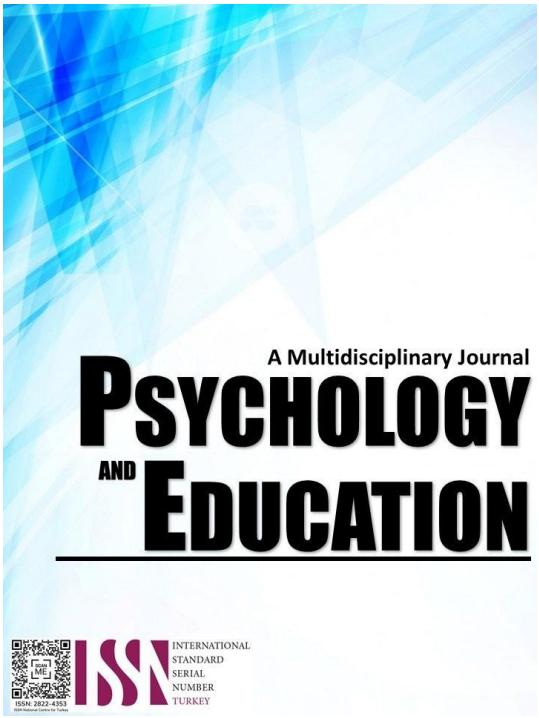
EXPLORING THE SOCIOECONOMIC AND ENVIRONMENTAL IMPACT OF URBANIZATION ON A RURAL BARANGAY IN TAYABAS CITY



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Research Article

Exploring the Socioeconomic and Environmental Impact of Urbanization on a Rural Barangay in Tayabas City

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Abstract

This study explored the impact of urbanization on rural areas, focusing on one barangay in Tayabas City. A descriptive survey and descriptive comparative research design were used in this study, which employed a quantitative approach. A self-made structured questionnaire was utilized in gathering data that involved a total of one hundred (100) residents using a quota sampling technique. The study examined how urbanization affected rural areas in terms of livelihood opportunities, lifestyles, access to social services, environmental impacts, and infrastructure development. Based on the study's results, among all variables, environmental impact had the highest average weighted arithmetic mean of 2.94, indicating agreement among respondents and indicating that it was most affected by urbanization. Meanwhile, lifestyle had the lowest average weighted arithmetic mean of 2.77, indicating agreement among respondents and suggesting that it was less affected by urbanization. The researchers also found that, among all variables, only employment status and livelihood opportunities showed significant differences, indicating that employment status influenced how individuals perceived livelihood opportunities in urban areas. Also, sex and lifestyle showed significant differences, suggesting that urbanization affected their lifestyles differently. The output of this study was sustainable development strategies to support rural areas in managing the impacts of urbanization. The output was based on each variable, including statements with the highest weighted arithmetic mean. The study contributes to understanding how urban expansion affects rural sustainability in developing regions such as the Philippines.

Keywords: *employment status, environmental impact, infrastructure development, lifestyle, livelihood opportunities, sustainable rural development, urbanization*

Introduction

Urbanization has significantly influenced rural areas in the Philippines, bringing both opportunities and challenges. As cities expand, rural communities transform livelihoods, lifestyles, and access to essential services. Many rural residents adapt to emerging economic opportunities, while others struggle with the decline of traditional sources of income. Access to education, healthcare, and infrastructure has improved in some areas but remains uneven, widening the gap between rural and urban living standards. Furthermore, rapid urban expansion puts increasing pressure on the environment, leading to deforestation, pollution, and land conversion. To address the growing complexity of urban development, the Philippine government has implemented several key policies.

The Urban Development and Housing Act of 1992 (Republic Act 7279) promotes continuous housing programs and improved living conditions for underprivileged citizens. The Balanced Housing Development Program Amendments (RA 10884) strengthen this law by requiring developers to allocate a portion of their projects to affordable housing. Likewise, the Department of Human Settlements and Urban Development Act (RA 11201) established a centralized agency to ensure sustainable housing and urban planning. These national initiatives align with Sustainable Development Goal (SDG) 11, which calls for inclusive, safe, resilient, and sustainable cities and human settlements.

Despite these policies, disparities between urban and rural areas persist. Many rural communities continue to face limited access to social services, infrastructure, and employment opportunities. While legislation promotes sustainable development, its effectiveness in addressing the social, economic, and environmental impacts of urbanization on rural areas remains unclear. This gap highlights the need for a deeper understanding of how urbanization affects rural communities and how government policies can be enhanced to achieve balanced development. Therefore, this study aims to explore the impact of urbanization on rural areas—particularly on livelihood opportunities, lifestyles, access to social services, environmental impacts, and infrastructure development. Understanding these impacts is vital for developing equitable and sustainable urban–rural linkages that promote inclusive growth, strengthen community resilience, and guide future planning and policy implementation.

Research Questions

The study generally aimed to explore the impact of urbanization on rural areas. Specifically, it sought to answer the following questions.

1. What is the demographic profile of the respondents in the rural areas in terms of:
   1.1 age;
   1.2 sex; and
   1.3 employment status?
2. What is the impact of urbanization on the rural areas of the respondents in terms of:
   2.1 livelihood opportunities;

2.2 lifestyle;
2.3 access to social services;
2.4 environmental impact; and
2.5 infrastructure development?

3. Are there significant differences in the perceived impact of urbanization when respondents are grouped according to demographic variables?
4. Based on the findings, what intervention or development framework can be proposed to mitigate the impact of urbanization on rural areas?

Methodology

Research Design

This study employed both descriptive survey and descriptive-comparative research designs to examine the impact of urbanization on rural areas. According to Siedlecki (2020), the descriptive survey design is widely used in social sciences to systematically gather data that reflect respondents' attitudes, experiences, and behaviors in their natural settings. It is beneficial for understanding prevailing social conditions without manipulating variables. This study allowed the researcher to collect firsthand information on how rural residents perceive and experience the effects of urbanization in their communities. To further address differences among groups, a descriptive-comparative design was also utilized. As noted by Iranifard and Latifnejad (2022), this approach involves systematically comparing two or more groups to determine significant variations in their responses or experiences. Here, it was applied to examine whether the perceived impact of urbanization varied across respondents' demographic profiles, such as age, sex, and employment status. The combination of these designs was appropriate because the study aimed not only to describe the current conditions of rural areas impacted by urbanization but also to examine whether these impacts differed across population segments. This dual approach provided a more comprehensive understanding of the phenomenon, capturing both general trends and contextual variations. Moreover, in the Philippine setting, where rural and urban transitions are shaped by socioeconomic diversity and migration patterns, these designs enabled meaningful comparisons that reflect real community experiences. The systematic collection and analysis of data thus supported the formulation of evidence-based insights and recommendations for rural development planning.

Respondents

The respondents in this study were 100 residents of one barangay in Tayabas City, selected from a total population of 2,135. The researchers used quota sampling to ensure the sample represented different segments of the barangay population affected by urbanization. Quota sampling, a non-probability sampling method, involves setting specific quotas based on key population characteristics to capture diverse perspectives (Nikolopoulou, 2023). In this study, the quota categories were determined using demographic variables relevant to the research objectives, specifically age, sex, and employment status. These criteria were chosen because they influence how individuals experience and perceive the effects of urbanization. For instance, younger residents and working-age adults may experience migration and employment shifts differently from older residents. At the same time, farmers and non-farm workers may have varying views on changes in livelihood and land use. The researchers first obtained demographic data from barangay records to establish proportional quotas for each category. For example, if 40% of the barangay population were employed in agriculture, approximately 40 respondents were drawn from this group. At the same time, the remaining 60 were attributed to other occupational sectors, such as services or government employment. Similarly, quotas were applied across age brackets and gender to maintain proportional representation. According to Nikolopoulou (2023), a sample size of one hundred (100) is adequate for identifying trends and patterns within a small community while maintaining an acceptable 10% margin of error and reasonable confidence level. Hence, applying quota sampling ensured that the selected respondents provided a balanced and representative reflection of the rural area population, allowing the study to capture the varied impacts of urbanization across different social and economic groups.

Instrument

The researchers used a self-made structured questionnaire to collect data regarding the impact of urbanization on rural areas. This instrument was designed based on the relevant literature and included three main parts, each focusing on a different set of variables. The first part gathered demographic information on respondents' age, sex, and employment status, while the second part assessed the impact of urbanization on livelihood opportunities, lifestyle, access to social services, environmental impacts, and infrastructure development. Each sub-variable consisted of 10 items, totaling 50 statements.

To ensure the validity and reliability of the self-developed survey checklist, the researchers followed a validation process. This process involved consultations with three experts. One expert conducted a face validation with the assistance of a language expert for proofreading, clarity, and adherence to guidelines. The other two experts conducted content validation, providing feedback on the instrument's alignment with the study objectives and variables. These experts had supported qualifications and extensive knowledge of the topic. Based on the validators' feedback and recommendations, the researchers made necessary modifications to the questionnaire to ensure its appropriateness and validity.

After pilot testing the instrument with 20 respondents from a nearby barangay, the questionnaire's reliability was measured using Cronbach's alpha, yielding a coefficient of 0.89, indicating high internal consistency. The research instrument was a printed survey questionnaire distributed through in-person interactions with the respondents. Each statement was rated using a four-point Likert scale: (4) Strongly Agree, (3) Agree, (2) Disagree, (1) Strongly Disagree.

Procedure

The researchers followed a systematic process to ensure ethical compliance and proper data collection. Before the study, permission was sought from the barangay captain and council members to conduct the research within the community. A formal request letter was submitted to the appropriate authorities, detailing the study's objectives, scope, and significance. Upon approval, the researchers proceeded with data gathering. The self-constructed survey checklist questionnaires were personally distributed to the selected respondents through face-to-face interactions. This approach allowed the researchers to explain the study's purpose, provide clear instructions, and address participants' questions. Data collection took place over two (2) days, and all completed questionnaires were retrieved and safely stored at the end of each day. Ethical considerations were strictly observed. Respondents were provided with an informed consent letter explaining the study's purpose, procedures, voluntary participation, and their right to withdraw at any time. Confidentiality and anonymity were maintained by avoiding the collection of personally identifiable information. All data were used solely for academic purposes and stored securely in compliance with the Data Privacy Act of 2012 (Republic Act No. 10173). After the data collection, responses were organized, encoded, and tabulated for statistical analysis. Descriptive statistics, including frequencies, percentages, and means, were used to interpret the results and draw conclusions aligned with the study's objectives.

Ethical Considerations

The study adhered to strict ethical standards to safeguard participants. Permission from school authorities was secured, and informed consent was obtained from all teacher-participants. Participation was voluntary, and respondents could withdraw at any time without penalty. Confidentiality and anonymity were maintained, with data stored securely and used only for academic purposes. The study complied with the Data Privacy Act of 2012 to ensure the protection of personal information.

Results and Discussion

This section presents the research results from the survey questionnaire exploring the impact of urbanization on rural areas. Hence, all the answers were classified, tallied, analyzed, and interpreted. The data was presented in the table and structured according to the problem statement.

Profile of the Respondents

Table 1. *Demographic Profile of the Respondents in terms of Age*

Descriptors	*Frequency*	*Percentage*
18-30 years old	37	37
31-40 years old	36	36
41 and above	27	27
Total	100	100

Note. The table presents the age distribution of the respondents. Most participants belong to the 18–30 age group (37%), followed by those aged 31–40 years (36%) and those aged 41 years and above (27%).

Table 1 presents the demographic profile of the respondents by age. The data were analyzed using a Frequency and Percentage Distribution, which summarizes how many respondents fall into each age category and the proportion they represent in the total sample. This statistical method helps describe the demographic composition of the respondents and provides a clearer understanding of the age groups involved in the study. The respondents were grouped into three age ranges: 18 to 30 years old, 31 to 40 years old, and 41 years old and above. Among 100 respondents, the 18- to 30-year-old age group had the highest proportion at 37%, indicating that young adults are more engaged and available to participate in studies on urbanization. This may be because younger people are more exposed to changes in lifestyle, technology, and employment brought about by urbanization. They are also more likely to adapt quickly to urban trends and may be more aware of the opportunities and challenges of urban growth. As noted by Buttazzoni et al. (2021), young people often respond more readily to surveys, especially on topics such as urban change, because they are more active and eager to share their views. This age group may also feel the impacts of rural-to-urban migration more directly since many are deciding whether to stay in or leave their hometowns.

On the other hand, the 41 years and above age group had the lowest proportion at 27%, suggesting that older individuals may be less involved in discussions or surveys on urbanization. This could be due to less interest in urban-related changes. Older adults may also have more traditional views and may not experience the impacts of urbanization as directly as younger groups. As Baker and Watanabe (2017) explain, older adults, particularly those aged 41 and above, tend to have lower survey participation rates for several reasons. These older individuals may be less inclined to participate in surveys due to lower literacy, reduced interest in research participation, and time constraints related to family or work responsibilities.

As Lichter and Ziliak (2017) stated, these patterns align with earlier studies showing that younger generations are more engaged in research on urban-rural change, while older residents often remain a quieter voice. In another study, Choi (2020) found that people

aged 18 to 40 are more active in community planning and are more open to change, which may explain their higher participation in this survey. These findings support the results shown in the table and help understand the role of age in shaping individuals' perception of urbanization. Meanwhile, Salama et al. (2022) found that older adults aged 41 and above may have established perspectives on urbanization and societal changes, making them less likely to participate in discussions or surveys that focus on evolving trends. Additionally, older respondents may be more skeptical about sharing personal information, which can contribute to lower response rates.

Table 2. *Demographic Profile of the Respondents in terms of Sex*

Descriptors	*Frequency*	*Percentage*
Male	50	50
Female	50	50
Total	100	100

Note. The table presents the age distribution of the respondents. Most participants belong to the 18–30 age group (37%), followed by those aged 31–40 years (36%) and those aged 41 years and above (27%).

Table 2 presents the demographic profile of the respondents by sex. The data were analyzed using a Frequency and Percentage Distribution, which summarizes how many respondents fall into each age category and the proportion they represent in the total sample. This statistical method helps describe the demographic composition of the respondents and provides a clearer understanding of the age groups involved in the study. The table shows that of the 100 respondents, 50 are male and 50 are female. This means there are equal numbers of male and female respondents in the study, giving each group a 50% share.

The data explicitly shows that both males and females are equally represented in the study. There were 50 male respondents and 50 female respondents, each group comprising 50% of the total, indicating that equal participation helps provide a more complete and unbiased view of how urbanization may be impacting people in rural areas. Since both sexes may experience changes differently, these findings are supported by previous studies by Trask (2022), which show that equal participation helps ensure that the findings reflect the experiences and opinions of both sexes. It is essential to hear from both males and females because they may experience changes differently. Males and females may face different challenges and opportunities in jobs, education, and access to services, especially in areas affected by urban growth. Ensuring an equal number of male and female respondents contributes to a more accurate understanding of the impact of urbanization.

These findings are consistent with those of Weber et al. (2021); having a balanced number of male and female respondents is essential for obtaining well-rounded insights into social studies. Similarly, Zhal et al. (2022) found that males and females often hold different yet equally crucial views on the community changes brought about by urbanization. A study by Lwamba et al. (2019) found that gender-balanced samples provide more accurate and fair insights, especially in topics such as urban development and rural life. These studies support the value of equal participation by sex or gender, as seen in this data.

Table 3. *Demographic Profile of the Respondents in terms of Employment Status*

Descriptors	*Frequency*	*Percentage*
Employed	63	63
Self Employed	17	17
Unemployed	20	20
Total	100	100

Note. The table presents the age distribution of the respondents. Most participants belong to the 18–30 age group (37%), followed by those aged 31–40 years (36%) and those aged 41 years and above (27%).

Table 3 presents the demographic profile of respondents by employment status. The data were analyzed using a Frequency and Percentage Distribution, which summarizes how many respondents fall into each age category and the proportion they represent in the total sample. This statistical method helps describe the demographic composition of the respondents and provides a clearer understanding of the age groups involved in the study. It shows how many of the respondents are employed, self-employed, or unemployed. Among 100 respondents, the used category had the highest proportion at 63%, indicating that most respondents are part of the formal workforce. This suggests that many rural residents depend on stable income sources and may benefit from employment opportunities in or near urban areas. It also reflects how access to transportation, education, and urban services may help rural individuals find work in urban areas. Based on the findings of Ritchie et al. (2018), many residents become employed during urbanization because more jobs and opportunities are created in cities. Urban areas have better infrastructure, such as transportation and communication, which help employees. In addition, population movement to urban areas changes lifestyles and work habits, enabling more people to enter formal employment. Urbanization creates more employment opportunities, which is why more people are employed than in rural areas.

Meanwhile, the self-employed category obtained the lowest proportion of 17%, indicating that fewer respondents rely on personal businesses or informal work. This may be due to rising costs of starting a business, increased competition, or limited access to capital and resources in rural areas. Urbanization can sometimes make it harder for small businesses to survive, especially when larger companies enter the market. This shows that urban growth often favors formal employment over informal or self-run companies, which may discourage rural entrepreneurship. As Hernandez (2021) explains, fewer residents are self-employed in urbanized areas because many prefer formal employment, which offers more stable income, benefits, and job security. In urban areas, it is often easier to find

work in companies, factories, or offices than to start a personal business, which requires capital permits and faces intense competition. Urbanization usually leads to higher living costs and the rise of large companies, making it harder for small entrepreneurs to compete. As a result, many people choose to work for companies rather than start their own business.

The findings in this table are supported by Litsardopoulos et al. (2020), who found that urban growth often extends to nearby rural areas, creating new employment opportunities for local people. This increase in job availability can help reduce poverty and improve living standards for rural residents. The highest employment rate reflects the way urban growth creates labor demand, leading to a shift from agricultural work to formal employment. A significant number of rural residents migrate to urban areas seeking stable wages, better working conditions, and career advancement, which absorbs a large portion of the workforce. Meanwhile, Hernandez (2021) found that these self-employed individuals had the lowest percentage among respondents because urbanization creates more formal jobs, leading people to prefer stable employment over the risks of self-employment. As urban businesses expand into rural areas, local entrepreneurs face tougher competition. A significant number of rural residents may also lack access to capital, training, or support needed to start their businesses. Urbanization often favors larger industries, which can limit opportunities for small, self-run enterprises. In another study by Belanche et al. (2021), urbanization is strongly linked to employment status in rural areas, often improving access to jobs but not consistently supporting the growth of small businesses. Urbanization brings opportunities and positive changes, but it does not benefit all sectors of rural society equally.

Exploring the Impact of Urbanization on Rural Areas

Table 4. *Exploring the Impact of Urbanization on Rural Areas in terms of Livelihood Opportunities*

Indicators	*WAM*	*Verbal Interpretation*
8. I have found it more challenging to start a business now because of higher costs.	2.99	Agree
3. I have observed more businesses and industries being established in my area over time.	2.92	Agree
7. I have noticed that many people in my community have moved to the city for better job opportunities	2.91	Agree
2. I have noticed that the majority of my family members now have jobs or stable work.	2.85	Agree
5.I have known people who found better job opportunities because of industrialization.	2.85	Agree
10. I have found it more difficult to buy necessities at home today compared to five years ago.	2.85	Agree
6. I have seen fewer people working in farming as compared to the past.	2.84	Agree
4.I have seen that wages for my family members have increased over the years.	2.75	Agree
9. I observed that some people in my community are finding it harder to earn a living compared to before.	2.75	Agree
1. I have learned skills in my community that helped me earn more	2.50	Agree
Average Weighted Arithmetic Mean	2.86	Agree

Note. The WAM (weighted arithmetic mean) was used to interpret the survey responses. In this context, the range 1.00-1.75 indicates Strongly Disagree, 1.76-2.50 Disagree, 2.51-3.25 Agree, and 3.26–4.00 Strongly Agree.

Table 4 on the next page presents the impacts of urbanization on rural areas, as reflected in residents' responses, regarding livelihood opportunities. The data were analyzed using Weighted Arithmetic Mean to determine the overall level of agreement for each indicator. Percentage and ranking were also used to identify the highest- and lowest-rated items, providing a clearer understanding of respondents' perceptions. The table includes ten different indicators, each showing how people feel about livelihood opportunities, income, and skills development. The numbers in the table represent the weighted arithmetic mean, which helps show the overall level of agreement among respondents.

The data explicitly show that the weighted arithmetic mean is 2.86, with a verbal interpretation of "Agree." This indicates that many rural residents see urbanization as a way to improve their income, daily lives, and livelihoods. They are experiencing more job opportunities, not just in farming but also in business, transportation, and service-related work. However, there are still challenges, such as higher living costs, more competition for jobs, and the need to learn new skills. Some families may feel pressure to leave farming or move to cities, which can impact their traditional way of life. According to Sakketa (2023), urbanization creates economic opportunities. It encourages better infrastructure and services that can benefit nearby rural areas, such as new job opportunities and the development of new skills that help them earn more. Urbanization provides economic opportunities and improved services that can support rural areas. However, rapid changes may also create difficulties for those who are not yet ready or lack access to the tools and support needed for success.

The highest weighted arithmetic mean is 2.99 for the statement: "I have found it more challenging to start a business now because of higher costs," with verbal interpretation of Agree. This implies that many people feel the cost of living and the cost of starting a business have become more burdensome due to urbanization. The cost of land, rent, and supplies increases, making it harder for small businesses to survive. As explained by Rode et al. (2021), as urbanization grows, the cost of goods, rent, and services in rural areas also increases. This makes it harder for people to afford to start a new business. More people moving to towns and cities also brings competition and changes in the local economy.

The lowest weighted arithmetic mean is 2.50 for the statement: "I have learned skills in my community that helped me earn more," with verbal interpretation of Agree. This shows that while many people see improvement, others may feel left out. Some individuals may not have had access to training programs or may not see the benefits as clearly. According to Bhardwaj (2022), opportunities for urbanization are not evenly distributed. Some rural areas may be too far from cities, and at times, residents experience the impacts of

urbanization on their way of life. As a result, they may struggle to adapt to urbanization and to apply specific skills within their community.

In general, the fact that all ten (10) indicators received an "Agree" rating shows that, while people see some opportunities, such as more jobs and higher wages, they are also facing new problems, such as higher costs of living and fewer farming jobs. Residents agree because they feel both the opportunities and challenges of urban growth in their daily lives. This shows that urbanization brings development but also creates challenges for rural areas. As stated by Kookana et al. (2020), many people find it harder to start businesses or buy basic needs due to rising costs, showing the challenges, they face. At the same time, they see more jobs, industries, and higher wages, which are among the opportunities brought by urban growth. Urbanization changes rural life by bringing development, but it also leads to higher living expenses and fewer people working in farming. These results agree with studies showing that urbanization can improve livelihoods but also create new challenges for rural areas.

Table 5. *Exploring the Impact of Urbanization on Rural Areas in terms of Lifestyle*

Indicators	*WAM*	*Verbal Interpretation*
3. I have observed more modern entertainment options available in my community.	2.91	Agree
6. I have not enhanced my personal growth because urban life feels overwhelming.	2.86	Agree
7. I have seen more recreational spaces, like parks and gyms, being built in my area.	2.86	Agree
2. I have seen improvements in my family's standard of living over the years.	2.85	Agree
10. I have not discovered a healthier lifestyle due to the challenges of city life.	2.82	Agree
8. I have observed that my daily routine has changed because of urbanization.	2.77	Agree
9. I have noticed that crime rates in my area have increased over the years.	2.77	Agree
1. I have noticed that I can now visit malls more often than before.	2.72	Agree
4. I have experienced easier travel due to better roads and transportation systems.	2.54	Agree
5. I have noticed that people in my area are more mindful of their health and hygiene.	2.43	Disagree
Average Weighted Arithmetic Mean	2.77	Agree

Note. The WAM (weighted arithmetic mean) was used to interpret the survey responses. In this context, the range 1.00-1.75 indicates Strongly Disagree, 1.76-2.50 Disagree, 2.51-3.25 Agree, and 3.26–4.00 Strongly Agree.

Table 5 presents the impact of urbanization on rural areas, as reported by residents, in terms of lifestyle. It includes 10 indicators that examine how urbanization has affected daily habits and overall well-being. The data were analyzed using Weighted Arithmetic Mean to determine the overall level of agreement for each indicator. Percentage and ranking were also used to identify the highest- and lowest-rated items, providing a clearer understanding of respondents' perceptions. Based on the scores, a large proportion of respondents agreed that urbanization has impacted their lives in both positive and challenging ways.

The explicit shows that the average weighted arithmetic mean is 2.77, with a verbal interpretation of "Agree." This indicates that a significant portion of the respondents see that urbanization has changed how they live. These changes could include more recreational activities, better access to entertainment, or changes in routines. This suggests that many people in rural areas are now experiencing a shift in how they spend their time and manage their daily activities. Urbanization may have brought more opportunities for leisure, such as parks, shopping centers, and internet access, which were once limited in rural places. As explained by Martinez (2021), rural areas near cities often adopt urban ways of life because the services, culture, and habits of city people influence them. This supports the idea that respondents are experiencing lifestyle changes, such as improved living standards and greater access to entertainment, as a result of their proximity to urban development.

The highest weighted arithmetic mean is 2.91 for the statement: "I have observed more modern entertainment options available in my community," with verbal interpretation of Agree. This shows that the most significant change noticed by the respondents is the increased access to entertainment such as malls, internet cafés, and other leisure activities. As cities grow, they often bring modern services closer to rural areas. As explained by Behr et al. (2021), urban growth brings not only jobs and housing but also social services and entertainment facilities into rural areas and suburbs. These developments make rural life more connected to city life, which explains why people now enjoy more modern leisure activities. This shift suggests that rural communities are no longer isolated from the lifestyle changes brought by urbanization. Entertainment options, once considered luxuries in rural areas, are now part of everyday life. The convenience and variety of these new leisure choices may contribute to improved well-being and social engagement among residents. As a result, respondents may associate urbanization with positive lifestyle improvements, particularly in how they spend their free time.

The lowest weighted arithmetic mean is 2.43 for the statement: "I have noticed that people in my area are more mindful about their health and hygiene," with a verbal interpretation of "Disagree," meaning that many people feel that urbanization has not led to better awareness or behavior when it comes to health and hygiene. This indicates that while urban areas may have better health facilities, people in rural areas may not yet be fully adopting healthier lifestyles. As Coombs et al. (2020) stated, having access to services alone does not guarantee healthy behavior. Residents also need health education and community programs to change their habits. Even though urbanization brings more clinics or pharmacies, rural residents may still lack proper health awareness. Similarly, Gebre and Gebremedhin (2019) pointed out that while having hospitals and clinics nearby is essential, it is not enough to improve health. People must also be educated about healthy habits and motivated to use healthcare services. For example, even if a village has a new clinic, some residents may still avoid check-ups unless they understand why they are essential.

In general, the data show that respondents agreed that urbanization has changed their lifestyles. All indicators received an "Agree" rating, except one, indicating that rural residents typically perceive urban life as bringing noticeable changes to how they live. They now have more entertainment, recreation, shopping, and transportation options than before. Many have also noticed changes in their routines, living standards, and even local crime rates, showing both opportunities and challenges of urban impact. However, one indicator of health awareness received a "Disagree" rating, indicating that not everyone feels that urban life has helped them become more mindful of their health and hygiene. This pattern may suggest that while urbanization has improved convenience and enjoyment, it has not strongly impacted healthy habits or wellness behavior in rural areas. This aligns with Mandeli's (2019) findings, which explain that urban impact often transforms surrounding rural areas, affecting people's behavior, family routines, and quality of life. These changes bring more activities and modern ways of living, but they may also lead to stress, unhealthy eating, or reduced physical activity. Therefore, while the lifestyle has become more contemporary, it does not always mean it is healthier or more balanced. The findings reveal that rural areas benefit from urbanization in lifestyle upgrades, but there is still a need to support healthy living and emotional well-being.

Table 6. *Factors Exploring the Impact of Urbanization on Rural Areas in terms of Access to Social Services*

Indicators	*WAM*	*Verbal Interpretation*
1. I have observed the availability of health centers that made medical care easier to reach compared to 5 years ago.	2.96	Agree
3. I have noticed that my children and community members no longer have difficulty attending school because the institution is close to our community due to urbanization.	2.96	Agree
2. I have found it easier to access medical services compared to before.	2.95	Agree
6. I have noticed that emergency services, like fire and police response, have improved.	2.90	Agree
9. I have seen that more people now have access to clean water and proper sanitation.	2.89	Agree
10. I have not received emergency services on time because of delays and inefficiencies.	2.88	Agree
4. I have noticed that urbanization has made it harder for my children and community members to attend school due to overcrowding and increased traffic in our area.	2.86	Agree
8. I have found it more expensive to avail of healthcare services today.	2.77	Agree
7. I have observed that government healthcare access in my area is often limited, making it hard to receive immediate medical attention.	2.76	Agree
5. I have noticed that social services are more focused on urban areas than on rural areas.	2.58	Agree
Average Weighted Arithmetic Mean	2.85	Agree

Note. The WAM (weighted arithmetic mean) was used to interpret the survey responses. In this context, the range 1.00-1.75 indicates Strongly Disagree, 1.76-2.50 Disagree, 2.51-3.25 Agree, and 3.26–4.00 Strongly Agree.

Table 6 on the next page presents an exploration of the impact of urbanization on rural areas regarding access to social services. The table shows how rural regions experience changes in healthcare, education, emergency services, and sanitation due to urban development. The data were analyzed using Weighted Arithmetic Mean to determine the overall level of agreement for each indicator. Percentage and ranking were also used to identify the highest- and lowest-rated items, providing a clearer understanding of respondents' perceptions. All indicators received a verbal interpretation of "Agree," indicating that respondents generally experienced the impact of urbanization, both opportunities and challenges, in terms of access to social services in rural areas.

The data explicitly show that the weighted arithmetic mean is 2.85, indicating that respondents agreed that urbanization improved access to social services. This suggests that respondents generally experienced changes in access to social services as a result of urbanization. These changes included better access to education, healthcare, water, sanitation, and emergency response services. However, despite these improvements, some areas still face challenges, such as delays, rising service costs, and uneven availability in remote rural areas. This finding supports the report by Mouratidis (2021), which explains that urban development often improves rural services, especially health centers and schools, and extends roads, clinics, and schools into areas. This makes services easier for rural people to reach, but access gaps can persist due to limited resources, strained infrastructure, or distance from main service hubs.

The highest weighted arithmetic mean of 2.96 is shared by two indicators: (1) "I have observed the availability of health centers that made medical care easier to reach compared to 5 years ago," and (2) "I have noticed that my children and community members no longer have difficulty attending school because the institution is close to our community due to urbanization." with verbal interpretation of Agree. These indicate that people feel urbanization brought hospitals and schools closer to them. Also, these findings reflect positive outcomes of rural-to-urban integration, where the growth of nearby towns or cities helps smaller areas gain access to health and education services. These findings align with Goel and Vishnoi (2022), who argue that better access to social services, such as health centers and education, due to urban growth often benefits rural areas by improving access to key services. The improved facilities and road networks in rural areas are usually driven by urban expansion. When schools and health centers are nearer, and travel is reduced, families save time and money, improving daily life and well-being.

On the other hand, the lowest weighted arithmetic mean is 2.58 for the indicator "I have noticed that social services are more focused on urban areas than on rural areas," with a verbal interpretation of Agree. Even though this score still falls under "Agree," it shows that some rural residents feel left behind. They think most social services are still centered in urban areas. This concern is supported by Rode et al. (2021), which emphasizes that although some rural areas may receive more services, the unequal distribution persists. Rural residents often have to wait longer or travel farther. In general, all indicators received an "Agree" rating, which means people recognize

the positive influence of urbanization, even if the changes are not perfect. These results imply that rural residents are aware of improvements but also notice existing gaps.

In general, all indicators received an "Agree" rating, which means people recognize the positive impact of urbanization, even if the changes are not perfect. These results imply that rural residents are aware of improvements but also notice existing gaps. All respondents rated each indicator as "Agree," showing a shared belief that urbanization has brought noticeable improvements to rural areas. While the levels of agreement vary slightly, everyone agrees that services such as healthcare, education, water, and emergency response have generally become more available or accessible.

These findings align with Kaiser and Barstow (2022), stating that residents experience positive opportunities due to the impact of urbanization in their area. Some residents gain access to essential services such as health centers, education, transportation, and other social services. For example, new hospitals and clinics may open, allowing people to receive medical care closer to home. Schools may expand or improve their programs, offering students better learning opportunities. Public transportation can also become more available, making travel easier and more affordable for residents.

Table 7. *Exploring the Impact of Urbanization on Rural Areas in terms of Environmental Impact*

Indicators	*WAM*	*Verbal Interpretation*
9. I have felt the impacts of trees being cut down for building projects.	3.12	Agree
6. I have seen forests and natural areas destroyed because of city development.	3.05	Agree
7. I have experienced more noise in my area because of nearby urban activities.	3.05	Agree
8. I have noticed rivers becoming dirtier due to waste from nearby cities.	3.03	Agree
2. I have observed animals and plants being protected in my area.	3.02	Agree
1. I have experienced fresh air quality in my area.	3.00	Agree
4. I have experienced less flooding because of better drainage systems.	2.90	Agree
3. I have observed improvements in waste management systems.	2.84	Agree
10. I have seen farmland disappearing because of city expansion.	2.77	Agree
5. I have been able to use clean water in our area, even though the place is urbanized.	2.62	Agree
Average Weighted Arithmetic Mean	2.94	Agree

Note. The WAM (weighted arithmetic mean) was used to interpret the survey responses. In this context, the range 1.00-1.75 indicates Strongly Disagree, 1.76-2.50 Disagree, 2.51-3.25 Agree, and 3.26–4.00 Strongly Agree.

Table 7 on the next page presents the environmental impacts of urbanization on rural areas, using indicators such as deforestation, noise pollution, water quality, waste management, air quality, and flooding. The data were analyzed using Weighted Arithmetic Mean to determine the overall level of agreement for each indicator. Percentage and ranking were also used to identify the highest- and lowest-rated items, providing a clearer understanding of respondents' perceptions. All indicators received a verbal interpretation of "Agree," indicating that respondents recognize both the challenges and opportunities of urban development's environmental impacts on rural areas.

The data explicitly shows that the average weighted arithmetic mean is 2.94, with a verbal interpretation of "Agree." This means that respondents generally agree that urbanization has had a noticeable impact on the environment around their rural areas. Some of these changes are harmful, such as deforestation and pollution, while others are helpful, such as improved drainage and waste systems. As explained by Ritchie (2021), urban expansion often brings mixed environmental impacts: while pollution may increase, infrastructure development can also lead to cleaner water and improved sanitation in nearby areas. Ecological changes are among the most clearly observed effects of urbanization by rural residents. Respondents likely notice both the negative and positive outcomes, making this variable more relatable and visible in their daily lives. The presence of improved drainage and sanitation, despite pollution concerns, shows how urban growth can simultaneously cause harm and introduce beneficial systems. This balance of effects explains why many agreed on the environmental impact; it is something they can feel, see, and live with every day.

The highest weighted arithmetic mean is 3.12, found in the statement: "I have felt the impacts of trees being cut down for building projects," with verbal interpretation of Agree. This suggests that tree cutting is the most visible and impactful environmental issue respondents notice. This means that many people living in rural areas strongly feel the impacts of tree removal caused by urban development. It shows that tree cutting is the most visible and impactful environmental issue noticed by respondents. People are likely experiencing changes in their surroundings, such as hotter temperatures, fewer animals, and reduced air quality. These findings align with those of Lin et al. (2022), who found that cutting down trees is something people can easily see and feel in their daily lives. When trees are removed, the environment changes quickly. There is less shade, more dust, and even a change in the way the land looks. Deforestation disrupts the balance of nature, leading to problems such as soil erosion, habitat loss for animals, and poor air quality. Rural areas depend more on nature, so any changes in their environment are more noticeable to them. Compared to other impacts of urbanization, tree-cutting is more direct to observe. That is why many residents agree with this statement. It reflects a strong and real experience they have had.

The lowest weighted arithmetic mean is 2.62 for the statement: "I have been able to use clean water in our area even though the place is urbanized," with a verbal interpretation of Agree. Although still within the "Agree" range, this lower score implies that access to clean water is a more complex issue. While some respondents still have access to clean water, it may not be consistent or reliable for

all. Urbanization can disrupt water sources and introduce pollutants. A study by Kabir et al. (2022), urban expansion often threatens rural water supplies due to contamination and overuse. In some areas, the water delivery system may not have kept pace with urban growth, leading to unequal distribution. Additionally, residents experienced seasonal shortages or observed declines in water quality, contributing to uncertainty about access, which may explain why this indicator received the lowest level of agreement.

In general, respondents gave "Agree" ratings to all indicators, indicating consistent recognition of environmental changes. This suggests that the environment has both challenges and opportunities for rural areas. Urbanization has brought modern conveniences, such as better healthcare, education, and entertainment, improving the quality of life for many residents. However, it has also led to environmental challenges, including deforestation, pollution, and loss of farmland, which impact rural areas. As explained by Priyadarshini et al. (2022), this could be due to both challenges and opportunities created by urbanization. Challenges include noise pollution, river contamination, and loss of farmland, all of which negatively impact rural life and the environment. However, some residents may also see opportunities, such as better drainage systems and improved waste management. This dual perception reflects the complexity of urban expansion. Rural areas may face environmental degradation, but also benefit from improved infrastructure and access to services. This means that rural communities are not only facing problems from urban growth but are also gaining helpful developments. These mixed impacts may leave people unsure, leading them to see urbanization as both valuable and harmful. As a result, respondents may have agreed with the indicators, recognizing that urbanization has a double impact on their environment.

Table 8. *Exploring the Impact of Urbanization on Rural Areas in terms of Infrastructural Development*

Indicators	*WAM*	*Verbal Interpretation*
5. I have noticed streetlights that made our area safer at night.	2.97	Agree
1. I have experienced smoother road connectivity between rural and urban areas due to infrastructural development.	2.94	Agree
3. I have seen new job opportunities created for my family through infrastructural development projects.	2.89	Agree
4. I have observed improved communication systems helping my family connect better due to infrastructural growth.	2.86	Agree
7. I have noticed poorly planned infrastructure projects that caused traffic congestion in my area.	2.84	Agree
9. I have seen poorly constructed infrastructures that didn't last long.	2.83	Agree
2. I have benefited from the better healthcare services introduced in my area through new infrastructure projects.	2.82	Agree
6. I have seen my family struggle with higher living costs due to infrastructure expansions.	2.76	Agree
8. I have experienced disruptions in daily life due to ongoing construction in our community.	2.69	Agree
10. I have not reached markets easily because transportation systems remain inadequate.	2.66	Agree
Average Weighted Arithmetic Mean	2.84	Agree

Note. The WAM (weighted arithmetic mean) was used to interpret the survey responses. The range 1.00-1.75 indicates Strongly Disagree, 1.76-2.50 Disagree, 2.51-3.25 Agree, and 3.26–4.00 Strongly Agree.

Table 8 on the next page presents rural residents' perceptions of how urbanization has impacted infrastructure in their communities. The table includes 10 indicators, including streetlight availability, road connectivity, job creation, communication systems, and challenges such as traffic congestion and construction disruptions. The data were analyzed using Weighted Arithmetic Mean to determine the overall level of agreement for each indicator. Percentage and ranking were also used to identify the highest- and lowest-rated items, providing a clearer understanding of respondents' perceptions. All responses fall within the "Agree" range, indicating that people generally feel urbanization has brought visible changes to their rural areas, both challenges and opportunities.

The data explicitly show that the weighted arithmetic mean is 2.84, indicating that respondents generally agree that infrastructural development has had an impact. As highlighted by Prince (2024), urbanization often brings new infrastructure to rural areas, including improved roads, streetlights, and communication systems. This helps improve safety, mobility, and access to basic services. When infrastructure improves, people can travel more easily, get healthcare faster, and feel safer in their communities. Better infrastructure also encourages businesses to grow, creating more jobs and improving incomes in rural areas. As a result, public infrastructure plays an essential role in improving both the quality of life and economic development in less-developed communities. Similarly, Kaiser and Barstow (2022) note that, as urbanization spreads outward, rural areas often gain from improved roads, streetlights, and communication systems. These benefits were reflected in the responses.

The highest weighted arithmetic mean is 2.97 for the statement, "I have noticed streetlights that made our area safer at night." This indicates that lighting is one of the most significant changes and impacts. Residents feel more secure due to better visibility, which reduces the risk of accidents or crime when walking outside after dark. Good lighting creates a better environment, allowing residents to go about their evening activities without fear. These findings are supported by Lombo and Subban (2024), who argue that basic infrastructure, such as lighting, can significantly improve public safety in developing rural areas. Mirovic (2023) states that street lighting plays a crucial role in reducing nighttime accidents and crime rates, and well-lit regions improve visibility, making it easier for pedestrians and drivers to navigate safely. Additionally, solar-powered streetlights have been introduced in many developing regions to provide sustainable lighting solutions, ensuring continuous illumination without high electricity costs. These suggest that urbanization should prioritize infrastructure improvements, such as street lighting, to support community safety and economic activity.

The lowest weighted arithmetic mean is 2.66, for "I have not reached markets easily because transportation systems remain inadequate." This shows that while infrastructure has improved in some ways, access to economic opportunities, such as local markets, still needs

attention. This aligns with Xiong et al. (2024), who explained that many rural areas struggle with poor transport access even when nearby cities expand, making it harder for residents to participate in urban economies.

In general, all indicators received "Agree" ratings, showing that respondents recognize both the opportunities and challenges brought by infrastructure development. On the positive or opportunities side, urbanization brings better roads, healthcare services, and communication systems. However, people also face higher living costs, traffic congestion, and inconvenience from poorly planned or temporary projects. This mix reflects what Du and Jiao (2023) described as the "dual effects" of urbanization, in which growth can both help and impact rural areas simultaneously. Residents understand that urbanization is not just about progress. It also comes with adjustments and complications. Similarly, Talat (2021) further explains that despite infrastructure challenges, rural residents often recognize its opportunities and remain hopeful about future improvements. Rural areas also see new opportunities arising from urban expansion. Although some areas still struggle with poor planning or unequal access, people tend to support infrastructure projects because they improve mobility and economic stability. This explains why respondents in the survey continue to acknowledge progress while also identifying ongoing difficulties.

Significant Difference in Exploring the Impact of Urbanization on Rural Areas When Grouped into Demographic Profile Variables

Table 9. *Considerable Difference in Exploring the Impact of Urbanization on Rural Areas of the Respondents when Grouped According to Demographic Profile*

Variable	*H statistic*	*p-value*	*Decision*	*Interpretation*
Age				
Livelihood Opportunities	0.077	0.962	Accept H_o	Not Significant
Lifestyle	1.361	0.506	Accept H_o	Not Significant
Access to Social Services	0.659	0.719	Accept H_o	Not Significant
Environmental Impact	1.138	0.566	Accept H_o	Not Significant
Infrastructure Development	0.432	0.915	Accept H_o	Not Significant
Employment Status				
Livelihood Opportunities	12.949	0.002*	Reject H_o	Significant
Lifestyle	2.950	0.229	Accept H_o	Not Significant
Access to Social Services	0.396	0.820	Accept H_o	Not Significant
Environmental Impact	2.554	0.279	Accept H_o	Not Significant
Infrastructure Development	0.552	0.254	Accept H_o	Not Significant
	U statistic	p-value	Decision	Interpretation
Sex				
Livelihood Opportunities	1,217.500	0.821	Accept H_o	Not Significant
Lifestyle	896.000	0.014**	Reject H_o	Significant
Access to Social Services	1,195.500	0.704	Accept H_o	Not Significant
Environmental Impact	1,015.500	0.102	Accept H_o	Not Significant
Infrastructure Development	1.086.000	0.254	Accept H_o	Not Significant

Note. There are 37 respondents aged 18 to 30, 36 aged 31 to 40, and 27 aged 41 and above. There are 50 male respondents and 50 female respondents. Sixty-three respondents are employed, 17 are Self-employed, and 20 are Unemployed. The difference is analyzed at the 0.05 alpha level.
**p < .01 **p < .05*

Table 9 presents the study's findings on how urbanization affected residents in rural areas by age, sex, and employment status. The data were analyzed using the Kruskal–Wallis H-test to determine whether there were significant differences in responses across age, sex, and employment status groups. These tools were used because they effectively measure variations in perceptions across groups without assuming normality. The table determined five variables: livelihood opportunities, lifestyle, access to social services, environmental impact, and infrastructure development. A statistical test was used to determine whether the differences in responses were significant at the 0.05 level. This meant that if the p-value was below 0.05, the difference was considered statistically significant.

The data showed no significant difference in the impact of urbanization on rural areas across age groups. This meant that people of different ages, whether young adults, early middle-aged adults, or older adults, had similar experiences with the impacts of urbanization. One reason for this could be that urban development affected the entire rural area, so people of all ages noticed the same changes. As noted by Buttazzoni et al. (2021), age may not always have been a significant factor in how people felt about urbanization, especially in small communities where development affected everyone equally.

The data showed a significant difference between sex and lifestyle, with a p-value of 0.014, showing that sex played a key role in how urbanization changed daily life in rural areas. Urbanization affects lifestyle differently by sex, as males and females often experience changes in work, social roles, and daily routines in distinct ways. These findings supported Trask's (2022) finding that males and females reacted differently to urban changes, especially in rural areas. Females often took on more responsibilities at home and in rural areas, and urbanization either helped or increased their workload, depending on the situation. In rural settings, new lifestyles impacted by urban trends such as education, technology, and mobility impacted females more because they were often the ones managing family and health needs.

There was a significant difference between employment status and livelihood opportunities (p-value = 0.002). This meant that people

who were employed, self-employed, or unemployed experienced the impacts of urbanization on income and jobs differently. Those who were employed benefited more from new jobs created through urban development. Meanwhile, unemployed individuals lacked the skills or resources to take advantage of these opportunities, which made urbanization less beneficial to them. These findings align with Gomez (2019), who explained that people's work situations impacted how much they benefited from urban growth. Employed people enjoyed a more stable income and access to services, while unemployed or self-employed people struggled due to fewer job options or a lack of capital. Similarly, Nguyen and Chen (2022) found that in rural areas, unemployed individuals often faced challenges such as skill mismatches or limited access to new job markets, making it harder for them to benefit from urbanization.

Based on the findings, the largest group of respondents was young adults aged 18 to 30, with 37 respondents, accounting for 37% of the total. Regarding sex distribution, male and female respondents were equally represented, each with a frequency of 50, making up 50% of the total. In employment status, employed had the highest frequency of 63 (63%).

The impact of urbanization on rural livelihood opportunities received an average weighted arithmetic mean of 2.86, with a verbal interpretation of Agree. Lifestyle had a weighted arithmetic mean of 2.77, with a verbal interpretation of 'Agree'. Access to Social Services received a weighted arithmetic mean of 2.85, with a verbal interpretation of Agree. Environmental impact received an average weighted arithmetic mean of 2.94, with a verbal interpretation of Agree. Infrastructural Development received a weighted arithmetic mean of 2.84, with a verbal interpretation of Agree.

In terms of Age, the computed H-statistic got 0.915 and a P value of 0.633 at a 0.05 alpha level of significance, leading to a statistical decision of accepting the null hypothesis, which proves that there is no significant difference in the impact of urbanization on rural areas when the respondents are grouped according to their ages. Regarding Sex and Lifestyle, the computed U-Stat was 896.000, and the P-value of 0.014 at a 0.05 alpha level of significance leads to a decision to reject the null hypothesis, indicating a significant difference in the impact of urbanization on rural areas when respondents are grouped by sex. Lastly, between Employment Status and Livelihood Opportunities, the computed H-Stat value is 12.949, with a P-value of 0.002 at a 0.05 alpha level of significance. This leads to the statistical decision to reject the null hypothesis, indicating that the impact of urbanization on rural areas differs by employment status.

The sustainable development strategies focused on exploring the impact of urbanization on rural areas, particularly on access to social services, lifestyles, livelihood opportunities, environmental impacts, and infrastructure development. The output was based on each variable, including statements with the highest weighted arithmetic mean. Since this was the highest result, the researchers developed sustainable development strategies in the form of a pamphlet.

Conclusions

The study examined the impact of urbanization on rural areas, focusing on respondents' demographic profiles and their perceptions across several variables: livelihood opportunities, lifestyle, access to social services, environmental impact, and infrastructure development. The results revealed that most respondents were young adults, with an equal representation of males and females, and the majority were employed. This demographic pattern reflects a population that is actively involved in the workforce and more exposed to the changes brought by urban development, addressing the first research objective on the respondent profile. Among the variables, environmental impact emerged as the most evident impact of urbanization. This suggests that rural residents are susceptible to visible environmental changes, such as rising temperatures, loss of greenery, and declining air and water quality. These findings align with Singh et al. (2024), which emphasized that environmental degradation is often the most immediate consequence of rapid urban growth, particularly when urban expansion occurs without adequate ecological planning. Similarly, (Aduko et al.) noted that rural communities situated near expanding urban zones often experience increased pollution and reduced agricultural land, leading to heightened awareness of environmental stressors.

In contrast, lifestyle had the lowest mean score, indicating that behavioral and cultural adjustments occur more gradually and are less perceptible in the short term, addressing the second research question: which aspects of urbanization are most and least felt. Furthermore, the study found significant differences between employment status and livelihood opportunities, and between sex and lifestyle. This indicates that urbanization influences economic and social experiences differently depending on an individual's employment status and gender roles, thereby fulfilling the third research objective on demographic differences.

To promote awareness and proactive response, the researchers developed an intervention program titled "Urbanization and Rural Transformation: Toward Sustainable Development Strategies." This intervention aims to provide practical recommendations and actionable measures for rural residents, policymakers, and community leaders. It serves as a strategic response to the identified issues, raising awareness while offering sustainable approaches to address the challenges posed by urbanization. The intervention focuses on the study's key variables: access to livelihood opportunities, lifestyle, access to social services, environmental impact, and infrastructure development. Each component of the intervention was formulated based on the findings, particularly the statements with the highest weighted arithmetic mean, which indicated the most significant impacts. Through this approach, the intervention directly addresses the areas most affected by urbanization and aims to support balanced, sustainable rural development. Overall, the findings demonstrate that while urbanization offers opportunities for progress, it also creates pressing environmental and social challenges that require balanced, inclusive development approaches. Future research may explore the long-term socio-environmental effects of urbanization

using qualitative interviews or spatial analysis. At the same time, local governments are encouraged to integrate environmental management and livelihood programs into their urban planning initiatives.

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