

## **Analysis and Impacts of Deforestation on Housing Settlements**

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### **Abstract.**

As people and essential natural resources are intimately linked to each other, as well as the prospects for urban growth and the nature of the climate in an area, the population is the key subject of all studies within the context of geography. As a result, any research of the present era should begin with a study and review of population growth and distribution in urban planning. The focus of this paper is on the connection between rapid urbanization and socio-ecological issues. The findings of this study show that urbanization is one of the main causes of issues that the public is currently facing. Similarly, the loss of horticulture and greenery is due to the development of new housing schemes. These housing schemes are creating a crisis in the sewage system and the drinking water quality. Moreover, another result of haphazard and unplanned urbanization is pollution. The main goal of this research is to find some recommendations for this unorganized and haphazard urbanization that is causing environmental problems such as deforestation. One of the reasons for deforestation is migration from rural to urban areas, as this would hurt the quality of life of urban inhabitants. This research also offers a greater understanding of the challenges of urbanization in urban environments, as well as assists the policymakers in focusing on the major areas of reforms, by restricting the rural-to-urban migration. The first and top priority should be the provision of quality and healthy life to the inhabitants.

**Keywords:** Urban Growth, Haphazard Urban Sprawl, Social and Environmental Issues, Pakistan

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### **1. Introduction**

Rapid urbanization is transforming the face of cities and leading to an increase in urbanization globally, especially in developing countries. The pace and size of urbanization in developed countries are matchless and more complicated than ever before (Cohen, 2004). Because of its wide-ranging socio-economic and environmental consequences, the shifting Land Use and Land Cover (LULC) vogue has a direct impact on settlements (Qiong Wu, 2006). Geographers, environmental architects, policymakers, and managers are also

required to observe improvements in urban Land Use and Land Cover (LULC) when the climate in urban environments seems to be changed by anthropogenic behaviors (Douglas A. Stow, 2002). The spatial patterns of LULC are useful for understanding different impacts of human behavior on the overall ecological state of the urban world, so such studies are especially significant (Anthony Gar-On Yeh, 1999).

Human-induced LULC transition is now occurring at a faster rate in developing countries than in developed countries, and it is predicted that by 2020, the majority of the world's metropolitan areas will be settled in developing countries. The exponential rise in population in developing countries cities has resulted in rapid changes in LULC and increased environmental destruction, putting immense strain on naturally available resources. Rapid urbanization usually outpaces local municipalities' ability to provide services and infrastructure, leading to a rise in urban insecurity and slums, especially in developed countries. Urbanization exacerbates major issues in towns, such as flooding, congestion, epidemic illnesses,

Socioeconomic inequity and political uncertainty (Spenceley, 2008). Due to the extreme demands of refugees moving from other areas of the world, urban expansion is a significant trend. Before 2018, more than 55 percent of the world's population lived in cities. By 2050, this percentage is expected to reach up to 68 percent (Nations, 2018). As a result, the research on sustainable development and sustainability is essential for making decisions on urban planning in terms of construction projects, poverty reduction, flood monitoring and prevention, and environmental quality change (Bhatta, 2010).

In Pakistan, the history of urbanization can be divided into four stages, each of which has seen both inbound and outbound migration. The first wave of urbanization began with the British Indian Empire's partition when more than 6.0 million people migrated to the newly formed region. Many of them have made their homes in Pakistan. The second step began in

the mid-1950s when the government began the industrialization process. Millions of people from rural areas migrated to cities for the sake of jobs and improved lifestyles. With the dissolution of East Pakistan in 1971, the third wave of migration originated. All Pakistani supporters in Bangladesh were compelled to flee from the newly created country in the East. In the 1980s, the fourth but most dynamic and severe period, which coincided with changes in neighboring countries such as Iran and Afghanistan, greatly added to Pakistan's already ongoing urbanization trend when more than 3.0 million Afghan refugees migrated to seek refuge and tried to amalgamate themselves in mixed and undeveloped Pakistani urban fabric.

The history of urbanization in Pakistan reveals that it has been a steady and continuing phenomenon, with each decade adding something new. Another part of Pakistan's urbanization is the unusual development of a few major cities. The city of Karachi alone accounts for 21.7 percent of Pakistan's overall urban population, while Lahore accounts for 12.7 percent. Faisalabad, Rawalpindi, Multan, Hyderabad, Gujranwala, Peshawar, and Quetta, along with the top seven cities, account for 54.6 percent of Pakistan's urban population (Cell, 2001).

## **2. Literature Review**

Deforestation is the leading cause of species extinction and a major source of anthropogenic greenhouse gas emissions. It is discovered that maintaining historical deforestation rates will almost certainly result in a substantial number of species extinctions. By 2007, it is expected that the majority of the world's population will be living in cities. Cities in less-developed countries are increasingly urbanizing and the rate of growth varies with area. Few data connect

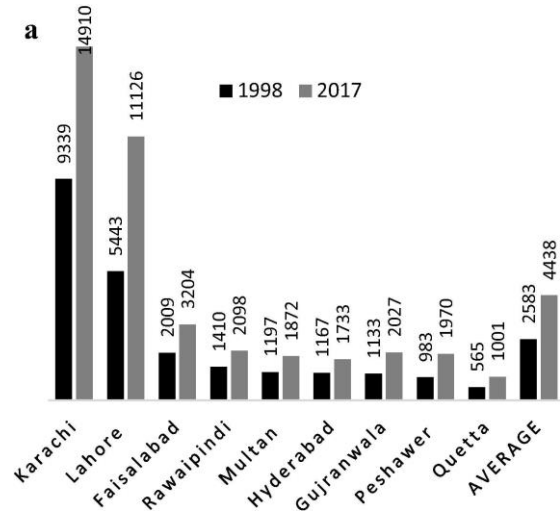
city features to population health (Ahmad, S. 2017). They propose a method for investigating aspects of the urban climate that influence health and well-being. They look at two major factors: urbanicity and urbanization (Ahmad, S. 2017). The terms urbanicity and urbanization apply to the changes in the scale, density, and variability of populations, respectively, and the effects of living in urban environments at a given period. They claim that many significant factors influencing well-being can be grouped into three categories:

- i) Social climate
- ii) Physical environment
- iii) Access to health and social services.

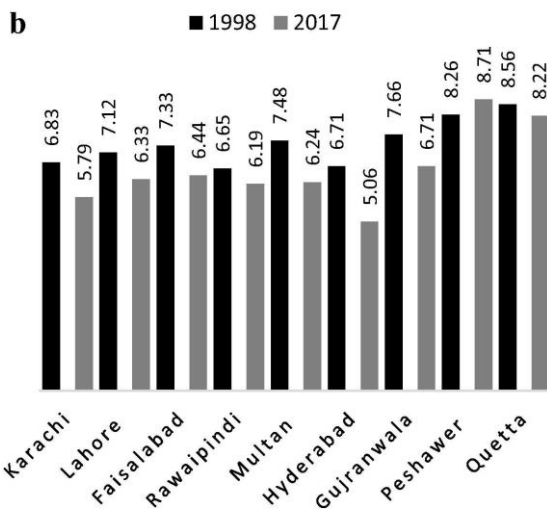
The intensity of various academic fields of research would be needed to improve community health as a discipline (e.g., ecology, epidemiology, sociology). The cross-national analysis could reveal the core characteristics of cities and how urbanization affects population health (David Vlahov, 2002).

Economic development, industrialization, rural-urban movement, and other causes have caused cities and urban centers across the world to undergo dramatic transformations, allowing them to expand beyond their traditional administrative boundaries. This phenomenon of urban expansion and development is not as straightforward as it appears and it has become more complicated as a result of the fact that it occurs mostly on open and agricultural lands in and around cities. The physical rise of urban areas as a result of rural migration and even suburban concentration into cities, particularly the biggest, is known as urbanization or urban drift. Modernization, industrialization, and the social process of rationalization are all

integrally tied to urbanization. The term "urbanization" can be used to describe a specific situation at a certain moment, such as the proportion of the total population or area in cities or towns, or it can be used to indicate the rise in that proportion through time. As population and fundamental natural resources are intimately tied to each other, as well as the prospects of urban growth and the quality of the environment in an area, the population is the major emphasis in all studies within the scope of geography. As a result, the study of population increase and dispersion is an obvious beginning point for any current research. The distinction between urban and rural regions has been abolished as a result of the Devolution Plan. A Tehsil is currently a district, with no difference between urban and rural regions, whereas a City district is made up of Towns (Safdar Ali Shirazi, 2014).



**Fig. 1 Population Growth of Major Cities of Pakistan**



**Fig. 2 Household Size of Major Cities of Pakistan**

Orchards are significant for city design because they are important for the long-term sustainability of urban ecosystems. Similarly, urban greenery in orchards adds value to dwellings, improves security, and has several environmental benefits. They minimize heating and cooling expenses, pollution, carbon dioxide absorption, oxygen production, animal habitat, water retention, and soil erosion. The influence of humans on natural landscapes throughout the urbanization age is getting increased dramatic and causing severe environmental issues (Reyhan Erdogan, Sibel Mansuroğlu, and Hilmi Ekin Oktay, 2014). Some points are highlighted for the environment and the importance of ecology (Karin Östergren and Thomas Ohlsson, 2009).

1. Management of the atmosphere, seas, freshwater, land, forests, cultivated land, extinctions, and biological invasions.
2. Energy, water, food, materials, hazardous chemicals, and waste management are all aspects of human consumption.

3. Environmental deterioration and economic growth must be decoupled.
4. Nature as a source of revenue.
5. There is a business opportunity.
6. Peace, security, and social fairness are important factors.
7. Encampments of people.
8. The human-nature connection.

The world's population has surpassed 7 billion people, with more than half of them residing in cities and defined urban areas. The majority of the Earth's land surfaces have been altered and modified as a result of this ever-increasing population. Changes in water consumption and water resources have occurred as a result of urbanization and urban growth, as well as technological advancements, on a global and regional scale. The migration of people within and between areas is larger than it has ever been. Globalization and migration are quickly transforming traditional realms of human activity. Rural livelihood patterns have become increasingly diverse as a result of both foreign and domestic migration, and most rural households are no longer solely dependent on farming. The previous work on human migration concentrated mostly on socioeconomic determinants, but the present literature investigates many causal variables that influence migration decisions. Access to funds, economic opportunity, social capital, governance, and environmental circumstances are all causation variables, according to the study, and migration decisions are largely economic rather than solely social. These push and pull variables emerge as a result of a country's sociopolitical, ecological, and budgetary situations, and they force people to migrate from insecure areas to more secure locations. Apart from this, a variety of personal and household concerns, as well as population

growth pressures, frequently influence people's decisions to relocate. Migration is typically a family decision, and it is a very involved process that must take into account prospective advantages, familial, social, and economic expenses, and changes in the division of labor, as well as migration regulations and rules, network availability, and many other factors. Wage differentials between origin and destination areas; local employment situation; distance to areas of dynamic economic activity; total labor supply within the household; potential migrant's level of education, labor market experience, access to assets, age, sex, and other factors may all influence mobility and migration decisions. Furthermore, these variables differ greatly between nations and regions.

There is an assessment through GIS for land use. The following images in Fig 1 show the land use in the years 2010, 2015, and 2017 for a specific area.

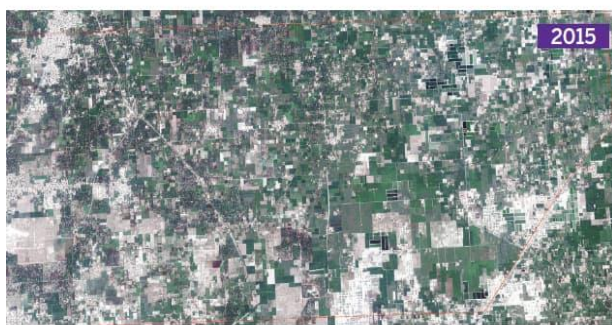
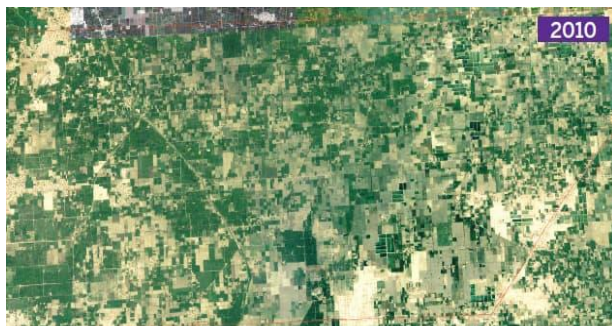


Fig. 3 Land Changes (Ahmad, Missing Mangoes, 2017)

A satellite photo of a city is given above. The green boxes indicate agricultural land, the black regions represent mango orchards and the white portions reflect land that has been cleared for housing.

Moreover, it has been confirmed by the authorities that, a huge agricultural land and orchards have been allocated for the establishment of Housing schemes. Authorities are unable to take legal action against the deforestation of these orchards or the deforestation of privately held agricultural lands that are not located inside the agricultural zone. No one is allowed to construct in the 1,600 Acre region that has been certified safe for gardens and agriculture. It's worth noting that orchards aren't included in Pakistan's forest policy. Forest trees are trees that belong in a forest. To take down certain trees for whatever reason, owners must first obtain permission from the forest department. Owners, on the other hand, do not need authorization to chop down trees in orchards or fruit trees, unless they are required by government policy and consent (Buraq, 2021). Orchards are famed in this southern metropolis of Punjab province Between September-2013 and March-2020, about 6,000 acres of orchards were removed to accommodate a new housing scheme, according to satellite images collected by Google Earth are shown below. For the development of that housing society around 500,000 trees were cut down. (Ali, 2021).

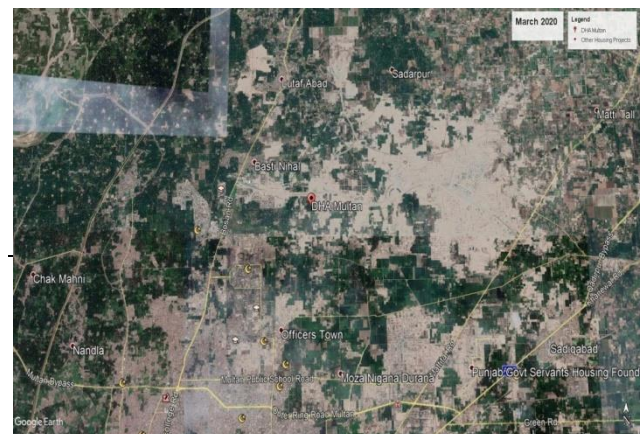


Fig. 4 Land Changes in South Punjab-2020 (Ali, 2021)

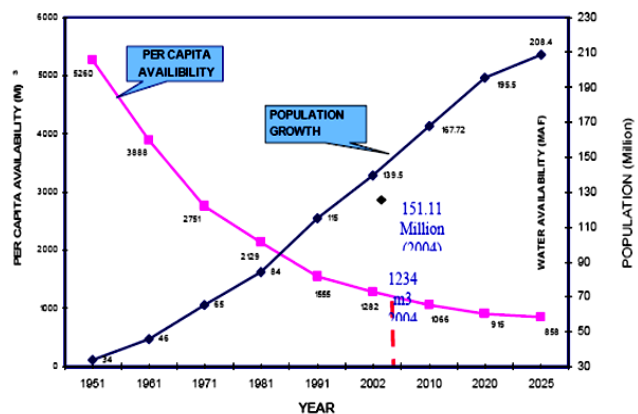
According to the reports of another location the orchards, which covered around 12 acres, had been chopped down, and wood logs were on hand. At the location, there is an orchard with a total area of around 150 acres; possibilities are there, that the business might be disturbed severely as the land is fertile and suitable for agriculture. It went on to say that the location where the housing scheme will be launched was an orchard development project area with an agro fruit farm and some human dwellings nearby. Cutting down trees and destroying agricultural land is likely to devastate the local ecology and cause socio-environmental damage on a local and national scale.

The increase in yearly temperature in major cities is greater than in rural and seaside locations. The temperature difference between the city and the countryside might be as much as ten degrees. Regional urbanization is now thought to have a greater influence on regional temperature than global warming, and urban warming has a clear relationship to population size. The urban environment is becoming increasingly important in climate change. Urbanization is rapidly growing, resulting in regional climatic change, such as an urban heat island and urban air pollution. The subject of urban temperature variance and climate change as a result of urban development, industrial activity, and their effects has become a major topic of global debate and inquiry. Environmental changes have an impact on urban places all around the world. However, variations in land use patterns and surface temperature are caused by climatic elements in the environment. The existing location is not appropriate for the establishment of a housing society for the

reasons stated above. The proponent, on the other hand, has the option of choosing a different location for the subject project (Ahmad, Orchards of Mango City being devoured by housing schemes, 2021).

One more thing which is going out of balance is the water level due to urbanization. According to Pakistan's Economic Survey 2013-14, the country's population is expected to reach 220 to 230 million by 2025. The burden on water supplies will increase as the world's population grows, urbanization accelerates, and socioeconomic circumstances deteriorate. At the canal mouths, the comparable need would be roughly 62.3 MAF. In 2025, this will result in a water shortage of around 27.3 MAF. This will limit the potential for progress in numerous industries unless adjustments are implemented. To fulfill the ever-increasing population's food needs, effective water management is essential for agricultural expansion and agriculture-related enterprises to reap greater advantages from this sector. The increased agricultural output will need the use of more water. By 2025, an anticipated extra 10 MAF of water will be required at the farm gate, based on population growth forecasts.

WATER AVAILABILITY Vs POPULATION GROWTH



Moreover, horticulturists have called for a full

prohibition on tree cutting, citing the rapid annexation of thousands of acres of tree plantation in the district and urging the government to designate a green zone in the master plan as soon as possible. Some seedlings take 15-20 years to grow into mature trees. Approximately 6,000 acres of orchards have been chopped down across the city, according to sources. Only the South Punjab generates almost a quarter of Pakistan's entire fruit crop. To save land, high-rise structures may be built instead of horizontal ones (Complete ban on cutting of mango orchards demanded, 2021).

### **3. Recommendations**

So, when we come to the solution for this specific, we have multiple solutions for this. Governments should enact laws that design and offer ecologically sound cities and smart growth strategies, recognizing that people should not live in dangerous or polluting regions. The goal is to create sustainable cities that have better eco-friendly amenities and safe environments for all urban habitats. Government should also promote an economy based on sustainable surroundings, by investing in green infrastructure, sustainable industries, recycling and environmental campaigns, pollution control, renewable energy, green public transit, and water treatment and restoration. All residents of metropolitan areas must have access to enough vital social services, such as education, health, sanitation, and clean water, as well as technology, energy, and food. The goal is to create and execute job opportunities and wealth-creation activities so that individuals may have a handsome income to pay for the services' upkeep.

The Government can also use subsidies to reduce the tariffs on basic healthcare,

education, electricity, public transit, communication networks, and technology. To mitigate the negative consequences of increasing urbanization while still protecting natural ecosystems, private investments in natural resource utilization and employment creation should be promoted. More jobs for urban people can be created through tourism marketing and sustainable natural resource use. Foreign and private investment in environmentally friendly development projects that create jobs may also be eligible for subsidies and incentives. To assist lower the high rates of population increase, key stakeholders in metropolitan areas must provide campaigns and counseling for effective medical health clinics and family planning. To manage epidemics, and the increase in population, medical health clinics geared toward family planning choices must be made available across the whole urban area.

Internal migration trends, as well as their motivations and results, are difficult to completely appreciate due to a lack of reliable country-level data; as a result, much of the available data originates from case studies. This shortcoming obstructs efficient monitoring of internal migration patterns and fluxes, as well as informed decision-making. It is past time to establish a National Registration System to generate population mobility statistics, and to strengthen it with legislation revisions requiring migrants to register.

Internal migration is often regarded as a positive movement that extends the benefits of economic agglomerations to underserved areas. Furthermore, internal mobility does not seem to promote overpopulation or unemployment in the areas where individuals settle in most circumstances. As a

consequence, allowing free movement within countries is not only morally justifiable, but it also benefits all citizens, regardless of where they live. Internal migration, on the other hand, can hurt migrants' and their families' well-being in some cases. More study is needed to better understand the link between internal migration and people's well-being, as well as the policy consequences that ensue.

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