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Policy Brief
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DATA SCIENCE FOR PUBLIC POLICY PROGRAM

URBAN DESIGN WELLNESS:

Crafting Place-Based Policy for Health and Wellness in Communities

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EXECUTIVE SUMMARY

The national agenda for improving Filipino health and well-being faces challenges and demands more than a multi-sectoral approach. It requires policies that create tangible changes on the ground. Place-based policies that look into socio-technological infrastructure and value urban spaces can effectively translate national and city health goals into actionable strategies for barangays and districts. Promoting wellness urban design (WUD)—integrating design, mobility, and governance—can foster public acceptance of healthy communities. Essential elements include order and cleanliness, sufficient open spaces, walkable neighborhoods, efficient public transportation, accessible urban services, clear policies, and co-management of common infrastructure and community involvement.

INTRODUCTION

Historical Context of Health and Spatial Order

Throughout Philippine history, the relationship between spatial order and policy is evident. Governments have used land laws to control people and activities. Early Filipino settlements near water and fertile land reflect a basic understanding of health and survival. Spanish colonial rule introduced the plaza complex and grid pattern primarily for control. American occupation then brought infrastructure, sanitation, public health, and early efforts to integrate health into policy. Post-war rebuilding and industrialization led to rapid urbanization and informal settlements, straining health and housing initiatives. The Local Government Code of 1991 empowered local government units (LGUs) but lacked clear guidance on integrating health and wellness into urban planning.

The Gaps in Place-Based Policies in the Philippines

Place-based policies are codes regulating how urban spaces and the environment are arranged and utilized. In the Philippine context, they are culled from the Local Government Code of 1991, the National Housing Development Act of 1992, the National Building Code or Republic Act No. 1906 of 1977, and the recent Philippine Development Plan, among others.

The Local Government Code mandates each LGU to exercise authority over the welfare of its constituents and conduct urban planning which, in theory, is aimed at affecting healthy, livable, and sustainable cities. However, it does not explicitly mandate the creation of urban

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design guidelines that translate these macro-level goals into local neighborhood strategies. This lack of specific legal requirements often results in a lower priority for the creation of healthy spatial environments compared to other pressing issues.

The National Urban Development and Housing Act establishes a framework for national urban development policies and programs. This provides a broader context for urban planning and development efforts but stops short in providing specific and detailed references that urban design concepts and guidelines address.

Primarily focused on structural safety and fire protection, the National Building Code establishes basic standards for building construction. While it indirectly addresses health through provisions on sanitation and ventilation, it lacks comprehensive guidelines for creating truly healthy spaces. The code falls short in areas such as indoor air quality, acoustics, lighting, and psychological well-being, essential components of holistic design for healthy buildings and spaces. The code is close to five decades old and should be repealed. The Philippines Building Act (approved House Bill No. 8500; pending as Senate Bill No. 19700), once passed into law, will provide the framework to modernize building standards, enhance disaster resilience, reinforce implementation, and streamline processes.

The Philippine Development Plan of 2023 to 2028 has goals for the prioritization of health through quality healthcare, promotion of wholesome lifestyle, and provision of supportive environments. Seeing how our infrastructure can prioritize social needs and utilize technologies is an approach for our country's modern-day challenges. These are achieved by increasing healthcare facilities and human resources, expanding insurance coverage, promoting early detection of diseases and preventive healthcare, and investing in research and development. While it aims to create supportive environment through urban planning, there is no road map on how to concretely achieve it.

RESEARCH OVERVIEW

The plan and design of our cities have been under constant scrutiny and an important subject of policy because cities are both the drivers for sustainable development and one of the manifestations of people's health. A summary of the environmental effects vis-à-vis the health issues attributed to uncontrolled rapid urbanization is presented below.

Environmental Issues in Cities and Health Risks

Air Pollution

Air pollution, as the effect of rapid urbanization, construction, operation of heavy industries, and an increase in car dependence, is a major public health threat. Air pollution is a cause of respiratory illnesses. Respiratory diseases ranks as the third highest risk factor for death and disability in the country. Constant exposure to air pollution from smoke-belching vehicles increases the risk of pulmonary sicknesses (Figures 1-2).

Water Pollution

Contaminated water sources lead to gastrointestinal diseases like cholera, particularly affecting communities lacking proper sanitation facilities. In July 2023, contaminated drinking water in the town of Rapu-Rapu, Albay caused 3 deaths and 57 gastrointestinal infections (Calipay 2023). Cross connection and backflow in community and city water supply lines make water from the tap not potable for drinking (Figures 3-5).

■ **Figures 1-2.** Smoke belching along highway (Source: R. Baria); Man coughing (Source: AI Freepik.com)

■ **Figures 3-5.** Woman drinking water from the tap (Source: AI Freepik.com); Water supply lines and creek (Source: R. Baria)

Deforestation and Land Use

Loss of forest cover and the expansion of palm oil plantations are linked to increased outbreaks of zoonotic and vector-borne diseases such as malaria. Morand and Lajaunie (2021) provided significant evidence that there is a relationship between zoonotic and vector-borne

diseases and both deforestation and reforestation, thus requiring a more careful analysis of reforestation efforts.

Climate Change

Rising temperatures put children at risk of heatstroke and exacerbate existing health problems like asthma and allergies. In April 2024, the heat waves caused school suspensions when temperatures reached more than 42°C in several areas such as Metro Manila; Aparri, Cagayan; Tuguegarao City, Cagayan; Laoag, Ilocos Norte; ISU Echague, Isabela; Munoz, Nueva Ecija; Baler, Aurora; Clark Airport, Pampanga; Casiguran, Aurora; Capiz; Aborlan, Palawan; Iloilo City, Iloilo; and Zamboanga City, Zamboanga del Sur (Cruz 2024).

Natural Disasters

Typhoons and floods cause widespread damage, with older adults particularly vulnerable to mental health issues like posttraumatic stress disorder (PTSD) in the aftermath.

Malnutrition and Food Security

Economic hardship and limited mobility during crises like COVID-19 can lead to dietary changes and hunger, particularly among marginalized populations in urban areas.

Skin Diseases

The Philippines experiences high rates of leptospirosis, a bacterial infection transmitted through contaminated water. Natural disasters and the effects of flooding increase the risk of exposure to this disease. The prevalence of this sickness can be attributed to poor water management systems, polluted rivers, and urbanization.

Noise Pollution

Noise pollution can disrupt sleep patterns and contribute to health problems. Highly urbanized cities that are not able to control and prevent noise-polluting activities and equipment need to implement stronger regulations.

Health and Wellness in Cities

Research conducted by the World Health Organization (WHO) has highlighted the critical role of neighborhoods and cities in promoting health and well-being. Studies have consistently demonstrated the positive effects of green spaces on mental health. The greening of streets and open spaces may also be crucial to address air pollution, which has been linked to various respiratory health problems. Moreover, mental stress is reduced and relaxation activities increase with nature-based solutions, green spaces and areas for sitting (Benzar 2024). Additionally, providing communal public spaces that create chance encounters and venues for social interactions and community engagement positively impacts overall well-being. Walkable streets that encourage active movement are important for preventing chronic diseases. The availability and affordability of healthy food options within cities also influence the health of residents (HKS Architects 2023). These concepts for wellness urban design come to mind, as they emphasize the importance of creating urban environments that prioritize these factors to enhance the quality of life for city dwellers.

PEOPLE'S ACCEPTANCE OF WELLNESS URBAN DESIGN AND THEIR PERCEPTION OF ITS PROMOTION OF HEALTHY CITIES: THE CASE OF METRO-LEGAZPI

This policy paper is developed from an analysis of the component principles in the conference research paper "Integrating Wellness Urban Design (WUD) Principle into Socio-Technological Infrastructure: The Case of the Old Legazpi Airport Redevelopment" (Baria 2024). WUD is a principle in the ideation of socio-technological infrastructure (STI), which looks into the primacy of social dimension, specifically health and wellness, in designing for holistic cities. STI, as an approach, advocates for human-centered design, where technological applications and spatial translations do not conform with trends nor greedy corporate interests and external pressures, but are rooted to the needs of the residents. In that way, local government leader's actions for place-based policies are grounded on systematic and sound principles.

Wellness urban design integrates factors of the design of the built environment, the quality of mobility, including pedestrian-centered mobility strategies, and the effectiveness of governance for health prioritization. Four hundred eight respondents in the cities of Legazpi and Ligao were surveyed regarding their demographic data, their acceptance of WUD factors on design, mobility, and governance, and their perception of the importance of subfactors for each main factor and of the value of the WUD. Several quantitative methods were adopted using R Studio and QGIS programs. This WUD policy brief had three objectives: (1) to determine the correlations of

different demographic factors with WUD and with each main factor; (2) to visualize the development that adopts WUD principles over other scenarios; and (3) to determine the acceptance rating for WUD among the respondents.

The respondents rated if-then statements that connect two variables. A rating of 5 means the highest or most agreeable, while 1 the lowest or most disagreeable. Examples of these questions were:

1. If my neighborhood is clean and organized, there will be more people in my neighborhood who will have better health and well-being.

2. If my city is walkable and the amenities are accessible by walking, this will enable better health and wellness for the residents.

3. If the leaders in our city prioritize the health and well-being of its constituents, there will be better leadership and management in our city.

DISCUSSION ANALYSIS OF RESEARCH FINDINGS

Correlation Studies

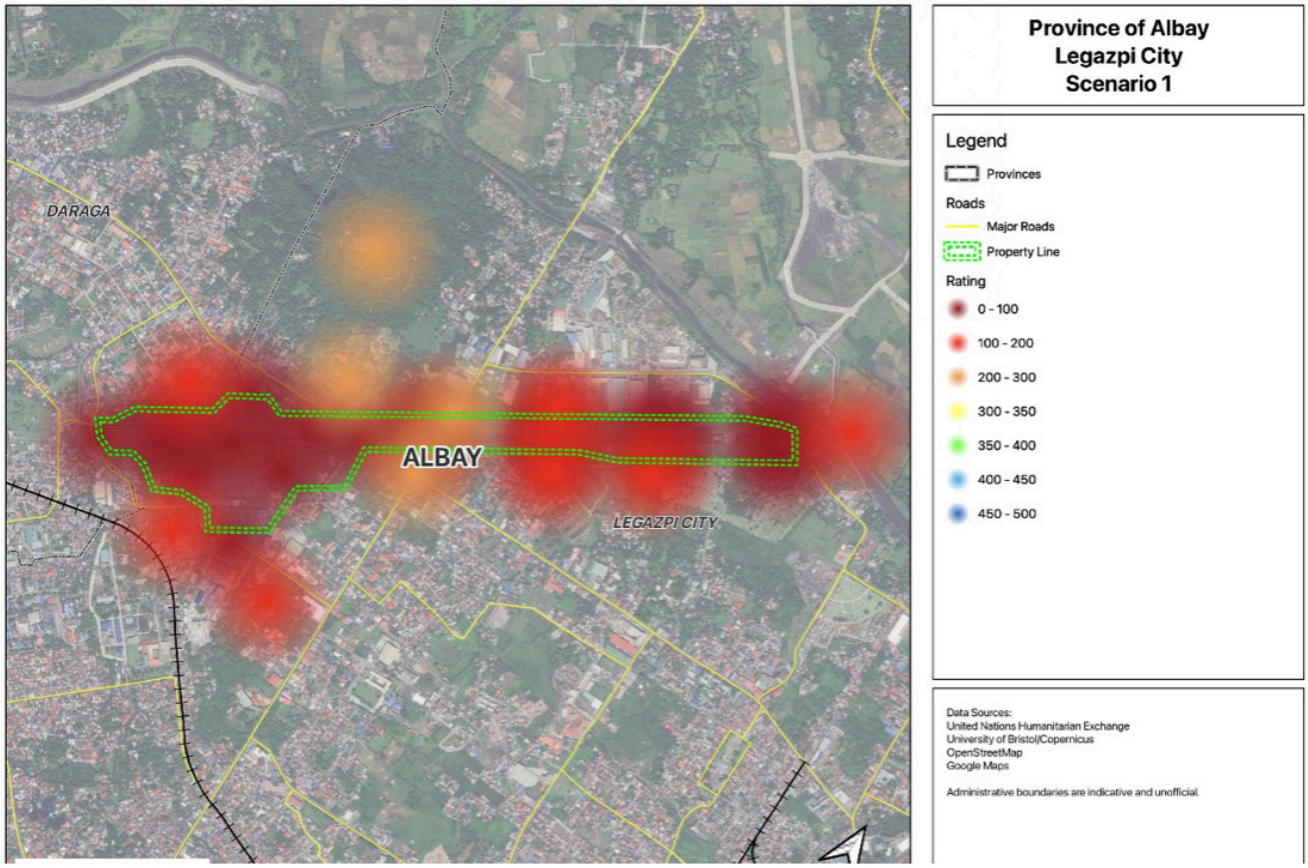
Among the different demographic factors, age, gender, and educational attainment were noteworthy in the correlation tests. Age (r=0.13) and educational attainment (r=0.23) were both found to have a weak positive correlation with the WUD index measures. This implies that those older and more educated individuals tend to agree with the proposed WUD indicators. We can argue that due to their experience that comes with age, and their deeper understanding of the relationship of space and environment with health, they give more value to the parameters set for health and well-being. There was also a weak positive correlation between gender and governance factor (r=0.12), implying that women tend to value the importance of policy and governance in the promotion and implementation of sound health and wellness spatial strategies.

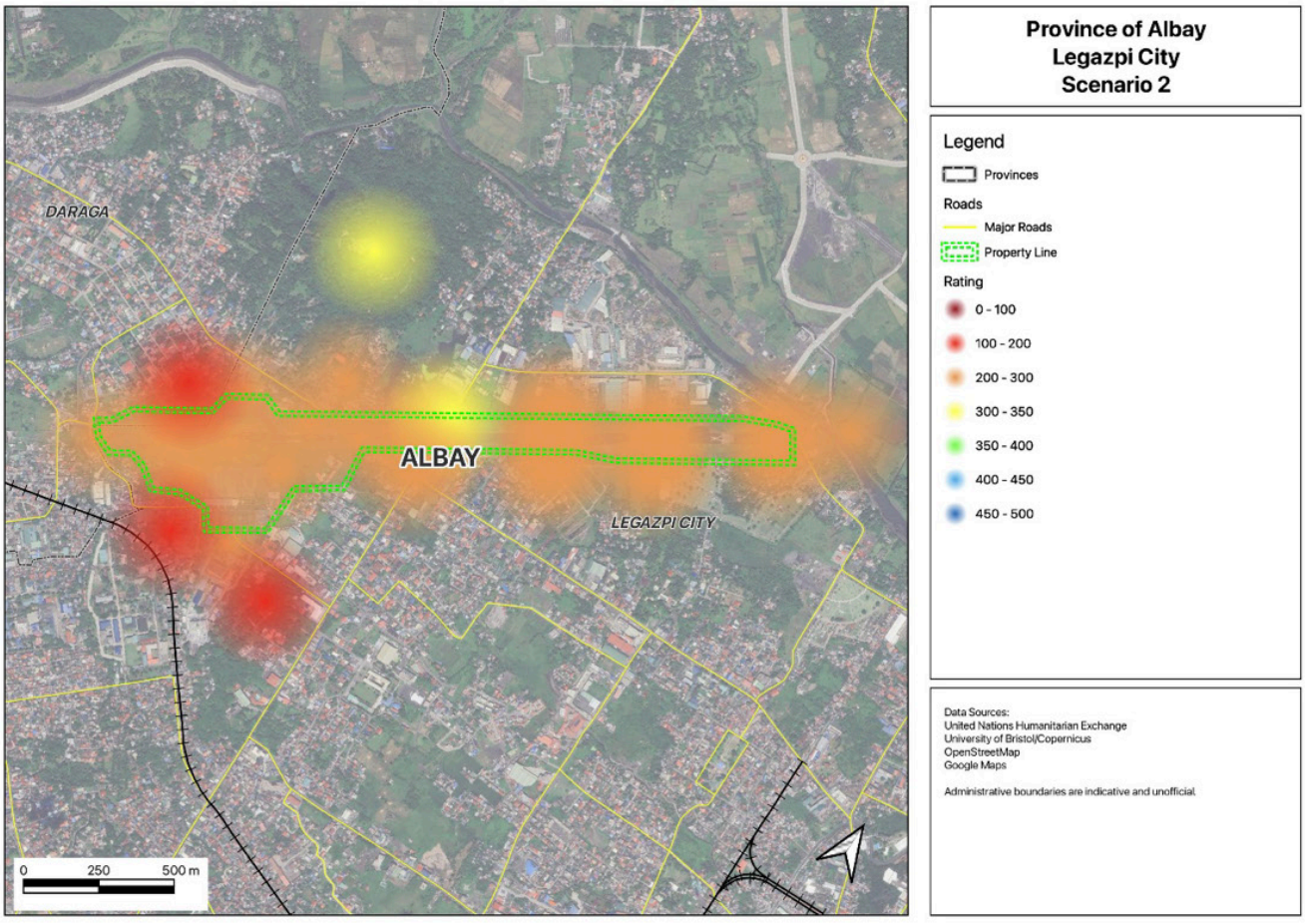
Word Cloud

■ **Figure 6.** Word cloud generated from the data on the open-ended question of respondents' comments and additional recommendations for urban wellness design.

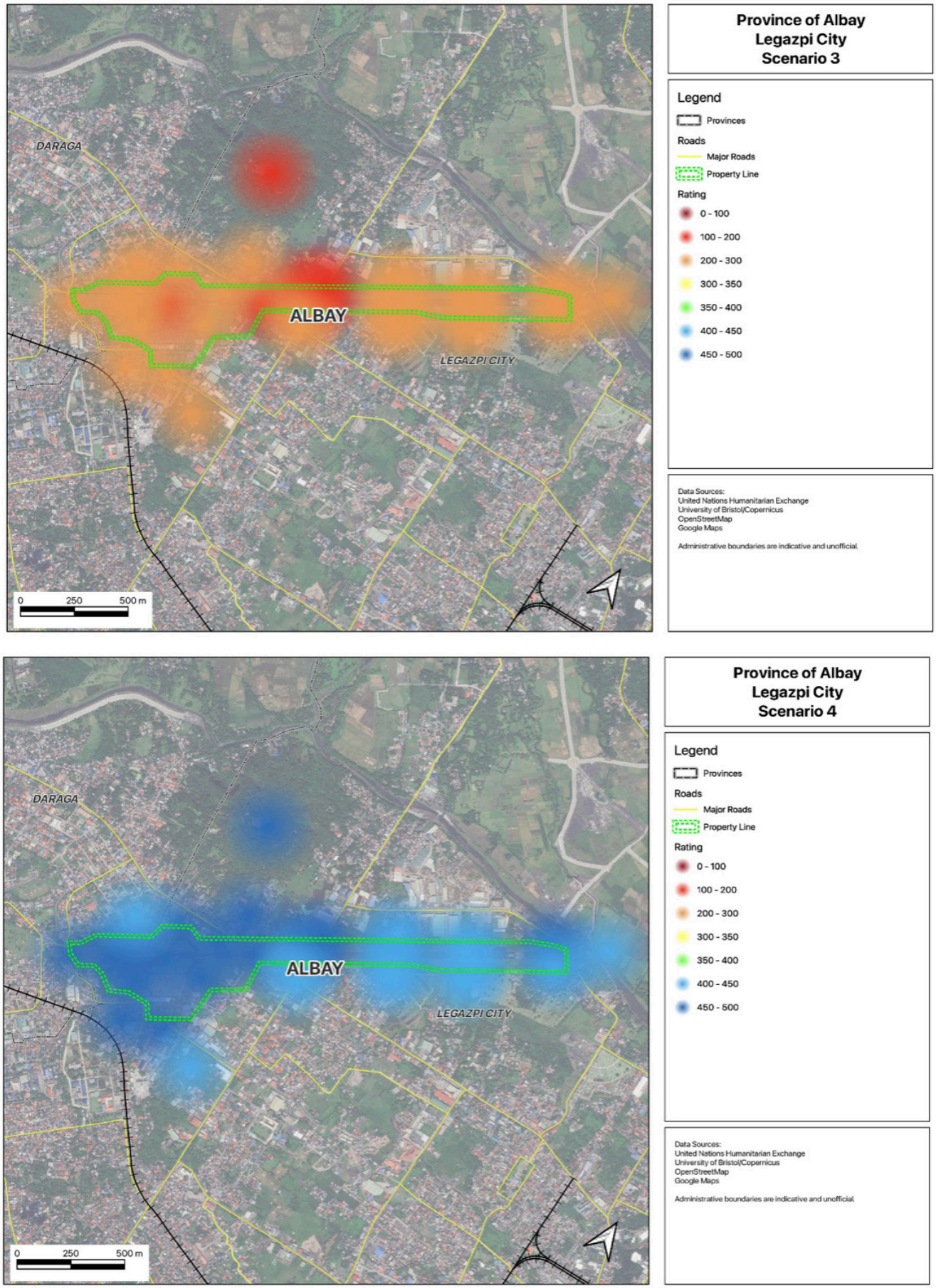
The respondents frequently used the terms city, proper, provide, infrastructure, and health in their answers regarding their views on WUD and the condition of their neighborhoods and cities (Figure 6). The common use of the terms city and infrastructure implies that these spatial and tangible constructs are important in the discussion about promoting and implementing wellness policy. The constant use of the terms public and health suggests the respondents are conscious of the need to prioritize public health and health concerns. Terms such as proper and provide are concepts relating to governance and policy. These imply the respondents are critical of the place-based and health-focused policies created and implemented by their local leaders.

Spatial Analysis



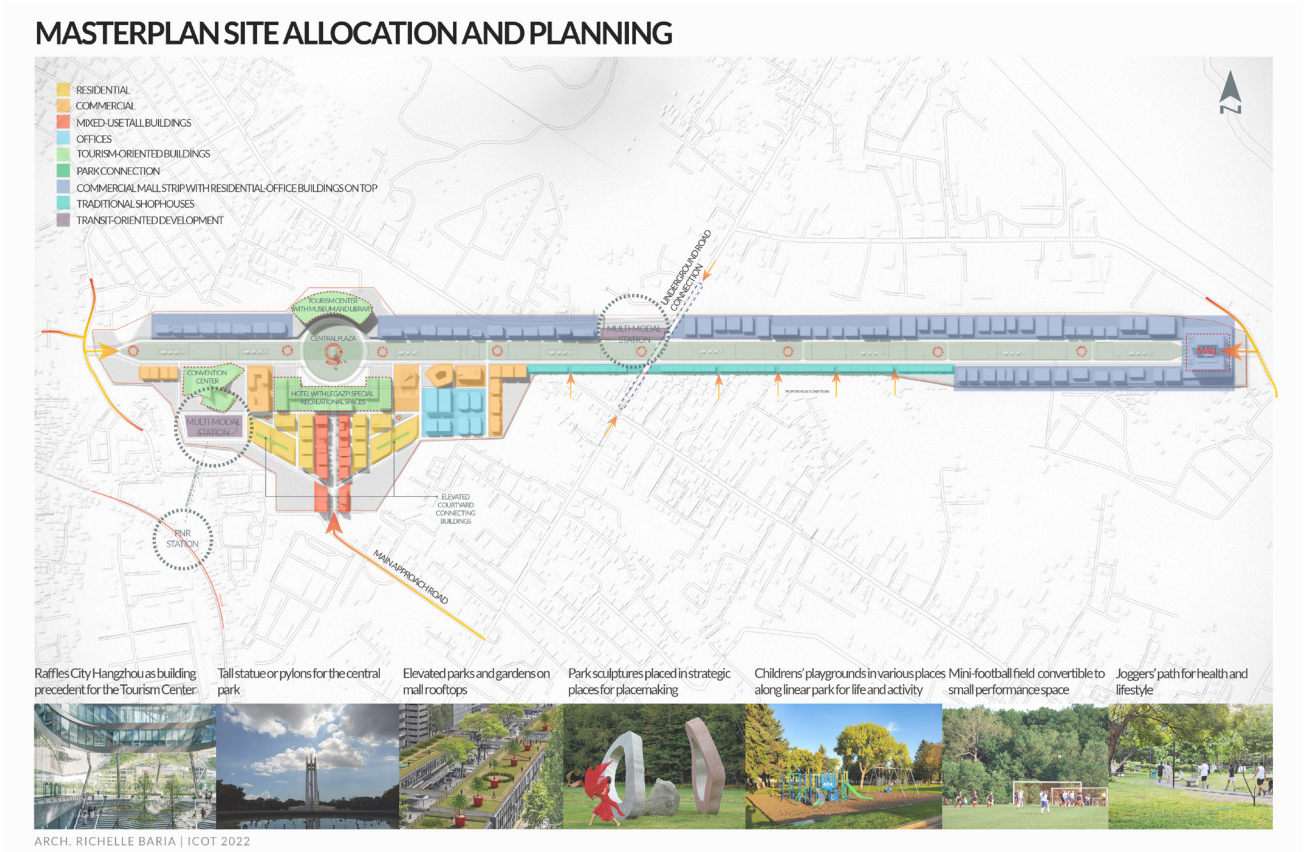


■ **Figures 7-10.** Heat maps for 4 different scenarios showing Wellness Urban Design (WUD) using QGIS; from the Integrating WUD Research by Baria (2024).



■ **Figures 7-10.** Heat maps for 4 different scenarios showing Wellness Urban Design (WUD) using QGIS; from the Integrating WUD Research by Baria (2024).

■ **Figure 11.** Aerial Perspective with the Vista of Mayon Volcano showing the translation of wellness urban design (R. Baria's Design)



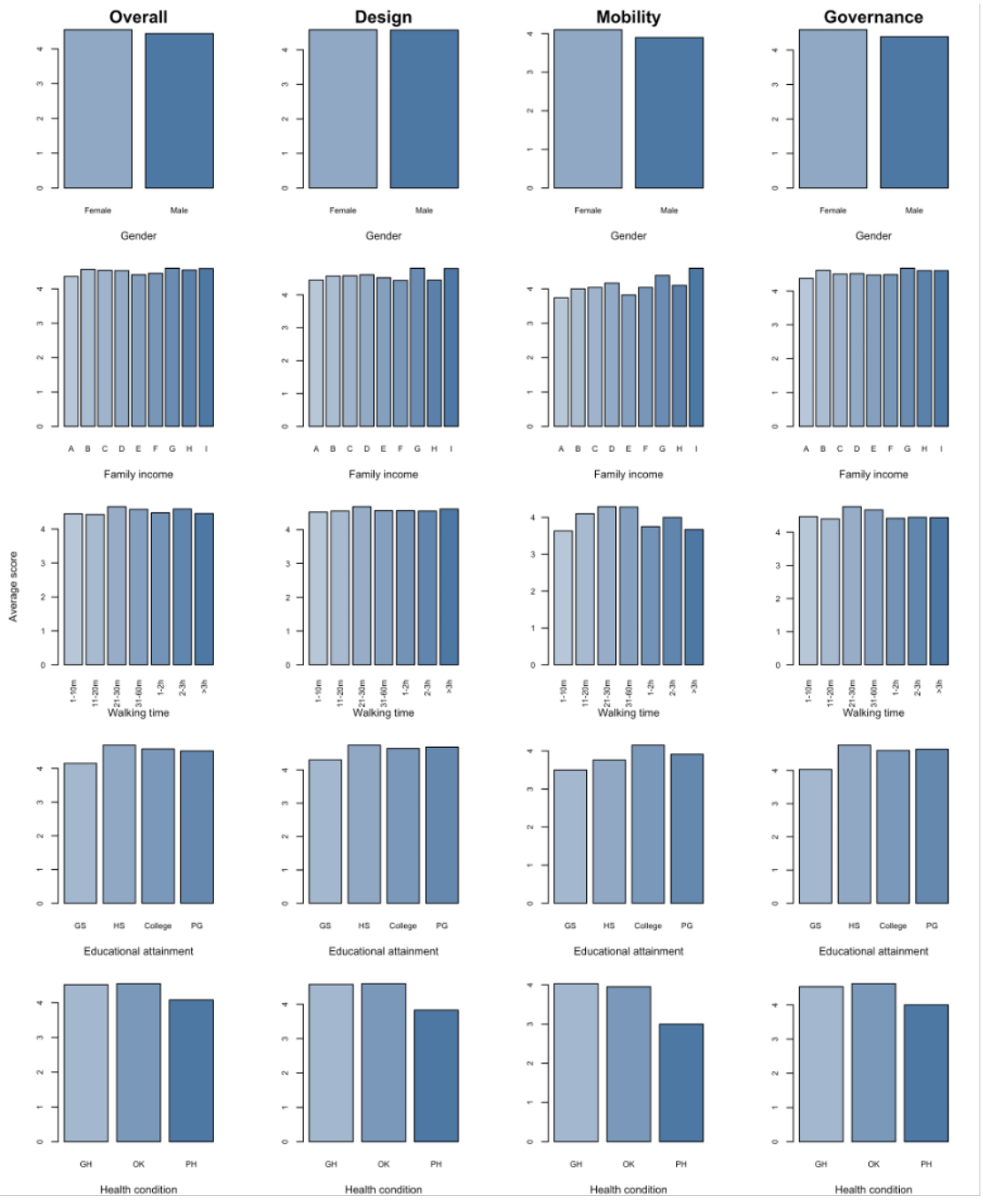
■ **Figure 12.** Master Plan used for Scenario 4, the Scenario which best reflects WUD principles (R. Baria's Design)

Using QGIS spatial analysis, a comparative study of four scenarios was done in a specific area in Legazpi, Albay (Figures 7-10). The different factors for WUD about design, mobility, and governance were given spatial and physical attributions. These were assessed using ocular observations at the site. The four scenarios compared

were: (1) do nothing; (2) theme park development; (3) high-rise and high-density development with little open space; (4) a medium-rise, mixed-use, with a linear park development. From the heat maps generated, it is evident that the fourth scenario that proposes a good balance of built and open spaces, and the variety and walkability characteristics of the development, have high and favorable ratings for WUD (the fourth scenario as shown in Figures 11-12).

DESCRIPTIVE ANALYSIS

The average rating of the respondents for the (WUD) and the factors of design, mobility, and governance were high (>4.0) across all demographics (Figure 13). This indicates that the community members in Ligao City and Legazpi City understand the importance of creating healthy urban spaces for the public. They are highly agreeable to the proposed framework where the design of the built environment, the quality of mobility, and the effectiveness of governance are closely tied and influential in achieving WUD.



■ **Figure 13.** Bar graphs showing the rating of the respondents according to demographics for WUD, Design, Mobility and Governance Variables.

CONCLUSION AND RECOMMENDATIONS

To address the challenges faced by Philippine cities in creating healthy urban environments, a comprehensive and multi-sectoral approach is necessary. Moreover, there have to be mechanisms and guidelines that can translate macro-level goals such as the national and city-level agendas into tangible and spatial strategies planned, designed, and implemented at the barangay and neighborhood levels. At these micro-scale levels, the applicable socio-technological infrastructure with health as a foundational agenda can be defined in more specific and granular strategies.

■ **Figure 14.** Perspective of the Central Promenade showing large open spaces for picnics and relaxation. (R. Baria's Design)

■ **Figure 15.** WUD principles propose mixed-use development, large landscaped open spaces, and pedestrian centered streets. (R. Baria's Design)

Design and Environmental Challenges and Solutions

- Urban Sprawl: Implement urban growth boundaries to limit the expansion of cities and promote denser, more sustainable development.

- Lack of Green Spaces: Create new parks and green spaces, and prioritize the preservation of existing ones. Invest in urban greening initiatives to improve air quality and reduce heat island effects (See figures 14-15 for the design visualization).

- Poor Urban Planning: Develop and implement comprehensive urban development plans that prioritize sustainable transportation, mixed-use zoning, and green infrastructure (See figures 14-15 for the design visualization).

- Building Density and Height Restrictions: Revise zoning regulations to allow for higher density development in designated areas, increasing housing options and reducing sprawl (See figures 14-15 for the design visualization).

- Poor Sanitation and Ineffective Waste Water and Solid Waste Management: Invest in robust infrastructure, such as improved sewage systems and waste treatment facilities, and implement comprehensive waste management programs that promote segregation, recycling, reusing, composting, and proper waste disposal.

- Lack of Health Facilities and Functioning Health Centers: Build new primary care facilities and upgrade existing health centers to meet Department of Health (DOH) licensing standards, prioritizing the underserved and geographically isolated areas through coordinated planning.

- Outdated Design and Insufficient Technologies for Health Centers and Hospitals: Add digital health capabilities like tele-medicine, solar back-up power, universal accessibility, visual and acoustic privacy, integrated ICT networks for seamless communication, and inclusion of robust data/ information management for patient tracking and facility planning.

Mobility Challenges and Solutions

- Poor Walkability: Improve pedestrian infrastructure by building safe sidewalks, installing adequate street lighting, and creating pedestrian-friendly zones.

- Lack of Public Transportation: Invest in expanding and improving public transportation systems, including commuter and intercity trains, modernization of public utility vehicles and jeepney, and prioritization of active transportation such as bike-sharing programs.

- Lack of Master Planning of Urban Nodes and Transportation Hubs: create comprehensive and detailed master plans for future development and construction of infrastructure for transportation, including transit stops and stations. Implement urban design plans that connect transit-oriented development (TODs) with adjacent commercial establishments they serve.

- Segregation of Land Uses: Promote mixed-use development to accommodate diverse uses, limit travel distances, and encourage walking and cycling.

- Inaccessible Health Centers: Locate health centers within 30 minutes from the community they serve, and 1-hour distance to the catchment market for primary care and hospitals. This will be adjusted according to population density, urban congestion, and geographical isolation.

Governance and Decision-Making Challenges and Solutions

- Lack of Comprehensive Healthy City Policies: Develop and implement comprehensive healthy city policies that address a wide range of health issues, such as air pollution, noise pollution, and access to healthcare.

- Poor Inter-agency Coordination: Establish inter-agency committees to facilitate collaboration and coordination among government agencies involved in urban development and health; conduct co-management of cities and common infrastructures in these cities through workshops. Furthermore, create policies and a memorandum of understanding among LGU to establish these partnerships.

- Inadequate Resource Allocation: Increase funding for health and urban development programs, and prioritize the allocation of resources to support

sustainable city planning and implementation, including programs and projects for the establishment of socio-technological infrastructure.

By understanding the multiple facets and factors that comprise wellness urban design, and proposing solutions to address each challenge, cities and localities in our country can create healthier, more sustainable, and more equitable urban environments for their residents.

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