

Land Suitability Analysis for slum Redevelopment of Nashik city Maharashtra

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Abstract

Increasing urbanization is developing as the most pervasive and dominant challenge as well as opportunity facing our country. The fast pace of urbanization applies significant pressure on land, which indeed is a scarce natural resource pushing less privileged section of urban population in areas with inadequacy of infrastructure and amenities often termed as slums. Slums are often defined as, “buildings and areas that are environmentally and structurally deficient. A result of multiple deprivations such as; illegal land tenure, deficient environment and inadequate shelter and are the result of the gap between the demand and the legal and formal supply in the housing market”. The Nashik city has selected study area using Geoinformatics techniques with help of satellite image CARTOSAT AND LISS-IV IMAGE. The urban planning which directs the growth towards development has failed due to time interval and its limited human resource. The second important issue is scarcity of land, incompatible land use and sky improving land value. After the launching of most ambitious mission i.e. the Jawaharlal Nehru Urban Renewal Mission and thereby subsequent Rajeev Awas Yojna which is an indeed in attempt to achieve the Million Development Goal of slum free cities number of models are being developed for slum redevelopment, rehabilitation and renewal. The present paper attempts to identify the issues pertaining to land using the land suitability analysis for slum redevelopment. The result will be in the form of outline using land suitability analysis for slum redevelopment.

Keywords: Land, Land suitability analysis and Slum redevelopment.

Introduction:

Increasing urbanization is developing as the most pervasive and dominant challenge as well as opportunity facing our country¹. Urban population in India has developed from 78.9 million out of 1961 to 286 million of every 2001 and is evaluated to be multiplied in next 25 years². Urban cities and towns are focuses of agglomeration financial matters, speculations, innovation, advancement, monetary development and tertiary employments³. Their commitment to nations Gross Domestic Product is huge. They are stores of aptitudes capitals and information. They are the focuses of advancements and imagination. They are the generators of assets for the national and state trades. They are additionally the expectations of a great many transients from the rural hinterland and settlements .with development of the administration segment and flood of the information economy, the population pressure on urban areas will undoubtedly heighten¹⁸. They are progressively face the negative results of rapid growth of urbanization, for example, polarization of population on huge urban communities, high thickness ,slums and squatter settlements, intense lack of lodging and essential municipal civilities, degradation of environment condition, traffic jam, contamination, neediness, joblessness, wrongdoing and social turmoil.

An expected 25% of urban population despite everything subsists on livelihoods that are beneath the destitution line. 80% of their pitiful profits go to words nourishment and vitality, leaving almost no for meeting the expenses of living in an inexorably adapted society. most of them lives in slums and squatters settlements, in human conditions that deny the dignity,shelter,security and the privilege to essential municipal conveniences or social administrations, in a situations wherein harbors wrongdoing, sick wellbeing and sickness, habitually raise requests on their assets that suffocate them more profound into weakness and destitution. Urbanization joined by supported population development because of enormous

scope relocation from rustic regions to urban focuses prompts mushrooming slum settlements in all urban areas and towns in India. As urbanization develops and the portion of urban family units ascends in the following two decades from the present 28 % to half of the nation population, we may expect that slums will in general develop much quicker rates. This is a conclusion of urbanization in creating nations. Except if this chance is intentionally observed and remedial activity started early, it could prompt genuine devastating of the beneficial limits of developing quantities of individuals by the forswearing of fundamental administrations, haven and security, expanding imbalance and hindering the GDP capability of urban territories. Given the yield less development of urban population and the troublesome financial situations for poor people, the lodging issues will additionally intensify except if purposeful measures are at Slum and squatters are considered as issue regions for urban advancement on the planet¹³. In every single Indian city slums are poor and there is issue of value, inadequate lodging territories, which present threat to wellbeing and life of slum tenants. The nearness of slum as a major aspect of urban living space alludes to state of imperfect physical, social and monetary condition⁴

The phenomenon of slum has been viewed as a significant issue of urbanization. The phenomenon of slum is worldwide and pretty much every city has slum and with the development of urban population these days slums have made frenzy for city's improvement. It has been a significant issue for the town arranging thus the investigation of slums is important for the ecological change and improving the issues of urban regions for giving more pleasantries to the telling masses. Slums are regularly characterized as, "structures and territories that are ecologically and basically inadequate. A consequence of different hardships, for example, illicit land residency, lacking condition and deficient safe house and are the aftereffect of the hole between the interest and the lawful and formal stockpile in the lodging market"⁵). The slum Act of 1956 characterizes slums primarily as far as inadequate structure of lodging, packing, absence of ventilation, and zero or approach zero sanitation offices, all scheming to advance slum life, which challenges wellbeing and ethics⁴.

The geographer, town organizers and sociologists have made a few endeavors for outlining the remarkable qualities of urban slums in both creating and created nations. The present examination centers around the segment and financial parts of the slum occupants of Nashik city, in order to work new methodology for their advancement. made by state government every now and then. Anyway such endeavor has brought about discount incorporation of immense number of individuals from access to legitimately endorse settlements. In the greater part of the urban areas huge extent of slum inhabitant are living in unapproved settlement which open them to changeless frailty and furthermore denied them to get to formal credit and administrations. The leasehold framework was followed to practice an exacting authority over the utilization of land by came about change of plot illicitly and in the process the administration framework neglects to address the misfortune from move. Therefore the arrangement of land tenureship should be created inside social and legitimate framework to improve the correspondence and effectiveness of land market to all areas of population. Land for lodging the poor is in this manner turning into an unfavorable obstruction in the advancement confronting the developing urban areas while the improvement activities of numerous legislatures keep on concentrating on specialized, budgetary and authoritative parts of the lodging issue, neglecting to act conclusively ashore issues or intentionally staying away from or avoiding them at every possible opportunity¹.

As the slums are the result of wasteful arranging and deficient assets slums possess less favored areas in city. These areas are lower region, mucky land, nallahs and risky area in closeness to dirtying enterprises, railroad track and socially segregated zones. The slums are powerless against urban flood on account of the geographical conditions. The absence of administrations like legitimate street surface, storm water and waste water channel and insufficient arrangement of trash assortment prompts ground water, soil and air sully. Water logging because of stormy season, lacking sewer framework and defiled drinking water is the course cost of malady among the slum tenants. The development of slums is natural that is no characterized road design the natural that is design which isn't readable makes issue for development of rescue vehicle, fire unit and such vehicle during crisis. Appropriate recognizable proof of the lodging unit or the numbering gets hard

for distinguishing proof and different purposes. It has been seen that slum inhabitant liked to live in bunches of same ethnic gatherings. These empowered social attachment yet are unstable during social, racial and public clashes. For vocation these slum tenants living in gathering of ethnic groups are occupied with same nature of work and face the issue of downturn during slow time of year. Right now slum are genuinely, socially and financially hazardous and defenseless⁴

Study area:

Nashik city is situated in the northwest side of Maharashtra state, on between 19° 54'40" North latitude to 20° 05'08" North latitude and between 73° 41'08" East longitude to 73° 54'22" East longitude⁶. It is associated by street to Mumbai (185 kms.) and to Pune (220kms.). Rail availability is through the Central railroad, with direct association with Mumbai. It is a significant railroad station of Central Railway having a height of 565 meters from mean sea level Air connect is with Mumbai, however the air administration isn't steady and a legitimate Airport doesn't exist. Nashik city is advantageously separated into 61 Prabhag for regulatory purposes⁷. The city has a population of the Nashik city according to evaluation. 2011 is 14, 86,053⁸. Nashik Municipal Corporation has been established on seventh November 1982. whenever, 259.10 Sq. kms area. Nashik is the administrative headquarters of District and Division. It is famously known as the "Grape City" and for its twelve yearly 'Sinhasta Kumbh Mela', it is situated in the Western Ghats on the banks of the waterway Godavari, and gotten a focal point of fascination on account of its wonderful environment and cool and charming atmosphere¹¹. Nashik has its very own character because of its fanciful, chronicled, social and significance of cultural. The city, dynamic and dynamic on the modern, political, social and social fronts, has impacted the lives of numerous an extraordinary characters⁹. The Godavari River moves through the city from its source in the blessed spot of Tribakeshwar, cutting the city into two. Topographical nearness to Mumbai (Economic capital of India) and framing the brilliant triangle with Mumbai and Pune has quickened its development. The advancements of the previous two decades have totally changed this conventional journey community into an energetic present day city, and it is ready to turn into a city with worldwide connections. New Nashik has developed out of the fantasies, difficult work and venturesome soul of neighborhood and vagrant population¹⁰

Location map of study area

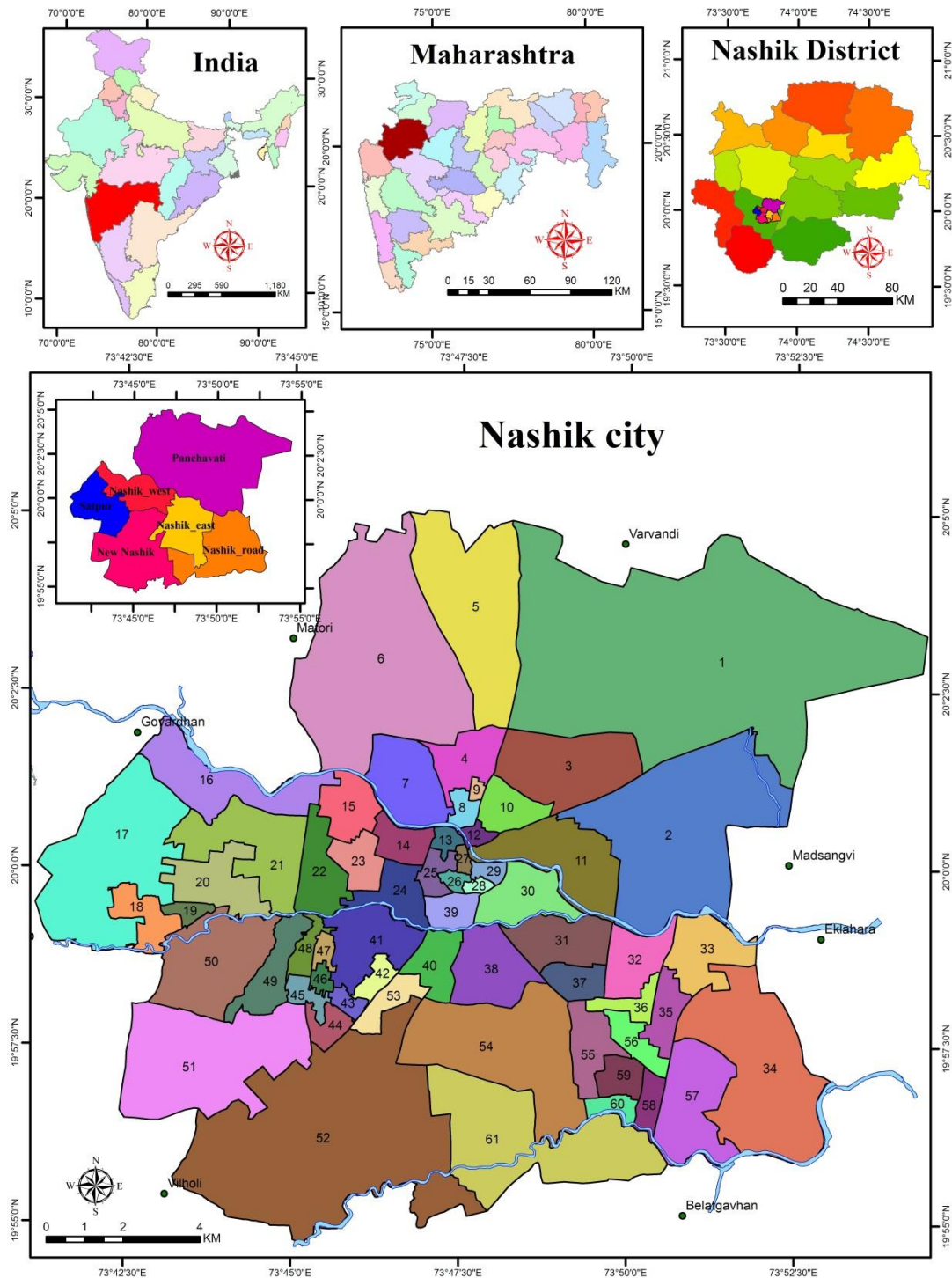


Fig no-1 Location map of study region (source: Author prepared)

- **Methodology:**

Methodology is one of the significant parts of analysis. Output or result of the analysis highly depends on the methodology used for data processing or analysis. To achieve the above objectives, following methodology will be adopted.

1. **Library work:-**Exhaustive literature survey of the topic of investigation is to be undertaken. Published literature and reports will be collected from various libraries, institutes, Govt. Departments etc. Besides, relevant literature will also be referred such as, books, bulletins, review etc. In addition, Internet will also be used to get update information in the research topic.
2. **Pre field phase:-**
 The 1:25000 scale base maps has prepared by using SOI toposheets
 Collection of different maps, Satellite image
 Preparation of different thematic layers
 Addition of non-spatial database
3. **Field work:**
 this phase indicates visit to the study area and its slums areas in different seasons, GPS surveys ,Instrumental surveys ,Photographs,Questionaries’ survey etc.
 Laboratory work- This included the digitization of various layers, preparation of maps and other GIS /RS techniques. Overlay Supervised classification Multicriteria analysis and Final layouts of different maps
 The data generated during the field and laboratory work will be synthesized, interpreted and are produced in this research work.

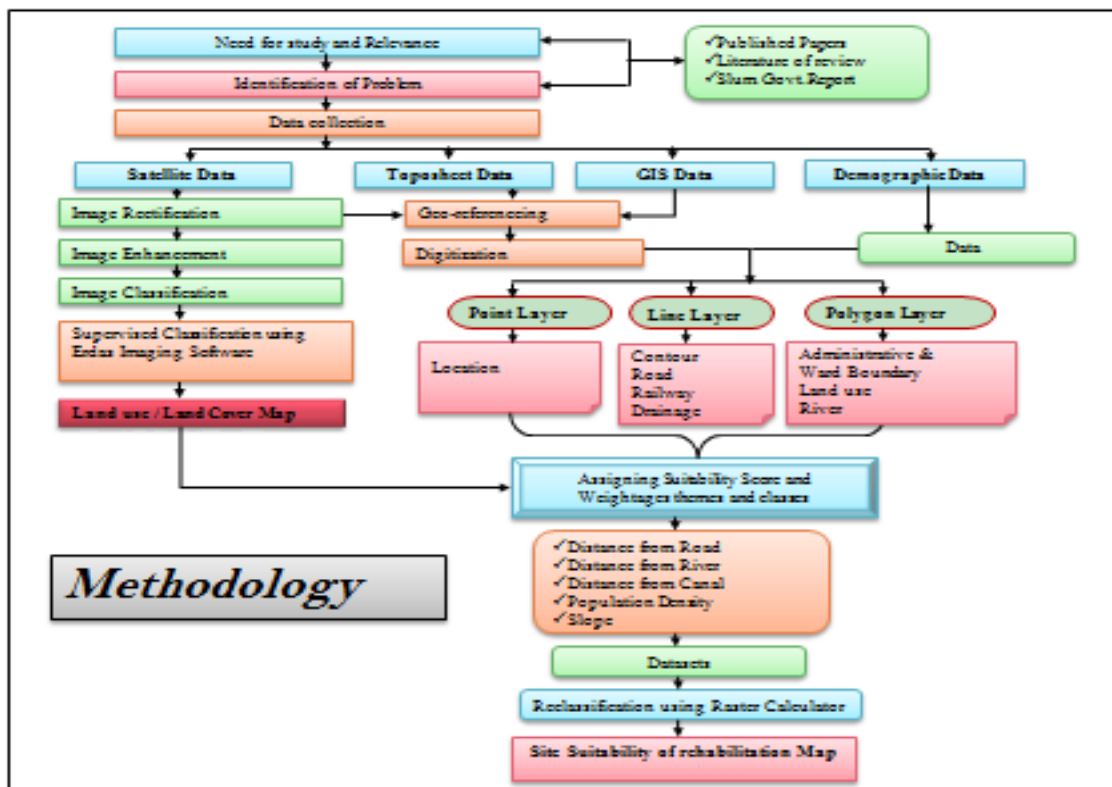


Fig.No:02 flowchart of methodology (Source: Author papered)

Definition of slum:

1. "Slum" is regularly used to depict casual settlements inside urban communities that have lacking lodging and terrible, hopeless living conditions¹².
2. Slums characterized as, "structures and zones that are earth and fundamentally lacking. A consequence of various hardships, for example, unlawful land residency, insufficient condition and deficient haven and are the aftereffect of the hole between the interest and the lawful and formal stock in the lodging market" ⁵.
3. The Encyclopedia Britannica Defines slum: Residential regions that are physically and socially weakened and in which good family life is outlandish. Terrible lodging is a significant record of slum conditions. By awful lodging is implied residences that have lacking light, air latrine and washing offices that are in awful fix, dump and inappropriately warmed that don't bear the cost of chance for family security that are liable to fire peril and that pack the land leaving no space for recreational use. Register general of India has received the accompanying definition: with the end goal of statistics of India,2001 the slum zones extensively establish of

All determined zones in a town or city informed as ' slum' by state/nearby Government and UT organization under any demonstration including a 'slum Act:

All zones perceived as slum by state/nearby Government and UT organization. Lodging and slum sheets, which may have not been officially told as slum under any demonstration.

A minimal region of in any event 300 populations or around 60-70 family units of ineffectively constructed blocked apartments, in unhygienic condition typically with deficient infra-structure and ailing in legitimate clean and drinking water offices.

The NSSO, with the end goal of overview in 1976-77 characterized slum as announced and undeclared slums. The announced slums were regions which territories which have been officially pronounced as slum by the individual regions, partnerships, neighborhood bodies or improvement specialists. The undeclared slums were characterized as ' as flying unit having twenty five or more katcha structures for the most part of brief nature or possessed by people with essentially no private toilet and insufficient open lavatory and water.

For the motivation behind the review in 1993 and 2002, NSSO received the meaning of slums as "a Slum is a minimal settlement with an assortment of ineffectively manufactured apartments, for the most part of brief nature, gathered together normally with insufficient clean and drinking water offices in unhygienic conditions. Such a territory, with the end goal of this review, was considered as" non-told slum" if at any rate 20 family units lived around there. Territories told as slums by the individual regions, enterprises, neighborhood bodies or improvement specialists are treated as " informed slums"

UN-HABITAT characterizes "A slum is a touching settlement where the occupants are described as having lacking lodging and essential administrations. A slum if regularly not perceived and tended to by the open specialists as a necessary or equivalent piece of the city.' Slum families as a gathering of people living under a similar rooftop that need at least one of the conditions recorded beneath:

- Insecure private status
- Inadequate access to safe water

- Inadequate access to sanitation and other foundation
- Poor structure nature of lodging
- Overcrowding

4. Definition of the "slum" as received by State Governments
5. The meaning of slum zone received by the state governments depends on slum demonstrations of the individual states dependent on lawful stipulations dissimilar to the definitions embraced by RGI and NSSO. The idea, observation and meaning of slums shift over the states, contingent upon their financial conditions however their physical qualities are practically comparative. Slums are generally a group of hutments with decrepit and weak structures having basic can offices, experiencing absence of fundamental civilities, lacking game plans for seepage and for transfer of strong waste and trash. There are errors between the parameters received by state Governments, RGI and NSSO. By and large the state laws accommodate a system to 'Informed or perceive slums however the stipulation with respect to the quantity of families in the meanings of slums, which is a piece of the enumeration and NSSO definitions, is missing in the definitions embraced by state laws which don't put limit on the quantity of family units to recognize a slum.
6. There is no meaning of "slum" in the Maharashtra slum territories (improvement, Clearance and redevelopments) Act, 1971 Anyway sec.2 (ga) characterizes "slum territory" as "Slum zone" signifies any zone announced in that capacity by the capable authority under sub area (1) of segment 4; According to the arrangements of the sub-segments (I) of segment 4 to proclaim a zone as slum zone, it must fulfill the accompanying conditions:
 7. Any territory is or might be a wellspring of peril to the wellbeing, security or comfort of general society of that region or of its neighborhood, by reason of the zone having deficient or no fundamental civilities or being insanitary, smudged, packed or something else.
 8. The structure in any zone, utilized or proposed to be utilized for human home are in any regard, unfit for human residence or by reasons of haggardness, stuffing broken course of action and plan of such structure, slenderness of defective game plan of roads, absence of ventilation, light or sanitation offices or any blend of these variables, hindering to the wellbeing, security or comfort of general society of that zone.
 9. To choose whether the structures mineral unfit with the end goal of human residence the accompanying conditions ought to be satisfied.
 - Repairs
 - Stability
 - Freedom from clammy
 - Natural light and air
 - Provision for water supply
 - Provision for waste and clean accommodations
 - Facilities for the transfer of waste water.
 - Slum Rehabilitation with regards to urban manageability:

Urban supportability characterized "Improving the personal satisfaction in a city, including biological, social, political, institutional, social and monetary segments without leaving a weight on the people in the future" (Urban21, 2000).

Sustainable Urban Development Association (SUDA) has characterized unfeasible urban improvement as "frequently it is urban spread. Spread is low-density rural improvement, as a rule comprising of subdivisions of confined and semi-detached, single-family houses, and dissipated low-density business/mechanical employments".

Meaning of slum has its foundations for the most part in decaying and unsatisfactory lodging and congestion, sanitation, destitution, are the character of the zone involved by the slum, and its area in the environmental setting inside the rambling city. Numerous appealing definitions have been detailed, demonstrating the need of exact, coherent and succinct definition, which may bolster the different components of the enormous brute. Geographers, humanist and town organizers to characterize slums and outline their remarkable attributes have made a few endeavors. There are number of terms by which slums are known in various nations. In India, they are known as Buslees in Kolkata, Jhuggis and Jhoupris in Delhi, Chawls in Mumbai, Ahtas in Kanpur, Cheris in Chennai, Keris in Banglore, Pettas in Andhra Pradesh and Zopadpatti in Maharashtra.²

The term slum has been long being used nearly since the eighteenth century when it was utilized as a term for filthy lodging in thickly populated areas of mechanical urban areas. John Robertson (1920) completely bolsters this and has remarked that a town slum might be fundamentally acceptable but then, from its obscured encompassing and its sound condition nonattendance of free air supply its sediment loaded environment, it might be one of the most un-entire a few residences. Substances and Helbert (1956) have characterized a slum, as a region of poor houses and needy individuals. It is a territory of change and wantonness, a confused zone involved by human cast offs, a catch just for the hoodlums for the deficient, and the crestfallen. In the equivalent, the United Nation has characterized, slum as "a structures, gathering of structures or territory portrayed by congestion, weakening unsanitary condition or nonattendance of offices or civilities which as a result of these conditions or just of them, imperil the wellbeing, security or ethics of its occupants or the network."

The slum Act of 1956 characterizes slums primarily as far as unsatisfactory structure of lodging, stuffing, absence of ventilation, and zero or approach zero sanitation offices, all scheming to advance slum life, which resists wellbeing and ethics. The meaning of a slum as a typical pointer of reality in given in the Oxford, University Dictionary (1955) as "a road, back street court and so on., arranged in a crowd locale of a town or city and is possessed by individuals of low salary classes or by poor. Some of these lanes and back streets framing a thickly populated neighborhood of a dingy and pathetic contract."

As per David R. Tracker (1968) who believed that, "Slum is in excess of a jam-packed structure; it is more than messy avenues, the dull individuals sitting on the stems, the screaming kids running here and there, the dreary young men having at the corners, the stunned addicts inclining toward. It is a lifestyle and it run on a perspective on future or is maybe turning away from it." To Dickinson (1960), the term slum hints an outrageous states of predicament where the lodging is so unfit as to establish a threat to the wellbeing on ethics¹⁴.

- **NATURE AND CHARACTERISTICS OF SLUMS:**

The slum is a worldwide urban phenomenon, and is cast into a stereotype image with a heavily negative bias as a 'rash' on city landscape, 'a blot on civilization', over-crowding, filth, sub-standard housing, drinking, vice, violence, apathy and poverty. A positive attitude is to recognize the slum as a 'component' of city evolution, an 'element of urban complex', as a 'transitional settlement' at that low level of survival, and to appreciate the contribution of the slum dwellers to the city's low wage

labour force and its gross product. The slum represents both physical and human adjustment to poverty, and in developing countries, depicts 'subsistence' urbanization.

There are various characteristic features of a slum, its appearance, economic status, overcrowding, congestion, health and sanitary conditions, morals, way of living attitudes, isolation and permanency. Although most definitions have pointed out that slum areas are punctuated by inadequate housing, insufficient structural and basic amenities, overcrowding and congestion, to a large extent however, it is a community in process, it is a way of living and moreover it is a subsystem in a large urban system which is characterized by attributes of poverty, insanitation, defiant behavior and social isolation and apathy. According to Rao(1998) three common points emerge from various attempts several scientists in defining a slum. First, slum refers to an area or a situation and does not constitute an isolated building. Secondly, it can be identified by a combination of physical attributes and not with reference to any single attribute. Thirdly, there is a considerable range of variation in regard to the manifestation of each one of the physical attributes¹⁶. The main physical attributes of slum area are substandard houses, high density and congestion, overcrowding, insanitary condition and clearance of garbage. While these attributes of physical conditions are universal when identifying a slum area. Slum dwelling signifies as a common phenomenon of degraded life of urban dwelling itself. A slum represents a micro-habitat unit within a large framework of urban built up space. The presence of a slum as a part of urban habitat refers to condition of defective physical, social and economic environment. It means physically poor quality sub-standard housing characterize slum areas which pose danger of health and life of slum dwellers. The socio-economic standard denotes an area of degenerated living "an abode of half starved, a place of poverty, wretchedness and vice, the house of racketeers and criminal" and so on.

- **Slum redevelopment:**

The term urban recharging and redevelopment has been utilized in various foundations in urban arranging. The term urban reestablishment is utilized in America as equivalent word to what is recovery in UK this alludes to enormous scope restoration of downtown and downtown. The term redevelopment is usually utilized in south Asia and it alludes to wrecking the outdated lodging stock with high tack, high raises assembling high thickness. In Indian setting, it is hard to receive both of the methodologies as Indian urban communities are worked in various layers of various period dissimilar to their western partner. In Indian urban areas slums are essential piece of urban texture independent of areas, slum can be in the internal center or on the fringe and some time the morphological investigation of city design reflects amalgamation of these patches with rest of the city. In such situation the circumstance is mind boggling for redeveloping the slum region.

When fundamentally inspected the arrangement intercession were made to battle issue of slums which, shows that the focal point of the majority of the slum restoration strategies was to give moderate lodging to the monetarily more vulnerable segment, to improve wellbeing and cleanliness in slums, to remember the administration land which is infringed by slums, to give residency rights and to forestall the future development of slums. In the period of financial progression and globalization it was acknowledged by national commission of urbanization that the urban communities are motors of monetary development. There is change in outlook in job of government from facilitator to supplier. In 2005 the starting of JNNURM and the Millennium Development Goal (MDG) of United Nations visualized that in coming 25 years the city will be without slum. So as to make city slum free the two pre essential are to annihilate the slums and to forestall the development of slums¹⁶.

- **Issues of slum redevelopment:**

The achievement of any endeavor to restore/rejuvenate/recover/recharge or redevelop any region

there ought to be away from of slum occupant's desires and their view of prosperity their requirements ability, decisions and their comprehensiveness all the while. In the present plan of RAY the extent of the task is stretched out from enormous scope slums to squatters or units. This aggressive undertaking is propelled by focal government, the state Government and the urban neighborhood bodies are relied upon to get ready activity plans and later the detail venture reports (DPRs) for individual slums. Arrangements are to be made for counteractions of slums in future too. Such sort of ventures requests updating of the whole arranging procedure and instrument as it requires mediations from local level to smaller scale level the littlest unit been the individual hutment of any slum.

The variety of financial layers of urban areas, shifted measurements of complexities of urban communities and congestion population doesn't permit a solitary or uniform procedure to handle the issue of slums. Clearly the intercessions made for slum recovery must be slum explicit as for informed/un-told by the urban neighborhood body, responsibility for land on which the slum is arranged vis government land private property or infertile land, land use apportioned in the ground breaking strategy, winning business sector land esteem and financial angles. By and by the activity plans are been set up based on need network of 3x3x3. The three parts of this network are destitution, lodging deficiency and absence of physical and social framework. It is ceaseless for the organizers to propose proper models for redevelopment which are practical; the components of supportability are physical, social, conservative, ecological and social. Tragically maintainability in setting of government ventures is misjudged as far as reimbursement of undertaking cost unmistakable or quantifiable advantages while the recipients' view of goals is to a great extent disregarded. The procedure for readiness of slum redevelopment plan, regularly incorporates recognizable proof of validity of the slums. Reasonableness can be characterized based on characteristic highlights, proprietorship and defenselessness to risk or threat attributable to area. The slums which are situated on eco-delicate zones like catchment of water-bodies, timberland and green belts, boggy and wet grounds, territories inclined to fiasco like seismic tremor, avalanches and floods and so on. Further the slums ashore having a place with military, railroad or even on private properties are indefensible as residency transport or the privilege of proprietorship can't be moved to the slum occupants. The third class of unsound slums alludes to slums which are situated on risky and unsafe areas. These incorporate slums in nearness to businesses discharging hurtful outflows, effluents and are wellspring of clamor contamination. Correspondingly enterprises utilizing explosives, radiations and digging might be hazardous for the close by slums.

As expressed before land is a characteristic panics asset and ought to be used prudently to evacuate the lopsidedness between the occupants living in the city. These lopsided characteristics are reflected in fluctuating population densities over the city, aside from the thickness impromptu and dispersed development likewise should be composed for stream coating the administrations and luxuries. The centralization of high worth land to specific pockets of city can be ascribed to the land use, availability and in some cases to theories moreover. The slum arranged on such high worth terrains is reasons of unutilized capability of that real estate parcel. Not just they possess the high worth land and at the same time they are on inconsistent land use. The up-degree of such slums discharges high worth land and furthermore bears the restoration cost of the slum inhabitants living there in. This incorporates move of property rights to the slum occupants and arrangement of administrations. The degree of insufficiency of administrations, lodging circumstance and issue of tenure ship concede from slum to slum. There are slums which can be improved by arrangement of fundamental administrations as the lodging conditions stays great and the other way around. Consequently before making any intercessions, the lodging condition, level of administrations and status of tenure ship should be found out.

A cautious perception of typology of slums uncovers that there are slums which mushroomed in and around the mechanical territory lodging the works utilized in these businesses. The second sort of slums are in the center of the city which are deserted by the exclusive class and later involved by impeded segment, these territories face pain and clog. Another sort of slums, which in genuine sense can't be named as slums are really the unapproved states which develop outside the arranging limits as individuals are pulled in by minimal effort land and there are no stringent structure bye laws. These sorts of slums have great lodging stock however needs improvement guidelines and legitimate foundation.

Based on characterization of slums, issues relating to slum arrangement and to make the slums necessary piece of urban texture following slum redevelopment models are proposed and are referenced in rules for planning of activity plan for slum free urban communities. The absolute first model infers to migration that is uprooting of slum to another area, this technique is generally received for the slums which are illogical. Besides this technique can likewise be executed if the land esteem is high and the redevelopment venture is independent to shoulder the expense of migration at recent spot. In the event that high thickness development is allowed, at that point the slum inhabitants can be restored in-situ and the rest of the land can be utilized for other proposed reason. The slums on medium land worth will most likely be unable to bring up plausible task cost proportion as far as information and yield, anyway up degree should be possible by government offices by giving sponsored credits and awards to the slums which are on much lesser land esteem co-employable social orders can be framed and can be given monetary help and specialized skill so they can improve their conditions without anyone else. The parameters relating to place that is known for slums are recognized and introduced in table-1.

Land Suitability Analysis:

A systematic approach should be used to develop an integrated plan to determine the optimal land use suitability for future sustainable development in city¹⁷. The land suitability analysis is a GIS based popular technique implied in the field of physical planning. The focus is present paper is to utilize its potential for slum redevelopment. As redevelopment essentially refers to existing slums the LSA will help in assessing the status of slum for appropriate interventions and in case of relocation or redevelopment at other location will help in identifying suitable sites. The land suitability technique is used widely used to determine the fitness of the given piece of land for a particular use. It has been used in urban planning and the GIS further reinforced with multi-criterion analysis made this more useful. The parameters of land pertaining to slum redevelopment helps in first identifying the problems and potential of existing slums and further gives direction for redevelopment. The optimal use of land using land suitability analysis will inter weave the grey patches of urban slums in the city fabric. In order to use the multi-criterion analysis of land, the parameters need to be identified and prioritize in order, further they need to be weighed properly to achieve a rational solution.

Conceptual framework:

The success of the interventions made for slum redevelopment depends upon the synchronization of strategy adopted for a particular slum with the problems and potential of that slum and beneficiaries perception. The present research attempts to identify the factors of slum redevelopment with respect to land.

Table-1: Slum redevelopment of land Parameters

Location			
Near Natural feature	Near Dangerous / hazardous location	Location with respect to city	Proximity of slums to
Eco sensitive Forest Water bodies Catchment areas Flood prone areas Coastal areas Rich bio-diversity Living heritage Built heritage Natural heritage	Railway track High tension line Airport Industries Explosive Mining	Inner city Down town Near airport/ railway station/ bus terminus Peri-urban area CBD Heritage zone Near administrative building Near community buildings	Workplace facilities Health Education Recreational facilities Social facilities Community facilities Cultural facilities
Physiographic features			
Soil condition	Hydrology	Vegetation	Topography
Suitability for building construction Fertility Potential for contamination Porosity for rainwater harvesting Use of soil as building material	Surface water bodies Ground water tables Potential for contamination Potential for rain water recharge Potential source of portable water Water quality Potential for irrigation and industrial use	Native trees Extinct species Exotic trees Ground cover Potential to prevent erosion Potential grazing grounds	Surface drainage Natural slope Ridge and valleys Swamp prone areas Natural and manmade features Latitude Special feature (if any)
Planning aspects			
Land use	Population density	Land value	Administrative boundary
Green areas Hard surfaces Soft surfaces Horticulture Circulation spaces	Ground coverage Building heights FAR used MOS	Rental value Collector rate Market rate Condition of structure Ownership status	Ward/zone boundary Planning Urban area limit Tenureship rights

Source-11 Soni, N., Onkar, P., and Dhote, K.

Conclusion:

Land suitability is a strategy of evaluating the appropriateness of land for a proposed expansion. As slums are reason for social and financial marvel driving into ecological issue, endeavor has been made to re-imagined supportability of land incorporating social, natural and social perspectives with the physical character/properties of land. The recognized parameter tended to in the structure join all

substantial and immaterial measures. The needs of slum redevelopment systems should join the appropriateness of land as for distinguished factor. The study of present slum uncovers that the quantity of slums is expanding with the improvement of the city. By and large cabins in slums are abundantly packed, so here population thickness is more and slum population has shortage of open offices, which brings about a social wellbeing and natural contamination issues.

- During 1981, there were 18,945 all out hutment and population of individual's 66,498 people living in slums. It has expanded up to 42,742 hutments and 2,14,769 people in 2011.
- There are 168 slums in the city, out of which 56 slums are pronounced and 112 undeclared. There are 168 slums have secured about 21,53,291Sq. meter region of the aggregate.
- All these slums are dispersed in various pieces of the city and lion's share of these are created on private land or on questioned organization land. Other than these, 85 slums have restored during a decade ago.
- The procedure of recovery was begun in 1995 with the assistance of HUDCO, State Government and Municipal Corporation and Pradhan Mantri Awaas Yojana. At present 11,200 house have given well prepared offices to the slums resident's.
- There are numerous plans run by Central and State Government for improvement of slums. In any case, Maharashtra Housing Department, Corporation/nearby metro specialists may need to confront challenges to give more offices to slums, which are arranged on open saved spots. Thusly, there is no new proposition of reservations in the advancement conspire.
- In the time of 1971, there were 20,630 houses in the investigation area, which was expanded upto 2,25,190 houses in 2001 and it is anticipated to 3,00,000 houses in 2011 and 4,50,000 houses in 2021, so it needs to get ready for development of more houses
- It is seen that the lopsided dissemination of houses in study locale, a few regions have higher thickness of houses (for example 2,441 houses for every sq.km. in No. I), while a few zones have exceptionally low thickness of houses (for example 223 house for each sq.km.

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