IMPACTS OF MIXED LAND USE ON SOCIO-ECONOMIC SECTOR: EVIDENCES FROM KARACHI

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ABSTRACT: *MLUs make complex ecosystems of cities affected by social factors, economic factors, and environmental and cultural factors, however, achieving comprehensive urban sustainable development remains a challenge. Due to accelerated economic development and population growth, changes in land use and land cover that are a result of urbanization have substantially grown in recent decades. This research aims to study the socio-economic factors for measuring Mixed Land Use and for analyzing MLU's impacts on socio-economic sectors in major districts of Karachi. An exhaustive range of literature is sifted for studying major social and economic factors of Mixed Land Used. Furthermore, on web survey is conducted using questionnaire samples from the professionals and residents. After getting the results, raters' agreement is tested using Kendal's W coefficient of concordance resulting in various ranges.*

Keywords: Mixed Land Use, Socio-Economic, Kendal's W Coefficient, Mega city

1 INTRODUCTION

Metropolitan areas undergoing a process of urbanization often experience significant changes in their spatial patterns [1, 2]. In recent decades, marginalization and the tendency to live in peripheral areas of metropolitan regions have led to the creation of new spatial patterns [3, 4]. To solve this issue, a combination of many structures with different functions arranged in the same row called mixed land use has been introduced in the world. To solve this problem, the combination of several structures with different functions arranged in the same arrangement was introduced in the world as mixed land use. For example, there may be a mix of residential properties close to government offices, schools, cafes, transport. malls, or cinemas, shops and parks [5]. Although some have defined it as a conflicting pattern of land use in certain areas, it generally includes residential, agricultural, commercial, industrial and recreational uses. It is suggested that MLU will stimulate economic growth and reduce the need for unnecessary investment in infrastructure expansion. This promotes social equity by enabling more people to access jobs and services, including the young, old, poor and disabled [6]. Where activities take place at any time of the day, a city becomes more vibrant and safer, helping people adjust to social differences [7].

Though attaining full urban sustainable development is still difficult, MLUs create complex ecosystems within cities that are influenced by social, economic, environmental, and cultural aspects [8]. The purpose of formally promoting the use and development of mixed land is to establish and preserve a livable, sustainable, and visually appealing urban environment [9].

Urbanization-related changes in land use and land cover have significantly increased in the past several decades as a result of greater GDP and population growth. Since rising nations are concentrated in a city's metropolitan core and see more development changes than other regions, it is critical to comprehend how these changes impact land cover. [10].

With a dense population, Karachi is one of Pakistan's biggest and fastest-growing megacities. a location where, in recent decades, significant urban development has resulted in a rapid deterioration of the ecological and socioeconomic situations [10]. One of the biggest cities in the world is experiencing problems due to poor land use planning, including high population density, land waste, traffic, pollution, rising crime, inaccessibility, urban sprawl, and many other issues that are eroding the city's value and making it less valuable. These problems include a high death rate, crime, unemployment, poverty, and illiteracy. Furthermore, this list might never come to an end. Without a question, Karachi's population has increased over time. The economy is negatively impacted by population growth. Population increase exacerbates health issues, pollution, and low per capita income. Overpopulation causes a large section of the population to share in the national revenue, which in turn leads to unemployment. Rising rates of inflation are creating a new obstacle for this specific issue. [12].

2 METHODOLOGY

2.1 Research Design

Various data sources are used to identifying the Socio-economic concerns in Mixed Land Uses of Karachi. Qualitative data is conducted majorly for factors identification and Quantitative data is gathered for resident's perceptions towards relative issue.

2.2 Research Audience

A specified number of 384 samples referring D Morgan's Law of sampling are used for getting resident's perceptions regarding socio-economic situation of Karachi due to Mixed Land Use.

2.3 Research Tools

5-point Likert scale-based questionnaire comprising separate Social and economic factors within close ended range of questions was designed to achieve the perception of residents of Karachi; Fig.1and 2.

2.4 Data Collection Procedure

384 questionnaires using random sampling technique were distributed and approached among the audience of Karachi using on site survey and Google Forms as well.

3 RESULTS AND DISCUSSION

This research has been focused on the impacts of Mixed Land Use in metropolitan city of Pakistan. As agglomerated land use in Karachi is being developed as a strategy for minimizing urban problems but resulted negatively. Therefore, Socio-economic factors were identified and investigated to help focusing the ignored ingredients of MLU regrowth in present and future as well.

Following Tables 1 and 2 shows the validation of Socio-Economic factors of Mixed Land Use.

Table 1 Social Factors influencing Mixed Land Use

S. No.	Social Factor	Empirical Evidence
01.	Safety of urban areas.	[14, 16, 17, 18, 20, 24]
02.	Approachable public services	[15, 21, 22, 24]
03.	Spaces and activity-oriented destinations	[15, 16, 18, 23, 24]
04.	Public Health facilities	[15, 18, 24}
05.	Safer and more active neighborhoods	[16, 17, 18, 20, 21, 22, 24]

Table 2 Economic Factors influencing Mixed Land Use

S. No.	Economic Factors	Empirical Evidence
01.	Economical Commercial activities	[15, 19, 20, 22]
02.	Infrastructure & Fuel Costs reduction	[18, 20, 22, 23 De Vos, et.al., 2013]
03.	Stimulation of Local economy	[14, 15, 16, 19, 24]
04.	Automobile independence	[19, 20, 21, 23, 24]
05.	Employment opportunities	[18, 19, 21, 23]

Table 1 and 2 enlists the Social and Economic factors affected by Mixed Land Use. These factors are identified with empirical evidences, through literature review to study in this research. These would assist in taking local people's perceptions regarding the impacts of Mixed Land Use on socio-economic sectors of East and South Karachi.

For the projected problem the quantitative data Likert Scale-based questionnaire was analyzed for a non-parametric test using Kendall's Coefficient of Concordance (W) a and Descriptive Test using IBM SPSS 22.

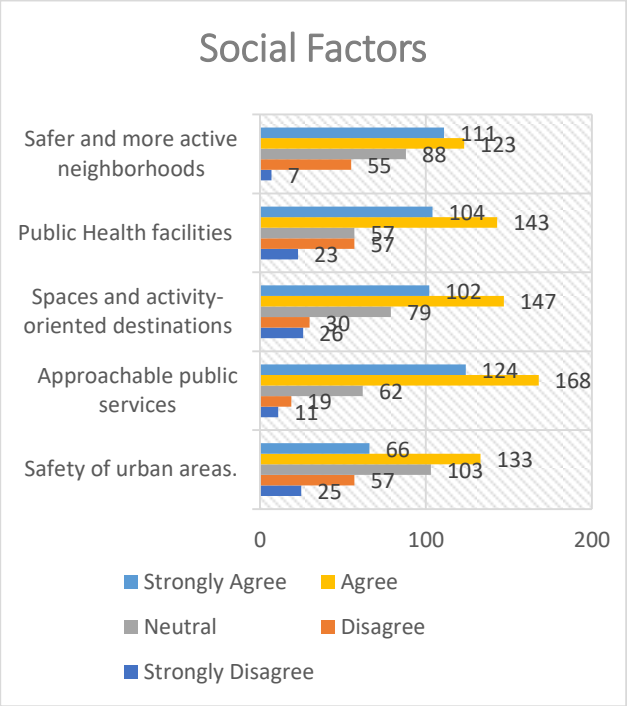

Fig: 1

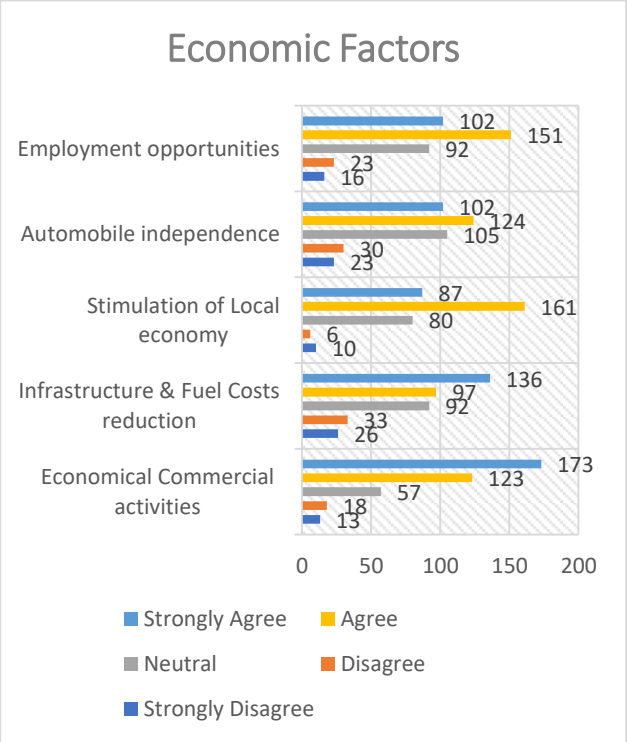

Fig. 2

Kendall's W Coefficient of Concordance

The statistical test applied for this study is known as Kendall's W which can be defined as:

$$W = \frac{\text{Variance over column totals}}{\text{Maximum possible variance over column totals}}$$

Table 3 Interpretation of Responses regarding Social Factors influencing Mixed Land Use

S. No.	**Range**	**Rules**
1	0.00 <=W< 0.20	Slight Agreement
2	0.20 <=W< 0.40	Fair Agreement
3	0.40 <=W< 0.60	Moderate Agreement
4	0.60 <=W< 0.80	Substantial Agreement
5	W> = 0.80	Almost Perfect Agreement

Source: [13]

Table 4 Interpreting Kendal's W Coefficient Results for the MLU Socio-Economic Factors study

N	384
Kendall's W[a]	.057
Chi-Square	527.444
Df	24
Asymp. Sig.	.000

Table 4 details the descriptive findings that were examined by applying the W Coefficient to the factor data that was gathered using a questionnaire with a 05-point Likert scale based on 384 samples. According to the guidelines, raters' agreement on the factors influencing socio-economic sectors as a result of MLU is modest.

The degree of agreement across raters is analyzed using Kendall's Coefficient of Concordance, represented by the letter "W." However, the finding W<0 = 0.057 rejects the Null Hypothesis and accepts the Alternative Hypothesis.

The alternative hypothesis, which states that "Mixed Land Use approach is not helping in positive growth of Karachi," is accepted in light of the data and needs to be taken into consideration.

Findings of the study state that:

- ✓ The demographic growth of Pakistan is greatly influenced by Karachi, the capital of Sindh and the province with the fastest rate of urbanisation. Pakistan's economy is dominated by Karachi, which generates 20% of the nation's industrial output and 30% of the nation's total output, indicating the city's important economic role.
- ✓ It is also shown that respondents do not have a thorough understanding of the notion of MLU. The initial goal of this research was to provide individuals with a better knowledge of mixed land uses.
- ✓ Unplanned Mixed Land Uses posed a significant threat to living standards. The impressions of the locals have revealed that MLU has not lessened the issue, but rather raised the crime rate. As a result, this component had the lowest degree of agreement from raters.
- ✓ Results exhibiting mixed land use in Karachi's socioeconomic sectors clearly show progress.

4 CONCLUSIONS

The most important part of the initial planning process is involving the local community; sadly, many respondents were unaware of mixed land use's advantages. That illustrates the disastrous planning in Karachi that gave rise to the brilliant idea of mixed land use planning. Individuals who are fighting for their fundamental rights are not permitted to participate in local planning without their permission. If they receive enough units of facilities, poor people somehow settle with inferior quality. As the elite class grows stronger and gains superior qualities, it continues to rule. These worries lead to an unstable environment, which makes MLU fail.

Similar to the Bahria Town Karachi 2 project, this sort of planning would also benefit the elite. On the contrary, urban planning, which arises only with the help of social science and efforts as a unifying platform for all classes, diminishes its contribution by being biased in the corporate community. As a result, failure of World's Latest Trend MLU is evident in the heart of Karachi.

MLU has both beneficial and negative effects on socioeconomic sectors, according on the locations, when it comes to Karachi's scenarios. Due to closely integrated uses with mixed conceptions, MLU is contributing to the growth of the economy by increasing work opportunities and shopping trends in the vicinity of residential areas, but also increasing crime rates.

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