as solar energy, wind energy, etc
  - At grid level.
  - At individual building/ layout level .
  - In sectors of economy.
  - In public facilities.

Management of land, Air and Water Quality

- The approach has been to monitor the quality of land, air and water, and to take corrective action where required. However, with the current levels of pollution, a more proactive approach is required wherein the following processes are recommended:
- Benchmarking the current levels of quality of land, air and water.
- Establish targets for quality levels and the time frames in which to achieve them.
- Analyze the causative factors for deterioration in quality and identify areas of intervention
- Prepare policies and projects .
- Implement policies and projects.
- Monitor outcomes and create a feedback loop to policy and project formulation.

Decentralization and Public Participation in Planning and Governance

- The legal framework for decentralization and public participation in planning and governance are mandated in the Constitution Amendments and also in State legislations of some States. However, in most states the operationalisation at city level has not occurred. The key interventions required is adoption of the decentralized and participatory planning process.

Local Economic Development

- Planning for economic development continues to be the prerogative of State Governments. Cities need to take up a role that provides an appropriate climate for creation of wealth, development of skills and knowledge of citizens. The action areas include:
- Making coordinated policies between State and the Local Body through regional planning framework for convergence of goals.
- Facilitating education and skill development programs.
- Ensuring quality of working and living environments through provision of quality services and prevention of pollution.

- **Social Services Planning**
- Planning for social services will include the following areas:
- Population projections with break up by age groups and income groups with adequate information on vulnerable groups.
- Demand assessment: Estimation of requirements for various facilities related to health, education, etc. with quality specifications.
- Supply assessment: Survey of existing facilities in terms of quantity and quality.
- Formulation of strategies for government driven supply as well as strategies for enabling supply from private sector.
- **Public Private People Partnerships**
- It is important that as a cross cutting theme in all the planning processes, opportunities should be explored and created for the Government, the market and communities to partner with each other. More specifically it would involve the following:
- Involving people at all stages of the planning process.
- Building partnerships to bring investments and efficiency benefits of private sector.

Sustainability – Parameters and Indicators

- **Land-Timely availability of suitable serviced land in adequate quantity and at appropriate locations.**
- ***Suitability***
- Indicator-i: Area/population experiencing natural hazard risks during the past 5 years.
- Indicator-ii: Extent of area preserved as natural resource area of the total areas identified for conservation.
- Indicator-iii: Extent of land under natural resource areas (water bodies, natural drainage systems, forests areas) converted in the past 5 years as a ratio to total of such areas in the area developed during the past 5 years.
- Indicator-iv: Extent of land area released for urban development in areas that are suitable for urban uses (not covered under indicators i to iii above).
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- ***Adequacy***
- Indicator- i: Land area planned for urban development as a ratio of land area required in the next 5 years.
- Indicator-ii: Extent of land area serviced which is planned for urban development in the next 5 years.
- Indicator-iii: Land area planned for residential development reserved for low income groups as a ratio of land area required in the next 5 years (including redevelopment/relocation requirements).
- Indicator-iv: Ratio of housing starts to that of average household formation.
- Indicator-v: Rate of low income housing starts to that of total requirement.
- ***Appropriate Location***
- Indicator-i: Extent of land developed outside planned area.
- Indicator-ii: Extent of land developed with Development Control violations.
- Indicator-iii: Ratio of total developed area to contiguously developed area .

Optimal Use of Land

- ***Compact City to Prevent Urban Sprawl***
- Indicator-i: Extent of Sprawl: Proportion of area experiencing urban development outside the planned urban development area to total urban area.
- Indicator-ii: Extent of planned land remaining as vacant.
- Indicator-iii: Vacant land publicly owned as a percentage of total vacant land.
- Indicator-iv: Vacant land not in the market due to legislative rigidities (ULCRA, Reserved Land).
- ***Optimality/Intensity of Land use***
- Indicator-i: Intensity of Development-Average utilisation of FAR in planned areas.
- Indicator-ii: Intensity of Development- Appropriate Densities.

- ***Urban Renewal***
- Indicator-i: Poorly located land uses: Extent of area under incompatible and non conforming land uses (Polluting or non-transit oriented eg- Industrial land, warehouses located in central city areas).
- Indicator-ii: Conservation /Rehabilitation /Redevelopment of areas identified as cultural areas planned and actual (Loss of areas identified as cultural areas).
- Indicator-iii: Non-functional uses: Extent of areas proposed for development which are currently under non-functional uses (*eg*: Closed industrial mills).
- Indicator-iv: Recover /redevelop waste lands as natural resource areas (Extent of areas developed versus total).
- ***Balanced Development/Harmony:***
- Indicator-i: Mixed Landuse: (Average at city versus zonal averages).
- Indicator-ii: Multi-centric City: Number of centres (relevant only for million plus & mega cities) .
- Indicator-iii: Mixed Income City: Extent of low income housing in high and middle income housing areas.
- Indicator-iv: Area of parks and green spaces per 1,000 population.
- Indicator-v: Area under/Number of wooded areas per lakh population.
- Indicator-vi: Percentage of area under green cover(14-25% depending on size of settlement).

Plan Process

- ***Regularity and Content***
- Indicator-i: Periodicity of plan preparation and revision (measured as average age of plans).
- Indicator-ii: Adoption of land suitability analysis, including disaster risk assessment.
- Indicator-iii: Adherence to environmental/landuse zonation (Adoption of Environmental Assessment as part of plan making).
- Indicator-iv: Inclusion of features for land use transport integration, compact city planning, risk mitigation and universal access to housing.
- ***Compliance to proposed plan***
- Indicator-i: Extent of non- compliance to environmental/industrial zoning: Units outside zoned areas.
- Indicator-ii: Extent of occupied buildings which do not possess use permission (other than slums) .
- ***Public Partnership***
- Indicator-i: Mandatory provisions for public participation.
- Indicator-ii: Number of public consultations held and attendance at such consultations.

Sustainable Economic Development

- **Productivity**
- Indicator-i: Per capita GDP.
- Indicator-ii: Employment/Area under productive landuse (including manufacturing, service sector, etc).
- Indicator-iii: Infrastructure Service Level (Composite Index) .
- **Diversity**
- Indicator-i:Single versus multi-sector economy (Ratio of most important activity versus next most important based on 2 digit code) .
- **Stability of growth**
- Indicator-i: Rate of business starts (establishment registration growth)
- Indicator-ii: Rate of Industrial Growth – Factory Sector (Chief Inspector of factories)
- Indicator-iii: Rate of Industrial Growth – Other than Factory Sector
- Indicator-iv: Extent of informal activity

Energy and Environment

- **Environmental status**
- Indicator-i: Air Quality measured at various locations: percentage of Residential Areas exposed to air pollution.
- Indicator-ii: Water Quality measured at various locations: percentage of Residential Areas exposed to water pollution.
- Indicator-iii: Noise Levels measured at various locations: percentage of Residential Areas exposed to noise pollution.
- **Environmentally Sensitive Development**
- Indicator-i: Proportion of environmentally hazardous manufacturing activity within the city (percentage employment/ percentage output/ percentage Units).
- Indicator-ii: Environmentally sensitive practices -Extent of green energy use.
- Indicator-iii: Environmentally sensitive practices -Extent of Waste Treatment – Domestic.
- Indicator-iv: Environmentally sensitive practices -Extent of Waste Treatment – Industrial.

- **Energy**
- Indicator i: Total energy consumption per capita (To be reviewed alongside per capita income and quality of life indicators – the objective is to achieve a lower energy consumption for the same level of income and quality of life).
- Indicator ii: Percentage of energy consumption derived from renewable sources.
- Indicator-iii: Provisions to encourage green building including incentive frameworks.
- Indicator-iv: Number of green and non green buildings (Percentage of buildings with energy rating of various levels).
- Indicator v: Energy consumption per square foot of built up area of buildings – categorized by use as well as by public and private (To be reviewed alongside performance criteria for buildings such as illumination levels and thermal comfort – the objective is to achieve a lower energy consumption for the same level of visual and thermal comfort).
- **Eco-sensitive Development**
- Indicator-i: Area under water recharge zones.
- Indicator-ii: Coordination with national storm water network.
- Indicator-iii: Definition of Natural Hazards, delineation of Natural Hazards prone areas in the Master Plan/Development Plan, Development Control Regulations and Building Byelaws for Natural Hazard Prone Areas.
- Indicator-iv: Incorporation of incentive mechanisms.

- **Waste reduction, treatment and green spaces**
- Indicator-i: Total percentage of public open spaces.
- Indicator-ii: Landfill/ open spaces- provision for full treatment.
- Indicator-iii: Provisions for promoting waste reduction and waste reuse .
- **Equity**
- Indicator i: Extent of land made available for housing the poor.
- Indicator-ii: Extent of housing/land made available for poor.
- Indicator-iii: Tenure provision to urban poor (percentage of total).
- Indicator-iv: Percentage urban poor households with basic services.
- Indicator-v: Distribution of urban poor housing/land in high and middle income housing areas.
- Indicator vi: Access to livelihood opportunities.
- Indicator vii: Integration of informal activities with streets and other public places (Proportion in previous year – integrated /total estimated).
- Indicator viii: Programs for enhancement of livelihoods for urban poor (coverage).

- **Land use - Transport Integration**
- Indicator i: Density.
- Indicator ii: Completeness of the network.
- Indicator iii: Network Density or percentage area under roads.
- Indicator iv: Transit Coverage (Population /Area).
- Indicator v: Average Trip Length/Travel Time.
- Indicator vi: Fatalities per thousand vehicle kms.
- Indicator vii: percentage transit ridership.
- Indicator ix Average travel time for work.
- Indicator x: Fare per passenger km.
- Indicator xi Emissions per passenger km.
- Indicator xii: Integration.
- Indicator xiii: Integrated Ticketing.
- Indicator xv: Physical Integration.

- **Governance**
- Indicator i: Devolution of functions to lowest levels of governance as per the provisions of the 74th Constitution Amendment.
- Indicator ii: Public representation in urban management-Formation of ward committees/ Formation of Area Sabhas.
- Indicator iii: Private/ community investment in urban infrastructure.
- Indicator iv: Percentage of investment in public infrastructure by private sector.
- Indicator v: Percentage of investment in public infrastructure by communities directly.
- **Socio-Economic indicators**
- Indicator i: Health
- Life expectancy.
- Mortality.
- Morbidity.
- Infant mortality.
- Sex ratio.

- Indicator ii: Education
- Literacy.
- School enrolment.
- Dropout rate.
- Indicator iii: Economic indicators
- Employment/ unemployment.
- Per capita income.
- Number of business starts per year.

- Regional economics indicators for performance of the city as a whole.
- Percentage of investments within the city to the total investments within the State.
- Percentage of production output from city to the SGDP.
- Percentage of employment generated by investments within the city.
- Percentage share of economic sectors to state average.
- Indicator iv: Housing
- Quality of shelter (kutcha/ pucca).
- Legal/ illegal/ unauthorized.
- Own/ rented.

- indicator v: Urban services availability
- Access to water (public/ community/ shared/ individual).
- Per capita water supply.
- Access to toilets (public/ community/ shared/ individual).
- Coverage of sewerage system (area/ population/ properties connected).
- Sewage disposal system (sewer line, septic tank, open drain, etc).

The Starting Point

- **Assessment of Sustainability at**
  - City Level,
  - Zonal Level
  - Ward/Layout Level.

- **Unplanned Areas *vs* Planned Areas**
  -If Unplanned areas exceed 50%,then immediate interventions required.

- **Interventions**
  - Put in place enabling provisions for Regional Planning at macro, meso and micro level
  - This will enable identification of counter magnets and satellite towns for re-assigning population and employment.
  - Macro level may cover State/Inter-State region; Meso level District/State Capital/City Region.
  - Micro level will cover the Master Plan /Development Plan.

- **At Master Plan/Development Plan Level**
  - Extent of implementation,
  - Alternatives to the Land assemble, development and disposal process.
  - Identification of specific projects including costing and modalities of the projects in PPP mode.
  - Land use transport integration,
  - Assigning EMS/LIG Pockets near work centres.
- **At Zonal Level**
  - Formulation of Plans
  - Modalities for implementation
- **At Ward/Layout Level**
  - -Stakeholder consultations
  - -Priorization and Phasing
  - -Modalities for implementation
  - - Enforcement of Building Bye-laws and development controls