Review Paper

Slum Redevelopment Strategy: A Way forward to Urban Environment Management through Inclusive Approach

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Abstract

Urban areas are extremely complicated environmental settings, where health and well-being of an individual and population govern by a large number of bio-physical, socio-economical, and inclusive aspects. Although poverty and slums are the prime issues under UN-HABITAT agenda of environmental sustainability, slums, the inevitable part of urban environment, have not accounted for inclusive city planning. Developing nations, where about 60 % of world slum population resides, are increasingly under pressure to uplift the urban poor, particularly slum dwellers. The paper focuses on prevailing approaches to tackle the problem of slums and their impact on environment and well-being. Being leading developing nation in pro-poor initiatives, the paper attempts to investigate into Indian approaches about slums and concludes upon measures to be incorporated in slum redevelopment strategies for inclusive urban planning resulting in overall urban environment improvement.

Keywords: Inclusive approach, slum redevelopment strategies, urban environment, urban poor, well-being.

Introduction

Urban areas are extremely complicated environmental settings, where health and well-being of an individual and population govern by a large number of bio-physical, socio-economical, and inclusive aspects. Featuring speedy growth and development, the urban areas of developing nations are confronting with burgeoning population. Urban environment is increasingly under pressure with the shortage in housing provision. A significant urban population resides in slums. Unsafe, unsecure, and unsanitary living conditions; lack of basic services; and exclusion from participation in developmental process continue to worsen the health and economic productivity of urban poor who could not afford formal housing. These informal settlers or slum dwellers are both medium and sufferer of environmental degradation. Inevitable parts of the cities as well as urban environment, the slums are one of the major challenges for urban environment planning and management. These vulnerable entities are anthropogenic environmental problem for the city in general and specifically for its inhabitants.

UN ESCAP's Issue paper[1] on "urban environment management in Asia and the Pacific" highlights the need of inclusive approach for urban environment improvement stating that the environmental management approaches are often too bio-physical in nature and also need to address equity, poverty or economic considerations, social benefits, and cultural values with integrity. Socially, cities should be "cities for all" with strong programs for social inclusion. Equity considerations are needed to balance disproportionate impact of environmental risks particularly on vulnerable group that living in slums. The challenge is to shift attention from simply "caring for the environment" into "sharing for the environment", as the Rio Summit noted in 1992.

Slum Environment Improvement, Well-Being, and Inclusion

As urban areas govern by a number of factors that impact upon urban population, likewise slum environment is an outcome of combined impact of all the factors that effect on well-being of slum dwellers. But all the factors do not contribute equally to impact upon. It is general understanding that factors affecting physical environment e.g. housing, water supply and sanitation services etc play most important role in improving slum environment followed by other factors such as, tenure security, slum density, education and occupation etc. As supported by Dhavse[2]: …..adequate housing is critical to bring about a positive transformation in lives of the poor in urban areas and Shelter Associate, a Pune based NGO: …..improving sanitation facilities and services in the slums will not only improve health conditions but will also be an entry point for other interventions that will lead to an overall enhancement in the quality of life.

Contrasting the above it is irony that: …..If Indian urban poverty in all its dimensions were capable of being addressed by simple interventions then there would be no urban poverty problem in the world. It is also salient to note that almost no commentator in North America or Europe would seriously entertain the idea that urban poverty could be reduced through a primarily infrastructure-led intervention[3].

However, as opined by Amartya Sen[4] well-being can be measured by assessing people's freedom and choices; hence assessment of up-gradation in bio-physical environment cannot be a measure of overall well-being. Paradoxically whenever an evaluation of past schemes or programmes gets done or whenever a new scheme or programme gets launched, it is in general practice that assessment of each slum is done on the scale of target achieved or funds used and not on the improvement in well-being through actual benefits availed by targeted group. Whereas well-being that sometimes measured as Happiness Index, is also directly associated with willingness, choices, and participation that inculcate a feeling of ownership in beneficiary.

Well-being cannot be improved without social inclusion. Social inclusion is based on the belief that we all fare better when no one is left to fall too far behind and the economy works for everyone. Social inclusion simultaneously incorporates multiple dimensions of well-being. It is achieved when all have the opportunity and resources necessary to participate fully in economic, social, and cultural activities which are considered the societal norm[5].

A socially inclusive society is defined as one where all people feel valued, their differences are respected, and their basic needs are met so they can live in dignity[6]. Social inclusion is ensuring the marginalised and those living in poverty have greater participation in decision making which affects their lives, allowing them to improve their living standards and their overall well-being[7].

Approaches to tackle the problem of Slums

Poverty can contribute to social exclusion and isolation. Baum's study[8] proves that levels of participation in social and civic activities were significantly influenced by socio-economic status with a relative lack of involvement of people with low income and education levels. Researches establish social inclusion as a key determinant of well-being. Thus to make slum redevelopment strategy successful inclusive approach is necessary that consequently improve the well-being and finally governs the sustainability of slum environment improvement initiatives.

Almost all the major cities of the developing regions are combating against the issue of slums. In many cities over 70% of the urban population resides in these slums. Three distinctive approaches to tackle the problem of slums have been seen till recent however; slums have not accounted for inclusive city planning and have remained under-privileged.

Punitive Actions: Punitive approaches involve eviction of slum dweller often forcefully; and sometimes relocation within city on another site but most of the time at outskirts of the city without any assistance. Punitive approach mainly focused on demolishing the informal settlements and clearing the land mostly without any substitute for its inhabitants. Forceful

eviction of the slum dwellers from their settlements had been a common action in most of the countries till very recent. In fact this approach is still prevailing in many countries. Millions of poor people, or squatters, have been evicted until late 1980s around the world in the name of Urban Renewal Projects, most of them (tenants) without a share in any benefit. Shady part of it was that these projects directly benefited the developers as against poor tenants. However, excluding the already excluded poor from developmental opportunities aggravates the problem.
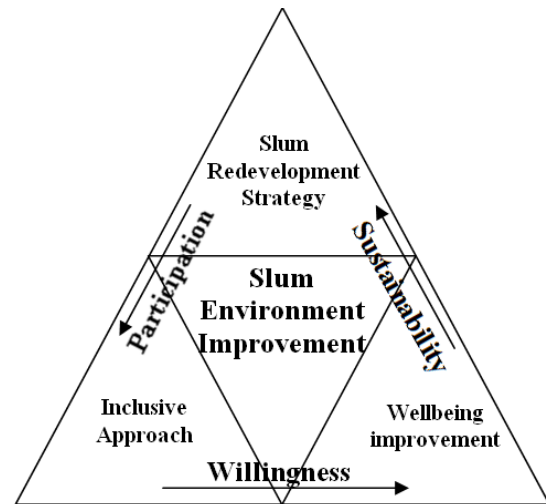

Figure-1
Aspects of Sustainable Slum Environment Improvement

Curative Actions: Adaptive or Curative approaches involve upgrading the level of physical, social, and economic urban services as well as land and tenure security in slums. Up-gradation in physical services include improvements of drainage, footpaths and streets including street lights for security and night activity; and sewage and solid waste collection services. These services have its positive impact on health and environment. Provision of education, health, recreation, community and other facilities under social services enhances economic growth, safety and security against social crimes, and the awareness among slum dwellers. Economic services include loans for house construction; facilitation of training and placements; and technical support and credits for self employment and establishment of cottage industries. Tenure security motivates slum dwellers for up-gradation of housing and services and contributes to avail economic opportunities. During 1970s, for a variety of reasons relating to equity and practical considerations, slums began to be viewed as "housing solutions". Legislation and policy were developed to provide civic amenities in slums, and it began to be recognized that when slums were to be demolished, some form of resettlement was needed[9]. This demarcated a clear shift from clearance to more supportive policies for slums.

Some countries have effectively abated slum growth by expending considerable amount on poverty reduction initiatives. However many of the efforts to improve the quality of life of

slum dwellers under curative approach lasted with development of infrastructure alone without having any consultation with inhabitants that had never improved the well-being of slum dwellers in a sustainable way.

Preventive Actions: Preventive or proactive measures provide opportunities to urban poor and enables them to find affordable housing solutions rather than to be pushed to settle in slums. A proactive approach also greatly enhances the capacity of cities to fulfil the needs of the newly migrated population. It is often comparatively more effective and easy to implement than conventional measures. However, most of the planning approaches have missed the proactive approach. And unfortunately, the proved saying of "prevention is better than cure" is still not adopted by international development community; as claimed by Barjor Mehta and Arish Dastur[10]: ......that strongly reflected in the lack of published research and literature, and also, disappointingly, in the Millennium Development Goals which focus only on improving the lives of existing slum dwellers.

Preventive or proactive approach that could attack on formation of slums is still in its toddler stage. There are few countries that have initialized to take preventive actions. Some low or middle-income countries including Brazil, Colombia, Indonesia, Philippines, Sri Lanka, and South Africa have managed to control genesis of slum by predicting and planning for increasing urban population by improving urban poor's access to services through employment generating initiatives; affordable housing provisions; and by implementing pro-poor reforms and policies[11].

Indian Scenario

India is the second highest populated nation in the world and forecasted to be most populated till 2025. Approximately 31 % of population of India resides in urban areas[12] and with 70% of expected urban population growth during 2000-2050 it will be the major contributor in expected urban population increment globally[13]. However, still inhabiting about 17% of the urban population in slums, India is the most successful country in slum improvement initiatives after China, where inclusive planning for slum redevelopment marks a milestone shift towards a sustainable improvement in the lives of the slum dwellers.

Fast pace of urbanization in post-independence India resulted in increased migration of rural and peri-urban population to cities and towns in search of jobs. Multiplying to it the natural population growth gradually affected the ability of city managers to cope up with incremental slum population. Eventually increase in absolute number of slum population suggests that past pro-poor initiatives had been lacking somewhere and could not contribute to restrain slum population growth.

Indian Approach about Slums: As an agrarian economy government of India had never offset poor, but initially the public perception of slum dwellers in government, professional and media circles was not more than a nuisance. The contribution of slum dwellers to the city's economy remained unacknowledged. The slums were seen as refuse of the cities and cleared off very often or thrown out at fringe areas of the cities. In maps they were not accounted for planning and conventionally in most Indian city's Master Plans slums were ear-marked as 'vacant land'. Developmental facilities were planned without consideration of existing informal habitats[14] and lacked in incorporation of provisions for providing necessary housing and supporting services for informal sector[15]. On the other hand focus was to provide subsidized housing for poor through schemes like Subsidized Industrial Housing Scheme (SIHS) 1952; EWS Housing Scheme; LIG Housing Scheme (LIGHS) 1954.

Gradually the slums were accepted as the outcome of poverty hence the inhabitants of the slums were rehabilitated but at far off places to the original locations, generally at outskirts of the city. Slum Areas Improvement and Clearance Programme (SAIC), 1956 was one of such programmes. SAIC was enacted to acquire and develop land encroached by slums in order to make available building sites in sufficient numbers. During the 1950s and 1970s, many of the state governments sought to demolish slums and clear land. In 1970s programmes like the slum rehabilitation programme executed on a large scale, relocating people to remote corners outside the city and disrupting the lives and livelihoods of the slum dwellers. These projects proceeded to cause social disturbance in the slum communities.

Concurrent with SAIC, Maharashtra state government's effort to prevent a further proliferation of squatter settlements enacted Maharashtra Vacant Lands Act 1975. Under the act all lands encroached by squatters considered as vacant; all slums covered by the act as temporary and could be removed; police could be mobilised for eviction to clear slums without providing any alternative accommodation. Squatters had to pay 'compensation' for unauthorised occupation of land. Implementation of this act resulted in number of demolitions in different parts of the Mumbai[16].

The fifth Five Year Plan of India was the one in which physical improvement of urban slums considered as a basic need and identified as Environmental Improvement in Urban Slums (EIUS) 1972-73. EIUS through Integrated Urban Development Programme (IUDP) was the first one to acknowledged slums as a habitat of urban poor that needs special attention for environmental improvement. Under this programme physical improvement of notified urban slums was carried out through infrastructure service provisions. In line with this programme many initiatives for betterment of the lives of slum dwellers had been taken-up subsequently till early 25th century through providing physical amenities, community infrastructure, and

shelter with main focus on area-up-gradation. Noteworthy are Integrated Low Cost Sanitation Scheme (ILCSS) 1981, Urban Basic Services Scheme (UBSS) 1986, Urban Basic Services for the poor (UBSP) 1990, National Slum Development Programme1996, Valmiki Ambedkar Awas Yojana (VAMBAY) 2001 and many more slum rehabilitation and upgradation programmes. Although having a number of schemes for urban poor lack of inclusive planning, and incapability of putting them in right order and place resulted in failure of most of the schemes.

With the aim to achieve national targets against United Nations

Millennium Development Goals-2000 India launched a number of schemes for betterment of slum dwellers. Basic Services to Urban Poor (BSUP)-a sub-mission of Jawahar Lal Nehru National Urban Renewal Mission (JNNURM), 2005 has been a major shift from traditional slum improvement approach. JNNURM-has contributed significantly to achieve the objective. The focus was enlarged to security of tenure, affordability of housing, and social security along with provision of water, sanitation, health, and education facility. It is the first time when beneficiaries are involved as an active stakeholder of the programme.

Table-1
Programmes and level of Integration/Inclusion

Programmes	Aim/ Objectives	Level of Integration/Inclusion
Subsidized Industrial Housing Scheme, 1952	Poverty elimination, Housing for industrial workers; Provision of loans	Choice between different types of accommodation
EWS Housing Scheme	Provision of Housing and loans	Consideration of paying capacity of the people, facilitation of housing activity for income generation
LIG Housing Scheme (LIGHS), 1954	Provision of Housing and loans	Nil
Slum Areas Improvement and Clearance Programme (SAIC), 1956	Acquisition and development of land in order to make available building sites in sufficient numbers	Nil
Site and Services Scheme (S & S), 1960	Deployment of surplus unemployed labour to the serviced land and creating additional housing capital in the country	Employment opportunities
Environmental Improvement of Urban Slums (EIUS) 1972-73	Physical improvement of all notified slums in cities with a population of .8 million and above	Nil
Integrated Development of Small and Medium Towns, 1979	To set up infrastructure and facilities for Small and Medium towns those are capable of generating economic growth and employment to reduce migration from rural areas to larger cities; Strengthening municipalities through promotion of resource generating schemes	Civic services Sanitation
EWS Housing Scheme (EWSHS), 1980	Provision of houses and plots at cost price; facility of long term construction and repair loans at concessional rates of interest	Nil
Integrated Low Cost Sanitation Scheme (ILCSS) 1981	Provision of latrines to prevent open defecation in order to eliminate manual scavenging; Provide alternative employment to the liberated scavengers	Employment
Urban Basic Services Scheme (UBSS), 1986	Provision for subsidized housing for the poor and acquisition and development of land; Improving the living standard of urban low-income households, particularly women and children through the provision of sanitation and social services in slum areas	Sanitation, Social services
Urban Basic Services for the poor Programme (UBSP),1990/91	Provide social services and physical amenities	Community participation in identifying normative felt needs, prioritize them & play a major role in planning, implementing, maintaining services and monitoring progress

IDSMT 1995	Improving infrastructural facilities and helping in the creation of durable public assets in small and medium towns having potential to emerge as regional centres of economic growth and employment, thus discouraging people to migrate to bigger cities	Integrated infrastructural development
National Slum Development Programme, 1996	Uplift slums through housing, basic amenities and community infrastructure provision	Provision of community infrastructure and social amenities
Two Million Housing Programme(2MHP),1998-99	'Housing for all' emphasis on the needs of economically weaker sections and low income group categories	Nil
Valmiki Ambedkar Awas Yojana, (VAMBAY),2001	Providing subsidies to urban slum dwellers living below poverty line and belong to socially disadvantaged group for construction of dwelling units and sanitation units	Nil
Basic Services for Urban Poor Programme, (BSUP), 2005 under JNNURM	Focused attention to integrated development; Provision of basic services to urban poor i.e. security of tenure, affordable housing, water, sanitation, health, education & social security	Provision of housing near place of occupation, utilities with emphasis on universal access to urban poor; Beneficiaries' involvement as an active stakeholder of the programme
Urban infrastructure Development Scheme for Small & Medium Towns (UIDSSMT), 2005 under JNNURM	Improve infrastructural facilities and help create durable public assets and quality oriented services in cities & towns; Enhance public-private-partnership in infrastructural development; Promote planned integrated development of towns and cities	Community participation
Integrated Housing and Slum development programme (IHSDP), 2005 under JNNURM	Holistic slum development with a healthy and enabling urban environment	Stakeholders perception for redevelopment strategy; Ensured beneficiaries participation in provisions of community toilets; In case of slum relocation: connectivity to major road networks, major public transport to work centres, and other trunk services to be in close proximity
Rajiv Awas Yojna (RAY), 2011	Integrated development of all existing notified and non-notified slums; Bringing existing slums within the formal system and enabling them to avail of the same level of basic amenities as the rest of the town; Redressing the failures of the formal system that lie behind the creation of slums; Tackling the shortages of urban land and housing that keep shelter out of reach of the urban poor.	Inclusive and integrated approach; Housing in partnership; Slum specific solutions; Multiple choices and models for housing; Involvement of community at every stage from pre-survey activities to surveying, planning, modelling, designing, implementation, and monitoring

Source: Compiled from various sources

Recently launched Rajiv Awas Yojna (RAY) 2011 is unique in many ways. The Slum redevelopment approach employed here is a milestone shift towards bridging the gap of exclusion of slum dwellers in various aspects and at various phases of the slum redevelopment programme; and empowering them to have basic infrastructure services at par with and integrated to the city. The beneficiaries' perception, their aspirations, willingness and satisfaction levels, and capacity are being equally weighted to formulate redevelopment strategies. Ultimate realization is that the efforts will be sustainable only if the "well-being-as a whole" of the slum inhabitants could be improved rather to intervene in individual sector of improvement.

Slum Dwellers' Perception of Well-being: Perceptions of slum dwellers regarding their living environment and their future prospects differ variably by age, occupation, and existing living environment. A study by R. Gill suggests that most of the residents asked for, preferred slum life in city over rural life. Almost 60% felt that their houses were tolerable[17]. Slum dwellers also accepted the absence of traditional social safety

nets in today's slums. They greatly valued improving their situation and were very optimistic for their chances of upward social mobility. In spite of an atmosphere not conducive to study, irrespective of age, gender, wealth and educational attainment they expressed their high regard for education and foresee upward social mobility[18] for their children by educating their offspring as much as possible.

Studies[19,20] on slum dwellers perception in major cities of India i.e. Kolkata, Mumbai, reveals that in spite of poor conditions in slums majority of migrated slum dwellers identified themselves as urbanite and did not go back to their native place. Children were comfortable in slums since they born and brought up there and were accustomed to its environment, however they wished for their improved living environment. Aged people living in environmentally bad conditions were often very pessimistic for their future; for them poverty was a part of slum life and they accepted slum life as the only available option, although they felt slum conditions are socially comfortable and some hopes are still alive from government. People engaged in unfair occupations e.g. prostitution feel fortunate to have shelter within slum otherwise they would have died of starvation due to uncertain income; hence they look ahead to government to arrange some kind of social security[20]. People lived in slums like Dharavi, where economic opportunities are within slums itself and everything is conveniently available, in-spite of congestion and sanitation problems, had no issues about slums life. Their self confidence reflected in their next generation's attitude those were very optimistic for their future and were waiting for their area to be redeveloped[19].

Swaha Bhattacharya[21] through her study claims that, slum dwellers perceive physical environment as uncongenial but their priority need varies with duration of stay. Those whose duration of stay was above ten years gave emphasis on safety and security; on the contrary to those whose duration of stay was below ten years gave emphasis on physical environment.

Noteworthy Slum Redevelopment Projects: The noteworthy slum redevelopment projects of diverse nature i.e. infrastructure development, in-situ up-gradation, and rehabilitation /redevelopment are taken as desktop review to study the major issues, redevelopment approach, beneficiaries' role, and impacts of the project.

Case-1: Slum Networking Programme (SNP), Ahmedabad, Gujarat, India: The aim of Slum Networking project referred to as Parivartan was to integrate the slum dwellers with the main stream of the society and improve their quality of life. The objectives[22] of SNP were to improve the basic physical infrastructure within the slums and houses with participatory approach; to enhance the process of community development through community participation/ contribution and provide social services; to maintain the infrastructure provided, through NGOs, resident's association; and to promote environmental up-gradation in the city.

On the basis of inadequately served but with the possibility to provide the services, 47,300 household in 190 out of 710 slum pockets of Ahmedabad were selected by Ahmedabad Municipal Corporation (AMC)[22]. The physical services included were household level water supply, drainage and toilets, and slum level storm water drainage, paving of internal roads and street lighting. Main stakeholders of the project were the slum community, AMC and an NGO called SAATH.

All contributed towards implementation of this partnership project. AMC set apart its annual budgets for SNP in addition to funds under National Slum Development Programme, and financial support of HUDCO. Cost sharing of the physical infrastructure between AMC and the households participating in the project was about 80:20. SNP was carried out only in slums where all the households agreed to contribute for getting a package of infrastructure services. Community corpus per household remained with the Community Based Organisation (CBO) to use it for the minor maintenance works.

NGO played key role in motivating the slum dwellers to become a partner in the project through participation and cost sharing. It facilitated collection of savings from households' towards their share in the project cost and implementation of other social activities in the area. It was also involved in each stage of infrastructure provision works in slums. A Resident's Association was established to manage operation and maintenance in each settlement and the community contributions for part payments to AMC. SNP cell constituted of technical personnel and skill manpower was to check design, supervise implementation and monitor overall progress of the work professionally. Banking facility to the slum dwellers was provided by Self-Employed Women's Association (SEWA) Bank. It also mobilized savings and credit from the slum communities. Capacity building of the community was achieved through formation of Community Mobilisation Cell and Training. Setting up of duly registered neighbourhood groups with MHT and SAATH ensured committed and constant involvement of the slum dwellers in the programme.

Necessary amendments were made in layout plans prepared by AMC through sharing with the partners. Demand based innovations, like inclusion of individual toilets in the programme were introduced by the SNP Cell. A key innovation of slum networking is the use of existing natural slopes and drainage channels as a sewer system[23]. Health and hygiene interventions are carried out in all SNP slums that help families utilize health advisory and referral services to improve their quality of life[22].

SNP had sustained itself since its inception maintaining its partnership character. Monthly meetings of all partners, including the community were organized to review the progress of the work and to facilitate the implementation of the programme. Daily fix hours of the AMC officials are allocated for open interaction with community and partners. People were

assured by AMC in written against eviction for 10 years, if joined the scheme. The corporation had been regularly spending up to ten percent of funds from its own revenues towards improvement of services in the slums.

Impacts: The partnership concept for slum up-gradation between various stakeholders such as AMC, NGOs, CBOs, and the community worked well[22]. Being partners in the project provided slum dwellers greater authority to involve and respond. Community development brings about attitudinal changes in the slum residents. Slum dwellers contribution in the project cost proved that they do not want everything for free. Redevelopment interventions by AMC automatically motivated shelter upgrading by the slum residents. Having linked with the city level services slums transformed into colony or society through integration into the main stream and quality of life of the residents improved considerably. Value of houses in the settlements increased due infrastructure service provisions. SNP programme of Ahmedabad city portrayed practicability of Equity, Transparency, Accountability and Sustainability through strong and meaningful partnerships.

Case-2: Slum Upgrading Project (SUP), Pune, Maharastra, India: Yerwada ward was a slum-dominated locality. Some families had been living in Yerawada's slums for more than 50 years[24]. Congestion within and crowding outside the houses did not interfere in messy but lively atmosphere of slum life.

Seven dense slums of Yerwada, i.e. Bhat Wasti, Chandrama Nagar, Mother Teresa Nagar, Netaji Nagar, Sheela Salve Nagar, Wadar Wasti, and Yashwant Nagar had been selected to rehabilitate some 1,200 families under Slum Upgrading Project[25]. These slums housed people of varied cultures and socio-economic backgrounds in mixed housing typology of pucca, kutcha and dilapidated kutcha nature.

Yerwada Slum Upgrade project was a part of Central government's scheme of BSUP under the JNNURM. The stakeholders involved in the project included primarily the beneficiaries and Central and State government, local municipal body, local political leadership and NGOs. In-situ concept had been adopted to carry out the project. The concept was to renovate only kutcha houses in harmonisation with existing pucca houses of the slum[25]. Community's need identified by the alliance through house to house feedback on architectural models. The information collected from enumeration and socioeconomic surveys were visualized on maps, enabling beneficiaries and planners to identify scope and limitations in planning. Community workshops with architects' firm used three-dimensional models of the existing settlement to give residents perspective on their communities' space and relationships, street hierarchy, and density[26]. Makeover of complete slum had been planned in integrated way; streets were widened and open amenity/community spaces were created by reducing the depth of individual houses thus improving the overall physical bio-environment with greater openness,

penetration of natural light and air circulation.

Involvement of individuals for their own house planning provided opportunity to suggest options best suited to their requirements and it was tried to incorporate their needs into the design. A popular SDI tool of human scale house models made up of temporary and local materials used to let visualize the beneficiaries the planning and designing of actual structure that was to be built. Comments and suggestions were also welcomed from government and general public to make housing strategy more successful[26]. At the end of the process two designs options were finalized. The first, is a two-storey block which includes an outside toilet, bathroom and allows for a small veranda or porch area. While the second is a combined apartment style dwelling which, allows adjoining families or neighbours to share footprints[24]. A 25-square-meter (270-sq.-ft.), single-family structure included an in-house toilet and kitchen[26].

Housing subsidy had been provided where 90 % cost was funded by the government and remaining ten percent was borne by the beneficiary. Microloans helped residents secure the ten percent required contribution. For those who could not pay the down payment of one third of required contribution, Mahila Milan, a CBO offered construction jobs[26]. Residents cut costs through their involvement in unskilled works of construction[24].

Impacts: Scheme was welcomed with no oppose. Community becomes a legal "colony" receiving a lease of ninety-nine-years. Newly constructed houses blend with the old pucca houses with harmonic transformation of the whole slum[25]. A sense of safety and security is developed with pucca construction and proper sanitation facilities for new houses. Residents are now more optimistic and exited and thinking of decorating their houses.

Case-3: Dharavi Rehabilitation Project (DRP), Mumbai, Maharastra, India: Dharavi is the largest slum of India with a population somewhere between 0.7 to 1.0 million of over 18 million slum population of Mumbai. It is strategically located between two railway lines in the centre of Mumbai, covering almost 2.39 square kilometres[27]. However, at its genesis Dharavi was a peripheral swamp isolated from Mumbai, in proximity to slaughterhouse and leather tanneries. It is more than 300 years old slum and accommodates people belonging to all religions, castes, economic strata and occupation. Dharavi is a slum of complex nature. It is not just a shelter for the people residing their but also hosts a number of informal industries, including leather, paper, clothing, textiles, electronic and electrical items, automobile repairing, pottery, food production, shops & houses on rent, and recycling. However, many of these industries pollute the environment and are unsafe for workers, it comes in stark contrast with the most deprived areas of our country with 85% of people have a job[28].

Many houses have paid electricity; some have in-house water supply, one third of people have access to clean drinking water. Sewerage facility is poor; most of the residents do not have

toilets in their homes; open sewer lines are cause of spreading diseases and being a health hazard in the monsoon. There is only one toilet for every 1,440 people. There is a complete lack of privacy and hygiene; wages are low; working conditions are terrible[28].

Dharavi Rehabilitation Project aimed at rehabilitating existing households/establishments through in-situ redevelopment. Markandeya was under one of the pilot projects of selected twelve peripheral parts of Dharavi under Prime Minister's Grant Project (PMGP) 1988. It was predominantly residential in use with dense and haphazardly laid out small lots, mostly sized between 100 to 120 square feet (9-11sq.m). The houses were 12 to 14 feet (3.7-4.3m) high having a four to five feet (1.2-1.5m) high small loft for storage and sleeping[23].

Independent of the PMGP, as in case of other redevelopment projects at Dharavi, Markandeya project was implemented by a NGO and a cooperative of the slum dwellers. Cost of the project thus brought down by working independent and keeping the new project low-rise. Designs were modified a number of times to resolve the issues, objections and to incorporate the suggestions of the officials, NGO as well as the slum dwellers. Several negotiations took place between NGO and officials. Initially, project was planned as triple storied to accommodate all the existing 37 households in housing units proposed on two-third of the top floor, the rest was reserved for community terrace. Apart from attached bathrooms common external toilets were planned to increase the habitable area of units.

Right from the FAR to Built-up areas, community spaces, land development regulations, cost of construction, addition of more floors to accommodate residents of Rajendra Prasad Nagar, and the engagement of the construction company, each aspect was argued and negotiated by the NGO in the benefit of Markandeya's residents. In 1991 institutional body changed with shift in the redevelopment schemes from PMGP to Slum Redevelopment Committee (SRD) and then to Slum Redevelopment Authority in 1995 (SRA). Change in scheme resulted in changed rules and regulations as well as terms and conditions. Finally in October 1996, Markandeya project's SRD application was approved by the state government permitting five-story high structure with 180 units. Almost half of the beneficiaries paid extra for individual toilets. It took ten years after first redevelopment plan was prepared to complete the project in January 1998.

Impacts: Raised property values after selection of houses for reconstruction by the PMGP motivated the slum dwellers to accept reconstruction. Demand for redevelopment from slum dwellers was significantly large than predictions compared to the option of tenure security provisions. Contrary to expectations the beneficiaries preferred upper floors believing that it would be free from pollution, smell, noise, insects and jumbled-up street activities. They preferred medium-rise housing typology over neighbourhood spaces and amenities. Private internal toilets were opted by half of the households than shared ones, guided by convenience factor and real estate market values[29,30]. Houses for the beneficiaries were not merely a "shelter" but a "real estate" property.
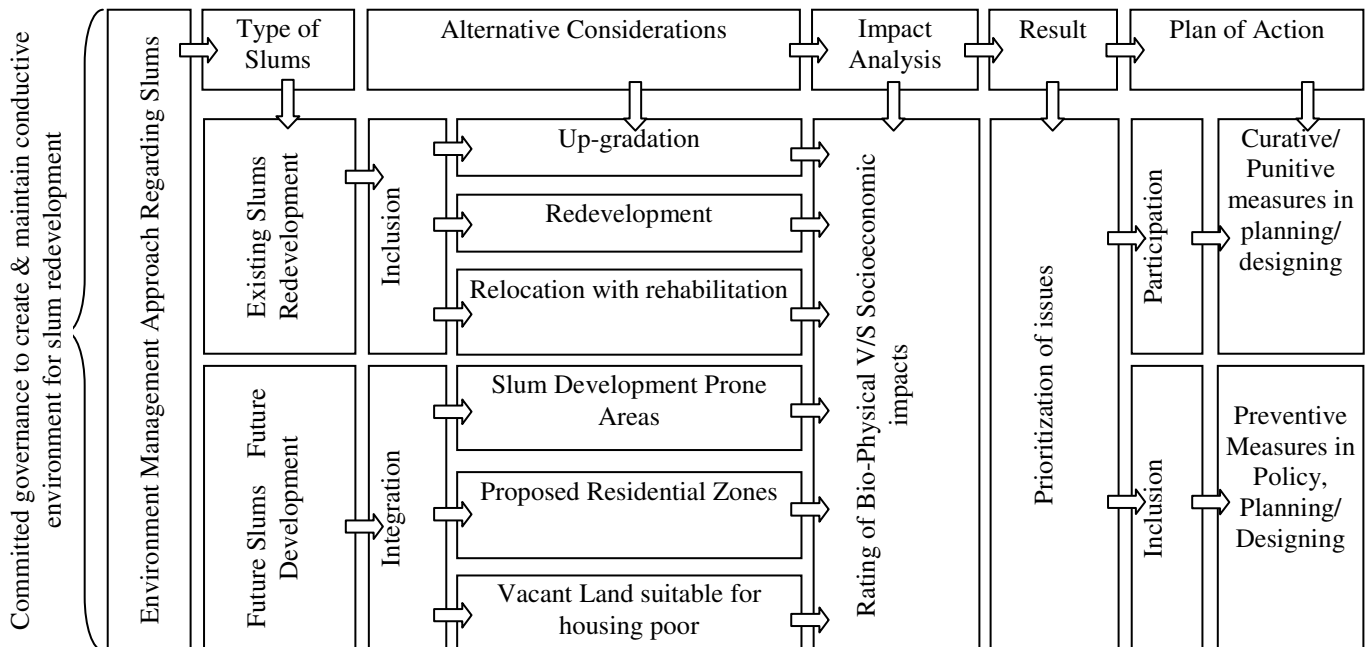

Figure-2
Environment Management Approach regarding Slums

Conclusion

Resorting to slums is the first and last affordable housing option for the urban poor hence needs diagnostic special attention. Most often we normally presume that slum dwellers are economically poor and they cannot contribute for betterment of their well-being; individual tenure legalization is the first and best possible intervention for a slum to be redeveled; they prefer low rise development and daily activity areas as community spaces to interact with; they are adapted to socio-cultural environment of slums and any developmental effort that makes changes in their socio-cultural environment could be discarded by them. Our understanding for slum dwellers willingness and choices if not contrary, differs variably from what reality is. Their preferences may vary case to case and we cannot stick to a uniform mindset for them while planning for a redevelopment project. Slum dwellers' perception of well-being is of high regard. There is an attitude change in slum dwellers. Hence opportunity should be given to them to make their own choices, multiplicity of options leads to more innovative outcomes rather than single dimensional strategy limit. If guided, slum dwellers cooperatives, the project partner are able to help resolve a number of issues right from tenure legalisation, amendments in regulations and standards to active participation in planning, designing, and negotiations.

Management of urban environment through redevelopment of slums should take an integrated, inclusive, and participatory approach that primarily needs understanding of capabilities, choices, and willingness of slum dwellers along with strong commitment of governance to create and maintain conductive environment. Management approach must consider location specific all the possible and innovative alternatives for slums redevelopment and future development. A comparative impact analysis between physical environment and socio-economical environment may guide in prioritization of issues that could lead to a sustainable plan of action through participatory and inclusive planning.

Essence is that, unless the well-being aspects are not included, how many interventions be there to improve the environment of urban slums, it will be like putting all the slums at uniform scale of measurement and the result would be biased decisions for interventions. Once the beneficiaries' perception is adjudged and participation is ensured, issue identification and prioritization for decision making will be more subjective as well as effective. Above all, integrity of governance for slum redevelopment surely led to sustainable environment management.

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