Conceptual Framework for Slum Free City Planning:An Urban Environment Management Approach

Charumitra Bouddha*, Krishna Kumar Dhote, Anupama Sharma
Department of Architecture & Planning, MANIT, Bhopal, Madhya Pradesh, India.

Abstract

The status of the environment in an urban setting is a consequence of many interconnected factors. The local context characterized by existing natural resources, urban development & urban services, socio-economic structure and above all the population and demographic trends that influence the demand for these services. The status of current provisions of these services and the capacity of these services in relation to demand, determine the likely environmental impact. Ultimately, the main concern in the process of growth and development is sustainable provision and equitable distribution of welfare and services synchronous to available resources. Intra-city inequality characterized by exclusion manifests as urban poverty and slums. More often slums have been treated purely as an alien problem rather than socio-economical or inclusionary issue. Traditional approaches to attend the issue of slums had been ineffective in the absence of a pragmatic strategy coherent with Urban Environment Management (UEM) approach. UEM is a well-established approach to manage urban issues in an integrated way in its complete horizon whether they are bio-physical, socio-economical or inclusive; however was not used in its full capacity to deal with slums. This paper attempts to develop a conceptual framework for slum free cities planning using UEM approach taking the case example of India.

Keywords: Slum free city, slum redevelopment approach, urban environment management

*Author for Correspondence: E-mail: charumitrabouddha@gmail.com

BACKGROUND

The status of the environment in an urban setting is a result of many interconnected factors. The local context, characterized by existing natural resources such as flora and fauna, human beings, minerals, air, water and land; Urban Development & Urban Services such as housing, roads, railways, electricity, water supply, sewerage and solid waste management; Socio-Economic structure such as education, health, arts, culture and heritage, and economic and business activities. And above all the population and demographic trends that influence the demand for these services. The status of current provisions of these services and the capacity of these services in relation to demand, determine the likely environmental impact. Ultimately, the main concern in the process of growth and development should be the sustainable provision and equitable distribution of the welfare and services synchronous to available resources. India, the second largest nation in the world with the population of 1210.2 million persons in 2011, is also facing with these problems. It has an urban share of 377.11 million, 17.4% of which constitutes of slum population[1].

Intra-city inequality characterized by exclusion manifests in the urban poverty and slums. Slums are feature of almost every city though we do not acknowledge their existence in positive sense and quite often we overlook them during future planning processes. More often slums have been treated purely as environmental

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problem for the cities rather than socio-economical or inclusionary issue. But to overlook around 828 million or 23.75%[2] of urban population inhabiting in these slums worldwide surely put environmental implications not only for the deprived group but for the cities as well. Traditional approaches to attend the issue of slums are ineffective in the absence of suitable inclusive strategies. Need of integrated, inclusive and interdisciplinary approach for Environmentally Sustainable, Healthy and Livable Human Settlements was realized in the Istanbul Declaration on Human Settlements and specific action points agreed under Global Plan of Action. Concern is not only directed at environmental matters and their links to health, but also to social and economic issues. UEM is a well-established approach to manage urban issues in its complete horizon whether they are bio-physical, socio-economical or inclusive; however it did not used in its full capacity to deal with slums as an environmental issue.

CONTEXT

Sphere of urban development extends beyond the supply of urban infrastructure which conventionally includes water supply, housing, transport, etc.; Sustainable cities require the management of urban environment and an understanding of the linkage among infrastructure, productivity, poverty and environmental health[3]. Slum pockets are most vulnerable entities of any urban setting endured by highest degree of social, economical, and environmental, and infrastructural vulnerability. They are the habitat of poorest of the poor, least aware about their rights and responsibilities; characterize by most degraded physical environment; lacking most of the basic services and manifestation of intra-city inequalities. In whole a city's environment is largely characterize by number of slum pockets it

has and to manage environment of a city it must address the issue of slums.

Slums can be termed as byproducts of urban development that puts negative environmental impact like environmental pollution. However slum dwellers are both victim and cause of environmental degradation hence slums and slum dwellers both need to be included in urban environment management. This sector has attracted attention of policy and decision makers more seriously after setting up of United Nations Millennium Development Goal-7 on Environmental Sustainability through one of its targets of "By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers". According to State of The World's Cities 2010/2011[2] estimates developing countries hosts 827.6 million people or about 33 percent of its urban population in slums as on 2010. Between the year 2000 and 2010, a total 227 million people in the developing world will have touched out of slum conditions. China and India have built the lives of more slum dwellers than any other countries, having together lifted no less than 125 million people out of slum area states in the same period. It is noteworthy that even after achieving more than global target only by India and China well ahead of 2020, the 65.49 million or 17.37% of urban population of India is still a slum dweller. As urbanization in India picks up pace, there is swelled-up pressure on cities to deal with increasing slums and maintain sustainable urban environment. In several cities of India, slums account for 30-50 percent of their populations. Slums are mainly concentrated in million plus cities and about 38 percent of the slum households are in 46 million plus cities. Metro cities like Greater Mumbai and million plus cities like Visakhapatnam, Jabalpur, Vijayawada, Meerut has slum households share as high as between 40-45 percent[4]. Although gearing up for improvement in the lives of slum dwellers

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to achieve city specific goals, making the cities slum free is still a great challenge at national level. Traditional approaches to attend the issue of slums through punitive actions of forcefully eviction or relocation of slum dweller, curative actions of upgrading the level of physical, social, and economic services in slums and dealing with the issue of land and tenure or preventive actions of providing affordable housing and rental dwelling are ineffective unless bio-physical, socio-economical and inclusive aspects are addressed properly.

Instituting inclusive pro-poor reforms and policies for redevelopment of existing slum settlements and a proactive approach of pragmatically planning ahead to prevent future slum formation by anticipating and preparation for growing urban peoples is a major objective of government of India to make cities slum free. The slum redevelopment program Rajiv Awas Yojna, 2011, India is a step forward in this ways. It strengthens the scope of inclusive planning and addresses the issue of failures of the formal system that lie behind the creation of slums. However detailed methodology to prevent future slum formation is still to be developed.

URBAN ENVIRONMENT MANAGEMENT APPROACH
First mentioned by Brian J.L. Berry and Frank E. Horton as the title of their 1974 book on planning for pollution control , the term UEM is a descriptive term which in most cases represents a number of acts and contents in a particular geographical scene like physical planning, land use, governmental decision making, economical interests, societal service provision (health, educational facilities), technical service provision (water, sanitation, electricity, waste management) and societal/cultural values and community organization. Environmentally sound and sustainable development needs integration of environmental concerns at different scale of planning. Prior to

implementation of specific projects Strategic Environment Assessment (SEA) of policies, plans, and programs would exhibit more far reaching effects. Economic-cum-environmental (EcE) development planning is needed at regional level for macro-level environmental integration that includes broad land use allocations for a geographic region. Sectoral planning needs formulation and integration of environmental guidelines and sectoral reviews and schemes into sectoral plan to help to address specific environmental difficulties that may be scrapped in designing and implementing sectoral development projects. Intersectoral linkage is also essential while sectoral planning to avoid land use and infrastructure conflicts and intracity inequalities. Environmental Impact Assessment (EIA) is a key component of any environment management approach at project level to identify and predict significant impacts of the project on environment and to include preventive measures in environment management plan (EMP) at each level of development of the project.

United States Agency for International Development (USAID, no date)[6] suggests following approach for a successful UEM framework:
1. Understanding of a city's regional environmental quality and natural resource constraints.
2. Means of mapping and prioritising key problems and designing specific interventions within an environmental management plan.
3. Focusing on environmentally sound economic development, balancing growth with the resiliency and carrying capacity of ecological systems.
4. Recommending technical remedies and alternatives.

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5. Implementing planning practices that include representatives from key stakeholder groups

    Each of these steps needs environmental assessment, planning and management tools to prepare baseline information, identify key issues, assess potential impacts, predict significant impacts, propose strategies, prioritise intervention, manage and monitor projects.

Table 1: *Integration of Environmental Techniques At Various Levels of Planning*

Level	Integration of Environmental Policies and Procedures	Environmental Assessment Planning or Management Techniques Used
National	Environmental policy included in national action plan	• Environmental profiles • International Assistance Agency Country Programming
Regional	Economic-cum-environmental development	• Integrated regional development planning • Land use planning • Environmental master plans
Sectoral	Sectoral review linked with other economic sectors	• Sector environmental guidelines • Sector review strategy
Project	Environmental review of project activities EIA procedures	• EIA • Environmental guidelines

Source: Lohani *et al.,* 1997[5]

ENVIRONMENT PLANNING & MANAGEMENT TOOLS

For a given activity that may have environmental impacts due to its implementation some most often used key environmental planning and management tools are:

Table 2: *Integration of Environmental techniques at various levels of Planning.*

S.n.	Phase of Development	Tool	Purpose	Use in Areas
1	Strategic Planning	SEA	SEA refers to the EIA process applied to Policy, Plans, or Programs[7].	Policy, Plans, Programs
2	End of Preliminary Design Phase	Environmental Assessments (EA)	Concise public documents that serve to briefly provide sufficient evidences and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a finding of no significant impact (FONSI) when no EIS is required	Any Project
3	Planning Phase	EIA	The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made	Any Project
4	Planning Phase	EIS	Part of EIA, a document prepared by an expert agency on the environmental impact of a proposed action / project that significantly affects the quality of environment	Any Project
5	Implementation & Monitoring Phase	EMP	A specific plan to institute and monitor mitigation measures and take desired actions as timely as possible	Any Program/ Project
6	Management and Monitoring	Environmental Status Reporting (ESR)	To list city's environmental concerns, growth factors, and the overall environmental degradation and improvements. This data is often analyzed to show trends of environmental pollution, impact of growth, and possible environmental action planning in the city.	Municipal Body
7	Construction & Implementation phase	Environmental Audits	To ensure environmental compliance of a project through regular environmental audits	Any Project
8	Operation Phase	Environmental Management System (EMS)	A framework that includes set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency	Any Institution
9	Operation Phase	Environmental Management Information System (EMIS)	An information system for managing information on the urban environment according to the Environment Planning & Management (EPM) process, designed to link dispersed data about urban and environmental issues to a series of different types of maps about a particular area or even city-wide	Any Governing Body
10	Operation Phase	Performance Measurement (PM) Systems for Urban Local Bodies	To measure the performance of a municipal body with respect to its service delivery in urban areas through a set of performance indicators that are benchmarked against set targets	Municipal body

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SLUMS: THE ENVIRONMENTAL ISSUE

Formation of slums is a forceful phenomenon primarily linked to poverty, whether it is urban or rural. Migration of populace to comparatively more urbanized areas in search of jobs adds up in already existing urban poor. But poverty is not the only force behind slum formation as it is a complicated process influenced by various local and regional characteristics rather than simply proportional to city size growth itself. There is an intricate and invisible web of various direct and indirect forces resulting to formation of slums. In present context slums are accepted as outcome of poverty, illiteracy, exclusion, inequality, unjust conditions of poor; vested interests of bureaucrats, politicians, land mafias and lack of political commitment and managerial capabilities of governance in urban areas. Willingly or unwillingly urban poor are forced to occupy unprotected patch of land.

The slum dwellers are more a sufferer than medium of environmental degradation. Resorting to slums is the first and last affordable housing option for them. Fatal parts of the cities as well as urban environment, the slums are one of the leading situations for urban environment planning and management. These assailable entities are anthropogenetic environmental difficulty for the city in general and specifically for its inhabitants.

SLUM FREE CITY CONCEPT

'Slum-free' city is a metaphor for poverty alleviation in urban India (http://www.pkdas.com/published/RajiAwaasYojna.pdf accessed 21/05/2014). Slum Free City program was conceived with the "whole city and whole slum" approach. "Slum-free cities" strategy is based on the concept that the slum settlements are spatial entities, and they are possible to be identified, targeted and reached[8].

Conceptually cities can be made slum free via (a) clearing slum areas (b) relocating slums at outside of city area (c) improving environment of existing slum areas through sustainable infrastructure service provisions (d) rehabilitating slum dwellers at formal housing (e) restricting expansion of slums and (f) providing affordable housing for urban poor, and (g) preventing genesis of slums. But as this approach suggests only for strengthened management and monitoring actions, the slum free cities would be a dream unless the affordability, acceptability and adaptability of the beneficiaries could not be improved. The approach towards slum free city planning must include biophysical, socio-economical, and inclusive strategies in addition to management and monitoring. The actions could not be limited to "whole slum whole city" but a regional approach is needed to improve the quality of life of poor including those from sub-urban and rural areas at their native places who are forced to migrate in cities for their livelihood earnings and future prospects.

CONCEPTUAL FRAMEWORK FOR SLUM FREE CITY PLANNING

An environment management approach is an approach that tries to balance resources and processes thus takes care of sustainable growth and development hence conceptual framework for Slum Free City Planning should include a comprehensive framework for Socio-economic impact assessment integrated with the Environmental Impact assessment. Following the phrase "prevention is better than cure" preventive measures should be on highest priority. Affordable and adaptive curative measures for existing slums have, and can, increase the well-being of millions of slum dwellers[9]. Punitive actions are last resorts to deal with slums where vested interests

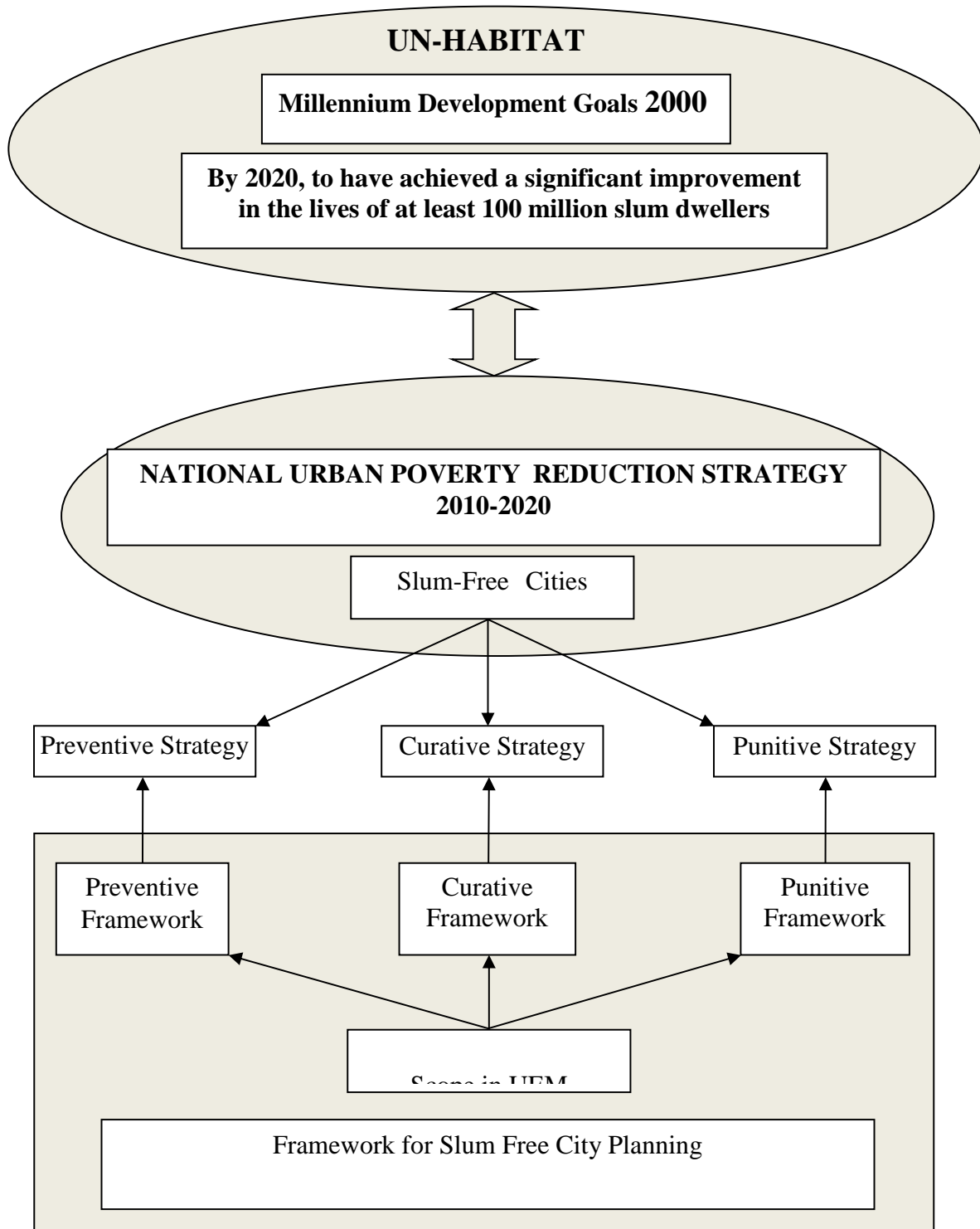contribute in development and nourishment of fake slums that could be prevented.

Fig. 1: *Conceptual Framework.*

Conventionally, EIA is a process as well as a tool to identify significant impacts of any project on project affected natural environment including living beings

where, the environment is an external component. An EIA leads to Environment Management Plan (EMP) to mitigate negative impacts. As per EIA notification 2006 of India, Environment Clearance (EC) is mandatory for certain projects that have significant impact on environment, and to carry out EIA is an integral part of it. Socio-economic impact analysis and inclusion of ethnic groups in decision making is essential component of any EIA. Except townships and area development projects of specified scale, housing projects do not need to take EC.

Though slums/ slum redevelopment projects do not put significant impact on natural environment at large but socio-economic impacts of them considerably affect quality of life of slum dwellers that in turn affects natural environment. Although environmental impact assessment framework itself includes socio-economic impact assessment however a detailed socio-economic impact assessment can provide a clear perspective of future repercussion. Comparison of the both type of impacts beforehand will suggest whom to be prioritized for intervention with regards to sustainable use of available resources and minimizing the socio-economic impacts thus improving quality of life. Hence inclusion of relevant components of EIA in slum redevelopment process to identify significant impacts of slum redevelopment on slum dwellers could help making cities slum free.

Conceptual framework for slum free city planning is developed referring the available guidelines and frameworks for urban environment management, sustainable city planning and slum redevelopment initiatives, particularly The Environmental Planning and Management Guidebook

(http://www.gdrc.org/uem/epm/epm1.htm#whyepm1)[10]; Urban Environments: The UEMRI Framework for Policy and Practice (hshrinivas@gdrc.org) [11]; Rajiv Awas Yojna Guidelines for Slum Free City Planning[12].

METHODOLOGY
Integrated, inclusive and comprehensive slum free city planning framework needs a systematic approach. Suggestive methodology to preventive and curative/ punitive framework starts with baseline preparation followed by identification of key issues, potential causes and potential impacts of phenomenon under consideration through available similar researches and case studies. Critical analysis of applicable standards, criteria, guidelines would help in deciding limits or suggest need of amendment where necessary. Significance of causes and impacts could be predicted on the basis of nature of the impact using most suitable analysis tool.

Once the impact significance is established identification of preventive measures in policy, planning, designing and managing could be translated into inclusion of appropriate strategies for each of the parameter of impact prediction under consideration. Impact significance, available resources, and beneficiary's priorities would guide to prioritize the interventions and formulate an environment management plan leading to an action plan for slum free city planning.
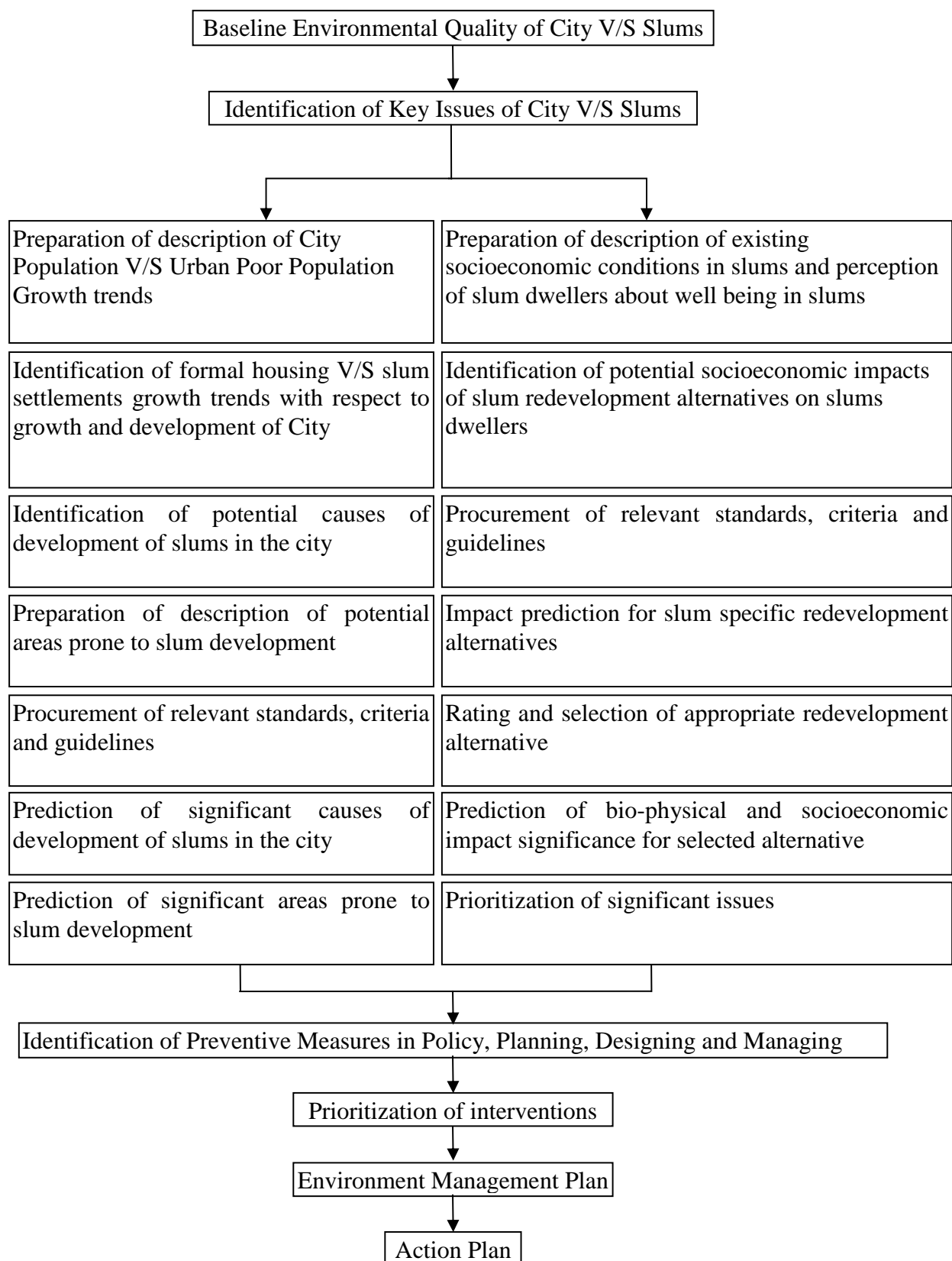
Baseline Environmental Quality of City V/S Slums

Identification of Key Issues of City V/S Slums

Preparation of description of City Population V/S Urban Poor Population Growth trends	Preparation of description of existing socioeconomic conditions in slums and perception of slum dwellers about well being in slums
Identification of formal housing V/S slum settlements growth trends with respect to growth and development of City	Identification of potential socioeconomic impacts of slum redevelopment alternatives on slums dwellers
Identification of potential causes of development of slums in the city	Procurement of relevant standards, criteria and guidelines
Preparation of description of potential areas prone to slum development	Impact prediction for slum specific redevelopment alternatives
Procurement of relevant standards, criteria and guidelines	Rating and selection of appropriate redevelopment alternative
Prediction of significant causes of development of slums in the city	Prediction of bio-physical and socioeconomic impact significance for selected alternative
Prediction of significant areas prone to slum development	Prioritization of significant issues

Identification of Preventive Measures in Policy, Planning, Designing and Managing

Prioritization of interventions

Environment Management Plan

Action Plan

Fig. 1: *Methodology for Slum Free City Planning Framework (Adapted from Canter, 1996[13]).*

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Parameters for Assessment

Table 3: Parameters for Assessment: Preventive Approach.

Preventive Approach: City Parameters							
City Profile		*Bio-Physical*				*Socio-Economical*	*Inclusion*
Developmental Status	*Population Growth Trends*	*Environmental Status*	*Spatial Growth Trends*	*Spatial Features*	*Unprotected Vacant Land*	*Migration*	*Inclusion of Urban Poor*
•Administrative boundaries •Economic base •Environmental services •Housing & Slums	•City population Slum population •Outgrowths' population •Migrated population	•Climatic data •Land, Water, Air •Green areas •Hills/Forest Heritage sites, Eco-sensitive zones/areas	•City limits •Land-use •Urban growth •Outgrowths •Growth of slums	•Contours •Natural drainage •Natural resources •Road/Rail Network •Major Industries/ Industrial areas •Slum locations	•Along drains •Along river/stream •Near lake/pond •Along railway track •Along roads •Footpaths Hills/Foothills •Near hazardous site	•Migration type (Rural to Urban, Urban to Urban) •Migration Pattern (Seasonal, Permanent) •Migrated communities •Occupation of migrated communities	•Social /Environmental service provision •Infrastructure provision •Housing Provision •Job Opportunities •Transport •Roads Network
Planning and Administration							
Plans	*Policies/ Programs*		*Projects*		*Acts, Laws, Rules and Regulations*		*Urban Governance*
•Perspective Plans •Five Year Plans •Master Plan	•Urban Development •Slum Redevelopment •Housing and Poverty Alleviation •Environment Policy •Industrial and Economic Development		•Housing •Developmental Infrastructure •Transport •Employment generating projects		•Development control •Rent control •Patta (Lease) •Environment Protection •Right to Information •Right to Education		•Implementation •Management •Monitoring

Table 5: Parameters for Assessment: Curative/Punitive Approach (Adapted from Bouddha and Dhote 2014[14]

Curative / Punitive Approach									
City Parameters		Slum Parameters							
City Profile	*Bio-Physical*	*Bio-Physical*		*Socio-Economical*					*Inclusive*
Developmental Status	*Environmental Status*	*Stress on Land*	*Quality of Built Environment*	*Social Status*	*Status of Living*	*Incidence of Poverty*	*Welfare*	*Leisure*	*Inclusion*
•Administrative boundaries •Economic base •Environmental services •Housing & Slums	•Climatic data •Land, Water, Air •Green areas •Hills/Forest Heritage sites, Eco-sensitive zones/areas	•Share of slums in urban population •Population density in Slums •Pressure on natural resources	•Housing •Water Supply •Sanitation •Garbage Disposal •Electricity •Fuel Used •Streets	•Education •Occupation •Equality •Social Network •Cultural Ethos •Neighborhood •Violence •Crime	•Congestion •Security of Tenure •Vulnerability to diseases •Vulnerability to risks and hazards	•Household Income •APL/BPL Status •Per capita consumption expenditure •Accessibility to savings/ holdings of land, consumer or producer durables	•Health facilities •Educational Institutions •Community welfare Facilities •Non-Governmental Organizations (NGOs) & other voluntary organizations	•Time spent on non-worthy works/ leisure activities •Accessibility to Recreational /Public spaces	•Awareness •Communication •Community mobility/ Political voice •Job opportunities •Equality Transport •Roads network
Population	*Spatial Growth Trends*								
•City population •Slum population	•City limits, •Land-use •Urban growth •Outgrowths								
Spatial Features		*Planning and Administration: City Parameters*							
•Contours •Natural drainage •Natural resources •Road/Rail Network •Major Industries/ Industrial areas •Slum locations		*Plans*	*Policies/ Programs*	*Projects*		*Acts, Laws, Rules and Regulations*		*Urban Governance*	
		•Perspective Plans •Five Year Plans •Master Plan	•Urban Development •Slum Redevelopment •Housing and Poverty Alleviation •Environment Policy	•Basic infrastructure •Housing •Developmental infrastructure •Transport		•Slum Redevelopment •Development Control •Special Area Development •Transfer Development Rights •Patta (Lease) •Environment Protection •Right to Information •Right to Education		•Implementation •Management •Monitoring	

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CONCEPTUAL FRAMEWORK

Table 4: Conceptual Framework: Preventive Approach.

PREVENTIVE APPROACH				
Sn.	Parameter	Objectives of Analysis	Analysis Tool	Strategy
	City Profile	**Study city's development status**		
1	***Developmental Status*** Administrative boundaries Economic base, Environmental services Housing & Slums	• Study development status of city	• ESR	• Identification of future scope and areas of development
2	***Population Growth Trends*** City Population growth trends Slum Population growth trends Outgrowths' population growth trends Migrated population growth trends	• City Population Projection • Houseless Urban Poor Population Projection	• Mathematical Models	• Symbiotic and gradual up-scaling of peri-urban areas • Urban infrastructure, services and facilities, education, and employment opportunities in decentralised manner
	Bio-Physical	**Identify growth and development prospects**		
1	***Environmental Status*** Climatic data Land, Water, Air Green areas Hills/Forest Heritage sites, Eco-sensitive zones/areas	• Study baseline environmental quality of city • Identify carrying capacity of city's natural resources and infrastructure for migratory population • Maintain balance between built and open spaces • Protect Heritage sites/ Eco-sensitive zones from slum encroachments	• General Information/Quantitative ,Spatial Data • Mathematical Models	• Measures to protect city's natural environment • Development of city within limit to its carrying capacity • Integrated development at regional level with multi centric approach to prevent city to be overloaded • Immediate action against violation of laws related to protection and preservation of Heritage sites/ Eco-sensitive zones
2	***Spatial Growth Trends*** City limits, Land-use, Urban growth, Outgrowths, Growth of slum	• Identify direction and magnitude of decadal spatial growth city agglomeration • Identify direction and magnitude of decadal spatial growth of slum	• Satellite Imageries-Temporal data	• Provision of affordable rented room/dormitories at strategic locations for new migrant population and those who are unable to pay for formal housing that could also be used as transit camps for households affected under rehabilitation projects • Predict direction and magnitude of future spatial growth of city V/S Slum • Measures to divert future spatial growth as desired if necessary
3	***Spatial Features*** Contours, Natural drainage Natural resources, Road/Rail Network Major Industries/ Industrial areas Slum locations	• Mitigate chances of urban flooding • Assess road connectivity for urban poor to job locations from proposed housing locations	• Satellite Imageries • GIS • Toposheets	• Protect natural drains/low lying areas from squatting • Housing planning for urban poor with regards to spatial features and out of health risk/hazardous zones • Proposed housing location with connectivity to probable job locations
4	***Unprotected Vacant Land*** Along Drains, River/Stream, Road, Railway track Near Lake/Pond (Low Lying areas)	• Prediction of Slum development prone area	• Satellite Imageries • Trend analysis	• Track slum development prone area to resolve the problem at its origin • Geographical Information System (GIS) as a tracking tool

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	hazardous site On Footpaths, Hills/Foothills			• Use of Land information System (LIS) • Improved governance system against future slum formation
	Socio-Economical	**Understand migration phenomenon**		
1	*Migration* Migration Type (Rural to urban/Urban to Urban) Migration Pattern (Seasonal/ Permanent) Migrated communities Occupation of Migrated Communities	• Identify reasons of migration • Migration characteristics	• Research studies • Case examples	• Symbiotic development at regional level to discourage rural to urban shift of labor force. • Alternatives of Tenure rights (Rental, Dormitories, etc.) • Housing Typology • Housing Affordability • Housing Acceptability • Provisions for "Enabling Poor" environment
	Inclusion	**Identify potential causes of development of slums**		
1	Social Environmental Service Provision Infrastructure provision Housing Provision Job Opportunities Transport, Roads Network	• Identify existing level of inclusion in service/infrastructure provision • Identify needs and preferences of urban poor/migrants	• Quantitative/ qualitative description based data • Perception Study • Existing research studies	• Provisions for urban poor into intra city infrastructure provisions • Appropriate consideration of needs and preferences of urban poor/migrants • Creation of job /skill development opportunities for urban poor
	Planning and Administration	**Identify preventive measures in Policy, Planning / Designing**		
1	*Plans* Perspective Plans, Five Year Plans Master Plan	• Long term / Medium terms targets	• Plan Documents	• Use of Perspective Plans, Five Year Plans, Master Plan as guide for City Development Plan for Slum Free Cities
2	*Policies/ Programs* Urban Development Slum Redevelopment Housing and Poverty Alleviation Environment Policy Industrial and Economic Development	• Provisions / Prohibitions under Policies/ Programs for Slum redevelopment • Identify unfavorable policies leading to genesis of slums	• Policy/ Program Documents • Existing Research studies/Reports /cases related to subject area	• Five Year Plans /programs should be rooted to Policies formulated in integrated way so that implications of one programs/ project would not affect negatively on another. • Amendments in unfavorable Policies • Inclusive Socio-economic Planning and Policy
3	*Projects* Housing Developmental Infrastructure Transport Employment generating projects	• Identification of development induced displacement • Identification of future magnets for settlement of squatters viz. employment generating zones especially informal works	• Relevant Detailed Project Reports (DPRs) • EIA	• Provision of Transit Camps with all the basic services • Implementation and monitoring of Rehabilitation plans • Categorisation of slums to implement redevelopment strategies unique to their need thus reformation of slums could be restricted • Affordable housing provision ensuring easy and affordable commute to employment generating zones
4	*Acts, Laws, Rules and Regulations* Development control Rent control Patta Environment Protection Right to Information	• Provisions/Limitations/Restrictions under Acts, Laws, Rules and Regulations for Slum redevelopment • Identify gaps in Acts, Laws, Rules and Regulations • Identify unfavorable Acts, Rules, and Regulations leading to genesis of slums	• Acts, Laws, Rules and Regulations documents • Existing Research studies/Reports/ cases related to subject area	• Compliance to provisions made in acts, laws, rules and regulations for slum redevelopment • Amendments in acts/laws/rules/regulations where gaps identified • Proportionate reservation of land for EWS/LIG

	Right to Education			• group housing in each residential zone so that unprivileged majority could not get excluded on part of well-off minority • Strict actions on builders/developers not complying with the rules & regulations regarding reservation of land for EWS/LIG housing. • Amendments in unfavorable acts, rules, and regulations
5	*Urban Administration* Implementation Management Monitoring	• Identify city's managerial capacities • Identify gaps in maintaining records, service provisions and delivery, and maintenance mechanism • To keep check on encroachment and unauthorized construction on unprotected vacant land	• ESR • Performance Measurement (PM) Systems for Urban Local Bodies	• Interdepartmental co-ordination and information dissemination • Use of LIS to update land records to utilize it efficiently for residential development • Use of GIS to track the encroachment and unauthorized construction on unprotected vacant land; innovative solutions e.g. dense tree plantation/forestation etc. to prevent such activities • Long-term political commitment • Decentralized delegation of powers • Improved housing delivery system • Environment Management System • Environmental Management Plan

Table 5: *Conceptual Framework: Curative/Punitive Approach.*

	CURATIVE / PUNITIVE APPROACH			
Sn.	**Parameter**	**Objectives**	**Analysis Tool**	**Strategy**
	City Parameters: City Profile	**Assess development status**		
1	*Developmental Status* Administrative boundaries, Economic base, Environmental services, Housing & Slums	• Assess development status of city	• ESR	• Identification of future scope and areas of development
2	*Population* City population, Slum population	• Identify actual needy for slum redevelopment planning	• Mathematical Models	• Provision of infrastructure and services to match with actual demand
	City Parameters: Bio-Physical	**Identify growth and development prospects**		
1	*Environmental Status* Climatic data Land, Water, Air Green areas Hills/Forest Heritage sites Eco-sensitive zones/areas	• Assess baseline environmental quality of city • Identify carrying capacity of city's natural resources and infrastructure for natural population growth • Protect Heritage sites/ Eco-sensitive zones from slum encroachments	• General Information/ Quantitative data/Spatial Data • Mathematical Models	• Measures to protect city's natural environment • Development of city within limit to its carrying capacity • Integrated development at regional level with multi centric approach to prevent city to be overloaded • Immediate action against violation of laws related to protection and preservation of Heritage sites/ Eco-sensitive zones
2	*Spatial Growth Trends* City limits, Land-	• Identify direction and magnitude of decadal spatial growth of city agglomeration	• Satellite Imageries- Temporal data	• Site selection for Relocation and Rehabilitation compatible to mobility and occupation of slum

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	use, Urban growth, Outgrowths			dwellers
3	**Spatial Features** Contours, Natural drainage Natural resources, Road/Rail Network Major Industries/ Industrial areas Slum locations	•Protect natural features from slum encroachments •Assess road connectivity of slum dwellers to job locations from proposed housing site	•Satellite Imageries •GIS •Toposheets	•Reinstate the encroached natural features, if necessary •Housing planning for slum dwellers with regards to spatial features and out of health risk/hazardous zones •Redevelopment site location with improved connectivity to job locations, if case of relocation
	Slum Parameters: Bio-Physical	**Assess environmental status of slums**		
1	**Stress on Land** Share of urban population in slum Area under slum & Pop. density in Slums Slum locations with respect to natural resources and landuse Pressure on natural Resources	•Assess land area under underproductive/ nonproductive use •Assess underutilized land areas •Assess over burdened land areas due to Fake/non confirming land use slum household ownerships, Congestion, Resource pollution/degradation	General Information/Slum census data, Spatial Data Mathematical Models	•Appropriate development strategy guided by area under slum, Pop density, Potential property rights, property values, and the physical attributes of existing slums •Clearance of fake slum settlements to discourage property capturing by land mafias •Relocation of slums settled on non confirming land use provided change in land use is possible without pressure on natural resources
2	**Quality of Built Environment** Housing Typology and Condition Water Supply, Sanitation, Garbage Disposal Electricity, Fuel Used, Streets	•Assess condition of basic and infrastructural services in slums	•Slum census data •Physical Survey of slums •Satisfaction Survey	•Provision of environmental infrastructure services to stop disposing off effluents directly in/on water/land •In house-capacity building at slum level for service delivery mechanism •Provision of cleaner fuel alternatives on subsidized rates to reduce dependency on bio-fuel and improve air quality •Maintained street of sufficient width with street lights in working conditions to improve safety and security
	Slum Parameters: Socio-Economical	**Assess Socio-Economic Environment**		
1	**Social Status** Education, Occupation Equality, Social Network Cultural Ethos, Neighborhood Violence, Crime	•Assess status of Social Environment	•Household Questionnaire •Focused group discussions	•Community-based strategies •Community development through softer interventions e.g. Skill trainings •Formation of neighborhood groups, Slum dwellers cooperatives, Community-owned enterprises, Community based organizations •Strengthening of social and economic services •Economic and technical assistance
2	**Status of Living** Congestion Security of Tenure Vulnerability to diseases Vulnerability to risks and hazards	•Assess status of Living Environment	•Household Questionnaire •Focused group discussions	•Alternatives of Tenure rights/ Tenure legalisation/ Housing options •Health and Hygiene Awareness Programs •Provision of sustainable environmental services •Preventive and mitigative measures to deal with risks and hazards e.g. relocation of slums settled on/near hazardous sites
3	**Incidence of Poverty** Household Income APL/BPL Status Per Capita Consumption Expenditure Accessibility to Savings/ Holdings	•Identify Degree of Poverty and affordability to formal housing	•Household Questionnaire	•Poverty reduction initiatives e.g. skilled training campaign, literacy campaign, economic opportunities etc. •Accommodate the lowest-income households to afford outright ownership through: •Innovative forms of collective tenure

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	of land, consumer or producer durables			• Multiplicity of options • Microfinance opportunities • Sustainable, innovative and flexible funding/ loan options to make housing projects more viable
4	*Welfare* Health facilities Educational Institutions Community welfare facilities NGOs and other voluntary organizations	• Identify status of Welfare Services provision	• Focused group discussions	• Awareness campaigns in slums about welfare schemes for urban poor • Strengthening of welfare facilities
5	*Leisure* Time spent on non-worthy works/ leisure activities Accessibility to Recreational/ Public Spaces	Time and space for recreation/relaxation	• Observations • Satisfaction survey	• Provision of neighborhood public spaces within slums • Facilitation of environmental/ welfare services in such a way that cut the time of travel as well as waiting in queues to avail the services by urban poor
	Slum Parameter: Inclusive	**Identify degree of exclusion**		
1	*Inclusion* Awareness Communication Community Mobility/ Political voice Job opportunities Transport Roads network	• Identify existing level of inclusion socially, economically, environmentally, politically, and in service/infrastructure provisions • Identify willingness, choice, and preferences of slum dwellers	• Obervations • Focused Group Discussions • Informal Interviews • Suggestion boxes at accessible locations • Workshops • Presentations / Models	• Inclusion of slum settlements into intra city infrastructure service provisions in integrated way • Slum dwellers get informed about beneficiary schemes for them • Appropriate consideration of willingness, choice, and preferences of slum dwellers • Partnership concept for slum upgradation between Urban Local Body, NGOs, Community based organisations (CBOs) and the community • Improved opportunities to participate in decision making , planning, designing, and managing slum redevelopment project • If relocation or rehabilitation at far off locations from city centres is unavoidable then the affected group may be provided with public transport facility with subsidised travelling cards to optimise the externalities
	Planning and Administration: City Parameters	**Identify preventive measures in Policy, Planning / Designing**		
1	*Plans* Perspective Plans, Five Year Plans, Master Plan	• Understand Long term / Medium terms targets	• Plan Documents	Use of Perspective Plans, Five Year Plans, Master Plan as guide for City Development Plan for Slum Free Cities
2	*Policies/ Programs* Urban Development Slum Redevelopment Housing and Poverty Alleviation Environment Policy	• Identify impact of Provisions / prohibitions under Policies/ Programs for redevelopment of Slum • Identify unfavorable policies leading to adverse impact on success of slum redevelopment projects	• Research studies/Reports /cases related to subject area • EIA	• Policies/programs should be rooted to Five Year Plans formulated in integrated way so that implications of one Policies/ programs would not affect negatively on another. • Amendments in unfavorable Policies • Mitigative measures in programs for adverse impacts • Inclusive Socio-economic Planning and Policy
3	*Projects* Basic Infrastructure Housing/Slum Redevelopment Developmental Infrastructure Transport	• Identify externalities to be arise due to project implementation • Keep check on environmental compliance of a project at regular interval	• Relevant Detailed Project Reports (DPRs) • EIA • Environmental Audits	• Assure implementation of Environment Management Plan for projects to minimize externalities • Integrated project development with intra city equality in service provisions • Road networks and public transport facilities upto redeveloped/

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				resettled slum locations
4	**Acts, Laws, Rules and Regulations** Slum Redevelopment Development Control Special Area Development Transfer Development Rights Patta (Lease) Environment Protection Right to Information Right to Education	•Provisions/Limitations/ Restrictions under Acts, Laws, Rules and Regulations for Slum redevelopment •Identify gaps in Acts, Laws, Rules and Regulations •Identify unfavorable Acts, Rules, and Regulations leading to adverse impact on success of slums redevelopment	•Acts, Laws, Rules and Regulations documents •Existing Research studies/Reports /cases related to subject area	•Compliance to provisions made in Acts, Laws, Rules and Regulations for Slum redevelopment •Amendments in Acts, Laws, Rules and Regulations where gaps identified •Deciding new regulations to make redevelopment projects viable and successful in terms of FAR, land use, density, standards, etc., keeping environment and the beneficiaries' preferences at its heart
5	**Urban Governance** Implementation Management Monitoring	•Identify city's managerial capacities •Identify gaps in maintaining records, service provisions and delivery, and maintenance mechanism	•ESR •Performance Measurement (PM) Systems for Urban Local Bodies	•Interdepartmental co-ordination and information dissemination •Use of Environmental Management Information System •Use of LIS to Update land records to utilize it efficiently for residential development •Preparation and updation of slum data to plan for real time solutions •Consistency in the implementation of policy solutions unaffected by frequent changes in urban government •Transparency in the process of distributing and allocating titles of land or houses. •Decentralization of housing provisions for urban poor with sound coordination among various agencies to cover the entire sphere of needs. •Service provision in PPP mode •Sustainability measures for redeveloped areas •Strict actions against identified artificial / patronage slums •Environment Management System •Environmental Management Plan

CONCLUSION

Environment and urbanization are the two basic attributes of urban environment. Famous quote "urbanization of poverty" manifested by slums asks for sustainable and equitable urban environment. Sustainable urban environment could be maintained if the future scope and areas of development of cities could be limited within their carrying capacity along with the measures to protect and enhance city's natural environmental features. This could be achieved through integrated development at regional level with multi-centric approach to prevent city to be overloaded. Symbiotic and gradual up-scaling of peri-urban areas with provision of infrastructure, services and facilities, education, and employment opportunities are required to be developed in decentralized manner.

An approach that could aim slum free city must have triple action strategy to prevent formation of slums, expansion of slums, and redevelopment of existing slums simultaneously. Beforehand knowledge of pressures contributing to genesis and expansion of slums; factors responsible for degradation of existing slums and perception of slum dwellers about the redevelopment options in a particular urban environment will guide to formulate an appropriate strategy.

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First and foremost demand for the slum free city planning is to have in-depth, accurate, and current information on slums and land records. Use of technological tools such as LIS and GIS not only help to update the records but also to utilize it efficiently for residential development and to track the slum incidences. Location aspect of the slums greatly influences the redevelopment approach, it may vary city to city or within a city itself hence slums are to be analyzed with reference to the city profile. ESR is most effective analysis tool, if made mandatory for each urban local body to update and maintain yearly environmental status records. Anticipated direction and magnitude of spatial growth of the city through predictions based on the past trends and future prospects guide to formulate appropriate strategies.

While identification of needs for slum redevelopment requires bottom–up approach, it's planning and administration needs top-down approach. Perspective Plans, Policy Plans, and long term Spatial Development Plans must be designed and followed as guide for City Development Plans for Slum Free city planning. Integrated planning should start from policy plans and should be reflected in programs/ projects thus eliminating negative impacts on one another. SEA should be carried out for policies, plans and programs before implementation to avoid adverse impacts of them. Policies and acts those have proven unfavorable to urban poor are needed to be amended. EIA of slum redevelopment project considering all possible alternatives help in selecting appropriate strategy and prioritizing issues.

Decentralized delegation of powers is essential at program and project implementation level that should filter up to representatives from beneficiaries. Alternatives of tenure arrangements e.g. rental rooms, dormitories, transit housing, land-lease etc.; and housing options of varying typology and affordability at strategic locations integrated to city level infrastructure and services could improve accessibility of urban poor to formal housing.

Imperative to the above is to have understanding of capabilities, choices, and willingness of slum dwellers and to create an amenable and amicable environment for the urban poor where they could put up their choices and pursue for their betterment. Community based strategies strengthened with support of CBOs and NGOs, have played and could play greater role in inclusion of the deprived section of society by making them aware of what they are lacking, facilitating them economic opportunities and uniting them to take up challenges. Above all a united and legitimate endeavor of political power and governance to improve the quality of life of urban poor can only change the forthcoming threat of "cities of slums".

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