Eco Slum Can Improve the Lives of Slum Dwellers

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Abstract - Rapid urbanization in developing countries like India has led to the expansion of informal settlements, commonly known as slums, which are often characterized by substandard housing, inadequate infrastructure, and limited access to basic services. This study aims to explore sustainable strategies for transforming such settlements into eco-slums – environmentally sustainable and socially inclusive communities. The research examines the current challenges faced by slum dwellers, including poor sanitation, water scarcity, and lack of secure tenure, and evaluates potential interventions for upgrading these areas. A qualitative methodology was adopted, including a review of literature, case studies, and comparative analysis of existing slum redevelopment programs such as the Parivartan Scheme in Ahmedabad. The findings suggest that integrated development approaches – focused on community participation, green infrastructure, and basic service delivery – can significantly enhance the living conditions in slums while reducing environmental impact. The paper concludes that eco-slum models offer a viable pathway for inclusive urban development, aligning with global sustainability goals. Their implementation requires coordinated efforts from government, civil society, and local communities to ensure long-term success and resilience.

*Key Words***:** Eco-slum, Slum redevelopment, Sustainable urban development, green infrastructure, Informal settlements, Urban resilience.

1. Literature Review

"Urban slums: how to sustainably fix the problem"

Natasha Marais says, people have shown over and over that tearing down slums causes many problems. When we don't deal with the social and economic issues that create slums in the first place, things get worse. It's better to improve slums with the help of the community, rather than just getting rid of them.

The goal of redeveloping slums is to make sure the people living there have access to things like education, safety from crime, better buildings and roads, a stable place to live, and economic opportunities – things that other people in the city already have.

Some organizations, like the Monash Sustainable Development Institute, are working with informal settlements in places like Indonesia and Fiji. They're doing things like collecting rainwater and recycling wastewater to help these communities. They're also trying to protect the settlements from floods and pollution. This makes life better for the people there and is better for the environment.

The most important thing to fix the problem of slums is to give the people living there a secure place to call home. This means they won't be thrown out of their homes, whether they own the land or rent it. When people have a stable place to live, they're more likely to make their homes and communities better.

Sustainable development, which means making things better in a way that lasts a long time, is good for everyone. It's especially good for the people living in slums. They have the right to live in safe and decent conditions. Join THRIVE and help make a world where there's less inequality, poverty, conflict, and the problems caused by climate change. (Marais 2021) (G Arku, 2021)

Urban Green Infrastructure means carefully planning networks of natural areas and green spaces in cities. It also includes smaller activities, like urban farming (Jerome, 2017) Both of these provide various benefits that help people live better. People in slums and informal settlements use these green spaces and natural areas in different ways. This connection is essential for improving the environment and the quality of life for people with low incomes. (Adegun, 2017a; Douglas, 2018; Birtchnell et al., 2019; Diep et al., 2019).

2. Aim (UN-Habitat, 2014)

The primary aim of this study is to investigate the potential of eco slum development as a means to enhance the quality of life for slum dwellers. By focusing on green practices and initiatives within slums.

3. Objective

The objectives of the study are mentioned below:

- To define and understand what is eco slum
- To observe, study how eco slum can improve the lives of slum dwellers
- To identify parameters on the basis of which informal settlements can be studied.

4. Scope

Scope of paper restricted to eco slum only that focusing on environmental parameters includes Biodiversity, Fresh Water and Air Carrying Capacity, Ecosystem Resilience, Natural Resources etc.

5. Research Methodology

The first step is to read all the research that has already been done on sustainable, green, eco slums. This will help us to identify the most important areas of research and to develop an understanding and for this study.

Next, is choose a few sustainable slums, eco slums to study through the literature. These slums will be from different places, have different sizes, and be at different stages of development. They will also have different sustainable features, such as access to clean water, renewable energy, and ways to manage water. Finally, these slums will have a good history of improving the lives of their residents.

The major intention of the study is to identify and bring forward the urban contemporary eco slum; the following methodology has been adopted for the same.

6. What is Slum?

The slums are defined in numerous ways across the globe. In simplest terms "a heavily populated urban area characterized by substandard housing and squalor" (UN-Habitat, 2003). Generally, "low-income settlements and poor human living conditions" (UN-Habitat, 2003) are the characteristics of the slum. According to the UN-HABITAT an area has been defined as 'slum' if that shares one or more characteristics, that includes overcrowding, poor structural quality housing, insecure residential status, inadequate access to safe drinking water, sanitation and other infrastructure (UN-Habitat, 2014). There are multiple features that also been added as profound characteristics of the slum such as lacking of basic municipal services like street lighting, sidewalks, and paved roads. These areas are not easily accessible to hospitals, schools and public places (Cities Alliance, 2014).

Slum dwellers are the residents who are unemployed, poor and urban population which now comprises of the urban workforce. Earlier, these were accounted for crime, drug addiction, mental illness among the prominent social issues. And severe diseases due to unhygienic condition, malnutrition, poor sanitation and lacking of basic health care (Taher & Ibrahim, 2014).

A. Classification of Slum

Classification of slum vary widely as multiple agencies, organization across the globe addresses the slum. In India, slums are categorized among the three categories for the purpose of census (Census of India, 2011) which can eventually help the policy makers to align the reforms as per the need and demographics of the area. These categories are defined as follows:

- **Notified Slums:** These are notified areas as 'slum' by state, UT, Administration and Local Government under any act including 'Slum Act'
- **Recognized Slums:** These are recognized areas as 'Slum' by State, UT Administration or Local Government, Housing and Slum Boards, which may have not been formally notified as slum under any act
- **Identified Slums:** A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.

B. Reasons for Slum formation

There are two main reasons for the slum formation which is population growth and governance.

Population Growth: Globalization led to industrialization. And as growth prospects in urban areas increases, it leads to shifting of rural population in urban areas. This is prominent in the developing countries like India. This rapid urban growth, the large segment of the population cannot afford the land at such a high price, thus shortage of economic housing are among the main reasons for slum formation.

Governance: Multiple factors related to government policy formation, enactment of that policies at grass root level by the local administration also contributes to the slum formation. This can also be due to their inability to predict the pace at which the

population shift is happening and preventive measures that are needed for giving them a healthy lifestyle.

C. Eco Slum & Sustainable Slum

To understand the two above mentioned typologies of slum, first we will understand the meaning of both eco and sustainable terms.

C1. Difference between terms eco & sustainable

"Eco" and "sustainable" are two words that people sometimes use to mean similar things, but they actually have different meanings.

When we talk about **"eco" or "ecological"** we're talking about things that are good for the environment. It means doing stuff that doesn't harm nature, like saving trees and animals. It is often linked to specific environmental issues, like stopping pollution, taking care of plants and animals, and using resources like water and energy wisely. When we say something is "eco-friendly," it means it doesn't hurt the environment and can even make it better. It's like taking care of our planet. In simple terms, "eco" is about being kind to the environment and making it a better place for everyone.

"Sustainable" is a broader concept that encompasses social, economic, and environmental dimensions. It refers to the ability to maintain or continue something over the long term without depleting resources, causing harm to the environment, or compromising the well-being of future generations. Sustainability seeks a balance between social, economic, and environmental factors, ensuring that the needs of the present generation are met without compromising the ability of future generations to meet their needs. Sustainability is about considering the long-term impact of actions and decisions on multiple aspects of society and the environment.

C2. Sustainable Slum

A "sustainable slum" is a term that describes an informal settlement or slum where efforts are made to implement environmentally, socially, and economically sustainable development practices. Sustainable slums are informal settlements that are committed to improving the living conditions of their residents while also reducing their environmental impact and ensuring their long-term viability. This is done through a variety of strategies and actions, such as improving housing, infrastructure, sanitation, healthcare, and environmental conservation.

C3. Eco Slum

An "eco slum" is a term used to describe a slum or informal settlement where efforts are made to implement environmentally sustainable and eco-friendly practices. In these areas, initiatives are undertaken to improve living conditions for slum residents while minimizing the environmental impact of the settlement.

D. Components of Eco Slum

The components of an "eco slum" or an environmentally sustainable informal settlement typically encompass a range of features and practices aimed at improving living conditions for slum residents while minimizing the environmental impact. Some key components of an eco-slum may include:

Eco-Friendly Housing: Sustainable and energy-efficient housing design and construction materials to reduce environmental impact and improve living conditions.

Green Spaces: Communal areas for urban farming, community gardens, and tree planting to enhance air quality and community well-being.

Waste Management: Initiatives for waste reduction, recycling, and responsible waste disposal to minimize pollution and environmental degradation.

Renewable Energy: The use of renewable energy sources, such as solar panels or wind turbines, to provide cleaner and more sustainable energy solutions.

Water and Sanitation: Improved access to clean water and environmentally responsible sanitation facilities, including rainwater harvesting and efficient water use.

Eco-Friendly Practices: Promotion of sustainable practices to reduce air pollution, improve sanitation and hygiene, and reduce energy consumption.

These components collectively contribute to the creation of an eco-slum, which aims to provide residents with improved living conditions while promoting responsible environmental practices.

E. Need of Eco Slum

There are several factors which are listed below, that suggests the need of eco-slum in an urban area:

Improved Living Conditions: Many slum dwellers live in substandard housing with inadequate access to basic services like clean water, sanitation, and healthcare. The need for eco slums stems from the desire to enhance these living conditions and provide residents with safer and more dignified homes.

Environmental Responsibility: Rapid urbanization and the growth of slums can have significant negative environmental impacts, including pollution, resource depletion, and habitat destruction. Eco slums are needed to reduce the carbon footprint and promote responsible resource use.

Climate Resilience: Slums are often situated in vulnerable areas prone to climate-related risks like flooding and extreme weather events. Eco slum development can incorporate measures to improve resilience to these challenges, making communities more adaptable to climate change.

Access to Basic Services: Eco slums prioritize providing slum dwellers with access to clean water, sanitation, healthcare, and education, addressing fundamental needs that are often lacking in informal settlements.

Long-Term Urban Planning: Eco slum development aligns with the principles of long-term urban planning, creating more resilient and sustainable cities for the future.

F. Strategies to achieve an Eco Slum:

Various strategies to achieve eco slums are underlined below:

Community Engagement: To achieve eco slum it is essential to involve the community in the planning and implementation of eco-slum initiatives. This will help to ensure that the initiatives meet the needs of the community and that residents are supportive of them.

Community Training: Residents of eco-slums need to have the skills and knowledge necessary to implement and manage sustainable practices. This can be achieved through training and education programs.

Financial Support: Eco-slum initiatives often require significant investment in infrastructure and sustainable technologies. Governments and other organizations need to provide financial and technical support to eco-slums.

7. Need for Slum Upgradation

The primary rationale for slum upgrading is the recognition of people's fundamental right to live in conditions that uphold their basic dignity. Additionally, it is also in the best interest of a city to undertake slum upgrading and prevent the emergence of new slums. Allowing slums to deteriorate can result in governments losing control over the population, leading to crime and disease that affect the entire city.

Slum upgrading tackles critical issues faced by slum residents, including issues of legality, exclusion, instability, and obstacles to accessing services, credit, land, and social support, particularly for vulnerable groups such as women and children.

Promoting Economic Development: Upgrading mobilizes the often-untapped potential of slum dwellers who possess skills and a strong desire to contribute more productively to the economy but are hindered by their marginalized status.

Addressing Urban Challenges: It addresses broader urban problems by mitigating environmental degradation, improving sanitation, reducing violence, and attracting investment.

Improving Quality of Life: Slum upgrading elevates the quality of life for both the upgraded communities and the city as a whole. This includes granting more citizenship, a voice in politics, representation, improved living conditions, enhanced safety, and security.

Providing Housing for the Needy: It is the most efficient means of providing housing for the urban poor on a large scale and at a minimal cost.

8. Case Study

A. The Parivartan Programme of Ahmedabad:

Parivartan programme was launched in 1995 by the Ahmedabad Municipal Corporation (AMC), in partnership with two city-based NGOs, corporate sector and slum residents.

The objectives of Parivartan are:

- To improve the basic physical infrastructure within the slums, and in the homes.
- To enhance the process of community development.
- To build a city level organization for environmental upgradation.

The program includes the following services to improve the lives of slum dwellers:

- Water supply to each household.
- Sewerage connection to each household.
- Toilet for each household.
- Paved roads and lanes in the slum.
- Drainage system for rainwater.
- Street lights.
- Garbage collection.
- Landscaping.

In addition to these physical improvements, the program also includes a community development component to involve slum dwellers in the project and to ensure that they are responsible for maintaining the services and ensuring public accountability.

The community development component includes the following activities:

- Forming groups of neighbors, women, and youth.
- Helping people save money by forming savings and credit groups.
- Providing informal education for young children, school dropouts, and illiterate adults.
- Teaching people about health and providing healthcare services, especially for mothers and children and for common diseases in slums.
- Providing daycare centers.
- Building health centers.
- Opening small shops within the settlements.

The Coverage of Parivartan

The Parivartan programme as of December 2001, has reached 9,435 families, making a significant contribution in the lives of 56,610 people over 40 slums of Ahmedabad. In the last 6 years the community has paid a total of Rs. 7.5 million to the AMC as their contribution towards the services, something never done by slum dwellers anywhere else in Gujarat.

Infrastructure Development in Parivartan

The data that demonstrate the infrastructure development of the Parivartan programme is mentioned in the table below:

Table -1: Infrastructure Development by Parivartan Programme

No.	Type of Infrastructure	Quantity
1.	Concrete Pathways	836.05 Cu. Mt.
2.	Sewerage	19,614.2 R. Mt.
3.	Water Supply Lines	23,084.71 R. Mt.
4.	Electric Poles	432 Nos.
5.	Garbage Bins	194 Nos.
6.	Individual Toilets	2,438 Nos.
7.	Stone Paving	10,867.55 Cu. Mt.
8.	Gulli Traps	3,124 Nos.
9.	Inspection Chambers	955 Nos
10.	Man Holes	420 Nos

Interpretation from case study:

Ahmedabad Parivartan (also known as the Slum Networking Project) brings basic infrastructure services, including water and sanitation, in an affordable and sustainable eco way to the slums and chawls of the city.

Infrastructure development enhances other developments such as health, education, nutrition, social relationships and traditions.

Provision of basic amenities have a very decisive influence not only on health, education and income but also the social life of the urban poor, and their empowerment.

9. Government Policies and Acts

Government policies and acts ensure that slum development is carried out in a fair and equitable manner, addressing the needs of marginalized and vulnerable populations. This is vital for reducing social inequalities within urban areas. They have a responsibility to ensure that all citizens have access to basic human rights, including adequate housing, clean water, sanitation, and healthcare. Slum development actions are taken to address these fundamental rights, reducing social inequalities within cities.

Government policies and acts to manage slums listed below:

- National Slum Development Programmed (NSDP)
- The Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971
- Interest Subsidy Scheme for Housing the Urban Poor (ISHUP) etc.

10. Conclusion

The concept of eco slums represents a promising and transformative approach to urban development. It holds the potential to bring about significant positive changes in the lives of slum dwellers. By integrating environmentally sustainable practices, eco slums can address the pressing challenges faced by millions of people living in informal settlements.

Eco slums prioritize not only the enhancement of living conditions but also the long-term well-being of slum residents. Through eco-friendly housing, improved access to services, eco-conscious practices, and community engagement, these initiatives aim to create more resilient and inclusive urban communities. The benefits extend beyond the slum boundaries to impact the entire city.
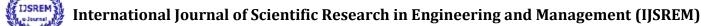
Moreover, eco slums align with global efforts to achieve sustainability, as outlined in initiatives like the United Nations' Sustainable Development Goals (SDGs). They promote environmental responsibility, economic development, and social inclusion, addressing a range of critical issues within the context of urbanization.

The transformation from traditional slums to eco slums is a testament to the potential for positive change within urban areas. It demonstrates that with the right policies, community involvement, and innovative approaches, even the most challenging urban environments can be reimagined to offer improved quality of life, dignity, and a sustainable future for slum dwellers. In doing so, eco slums contribute to the overall well-being of cities and, ultimately, to the global pursuit of a more equitable and environmentally responsible world.

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