

Revitalizing Nabao Creek as a Walkable Urban Spine: Applying B.A.Y.A.N. FRAMEWORK in Cabanatuan's Central District

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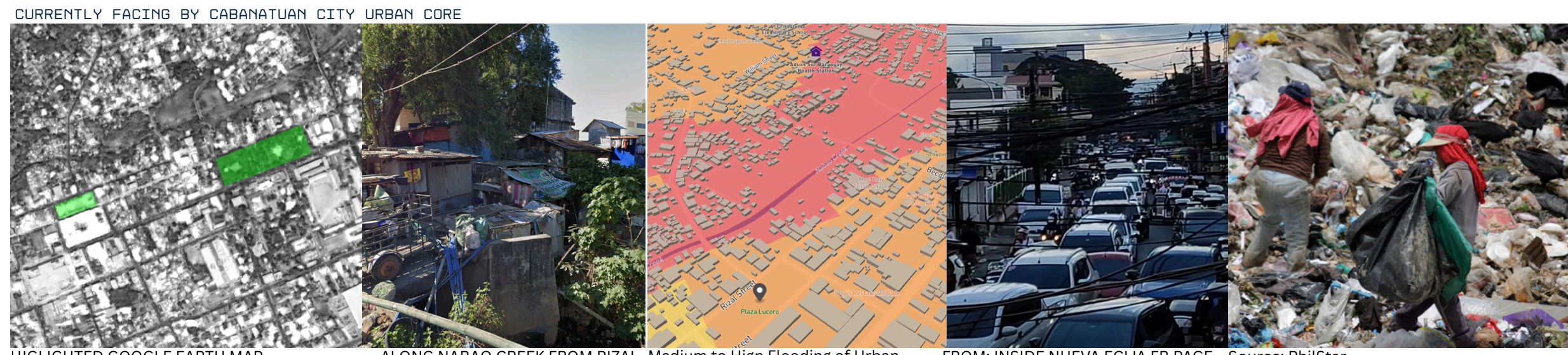
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INTRODUCTION & AIM

Cabanatuan City is rapidly urbanizing. This puts significant pressure on land, infrastructure, mobility, open spaces, and natural waterways. In this context, **Nabao Creek** remains underutilized and faces considerable environmental challenges. Although it could serve as an ecological corridor, drainage asset, public space, and community connector, the creek now primarily functions as a drainage channel. It is impacted by pollution, limited accessibility, encroachment, restricted public use, and poor integration with the urban fabric.

This study proposes revitalizing **Nabao Creek as a walkable urban spine**. The goal is to reconnect people, water, ecology, and public life. Instead of treating the creek solely as a flood-control or drainage channel, the project conceptualizes it as a multifunctional blue-green corridor. It aims to support environmental restoration, climate resilience, active mobility, recreation, and social interaction.

The project uses the **B.A.Y.A.N. Framework**, a local planning and design method. It includes **Bayanihan, Accessibility, Yamang Inprastruktura, Adaptability, and Nature-Based Solutions**. The framework draws from **Water-Sensitive Urban Design** and Singapore's **Active, Beautiful, Clean Waters Program**. It adapts global best practices to the Philippine city context. The objective is to develop a community-centered, environmentally responsive model. This model aims to transform Nabao Creek into a resilient, inclusive, sustainable urban landscape.



1. INSUFFICIENT PUBLIC/OPEN GREEN SPACES
2. INFORMAL SETTLEMENTS/ HOUSING & LAND-USE ISSUES
3. FLOOD & CLIMATE-VULNERABILITY
4. TRAFFIC, CONGESTION & INFRASTRUCTURE STRAIN
5. ENVIRONMENTAL & POLLUTION-RELATED ISSUES

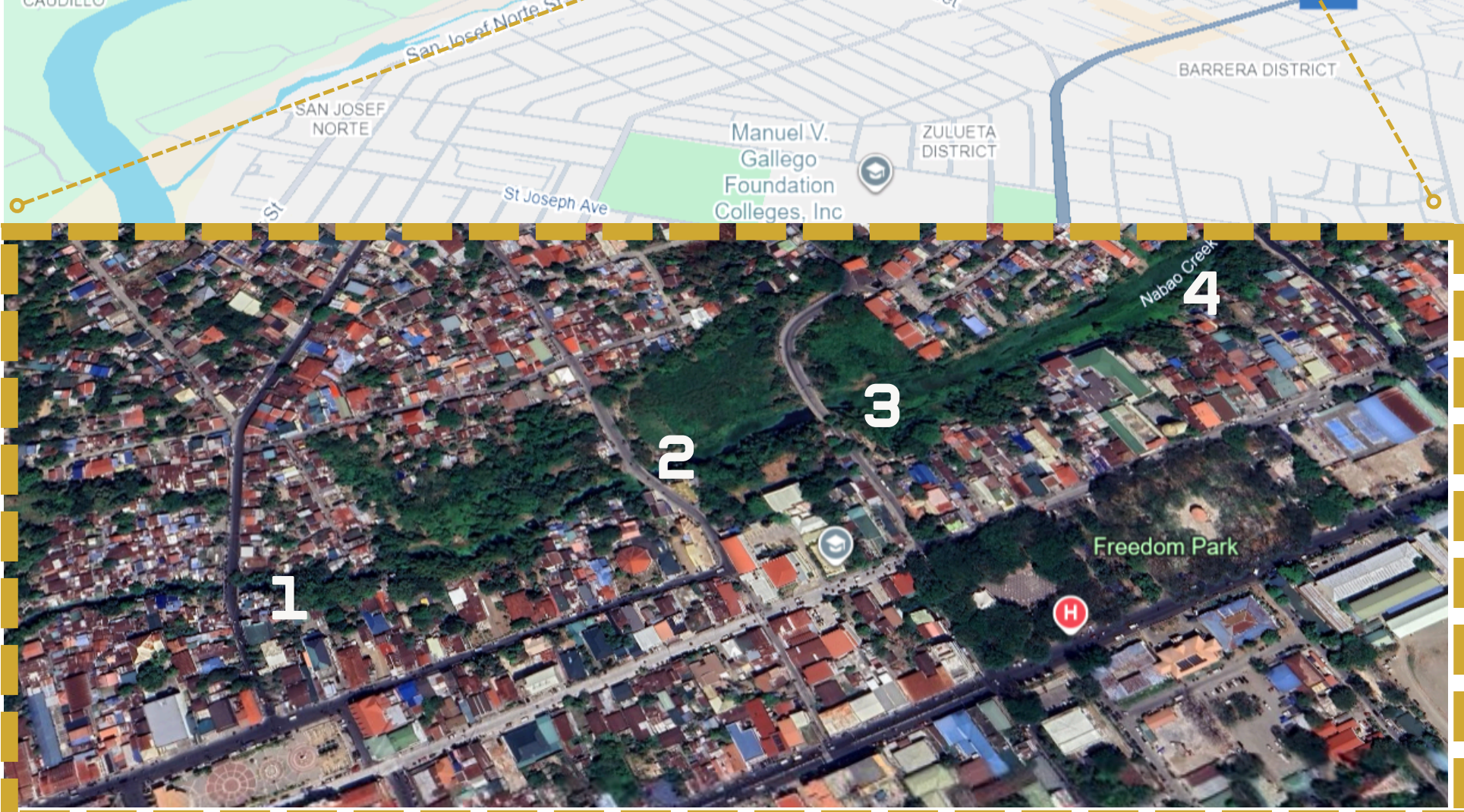
METHOD

This study used a **mixed-method approach**. Environmental assessment, urban analysis, case study review, community input, and framework development were combined.

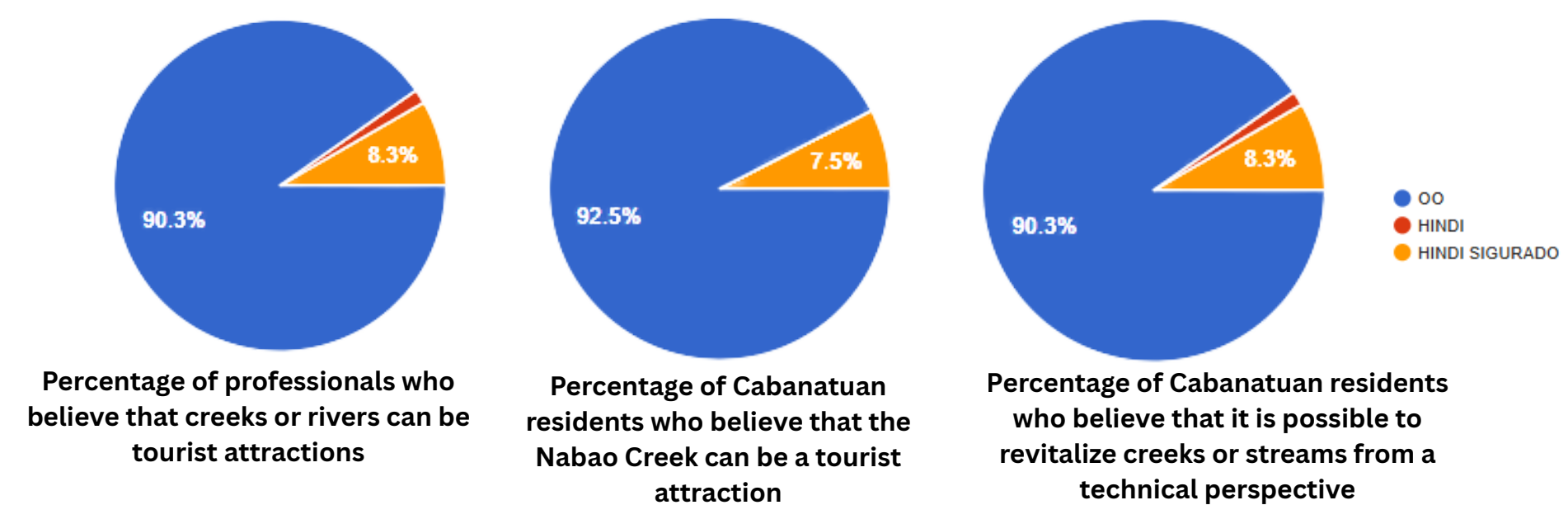
The research began with an examination of Nabao Creek's existing conditions: ecological, hydrological, spatial, mobility, and social challenges. Site observations, mapping, and documentation were used to analyze the creek's current interactions with nearby communities, roads, open spaces, and built-up areas.

A review of relevant literature and precedents was undertaken to identify effective strategies for creek rehabilitation and water-sensitive urban design. International and local case studies, such as **Bishan-Ang Mo Kio Park, Jurong Lake Gardens, Sungei Ulu Pandan, Iloilo River Esplanade**, and other Philippine waterway projects, were analyzed to determine how blue-green infrastructure, public realm design, flood management, ecological restoration, and participatory governance can be integrated into the community perspectives. These perspectives were incorporated through surveys and stakeholder insights. These inputs facilitated the identification of the social value of Nabao Creek and public perceptions regarding its potential for recreation, mobility, tourism, environmental improvement, and community identity. The findings were synthesized into the **B.A.Y.A.N. Framework**, which served as the foundation for the proposed design strategies and master planning approach.

NABAO CREEK stretches from **Barangay Bitas to Barangay San Josef Norte, connecting to Pampanga River. With length of approximate 4.22 Kilometers**

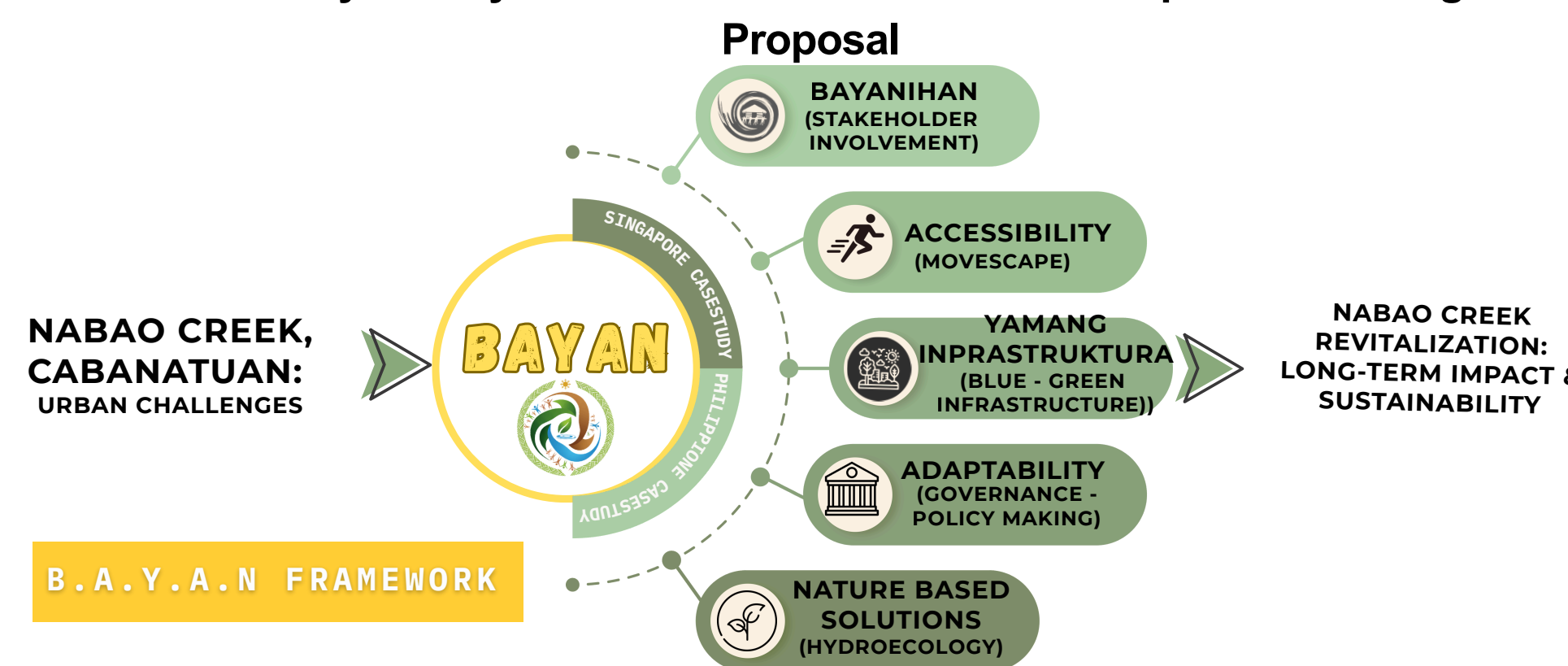


From our survey about people's important perspectives on creeks, especially on the Nabao Creek



The method followed this general process:

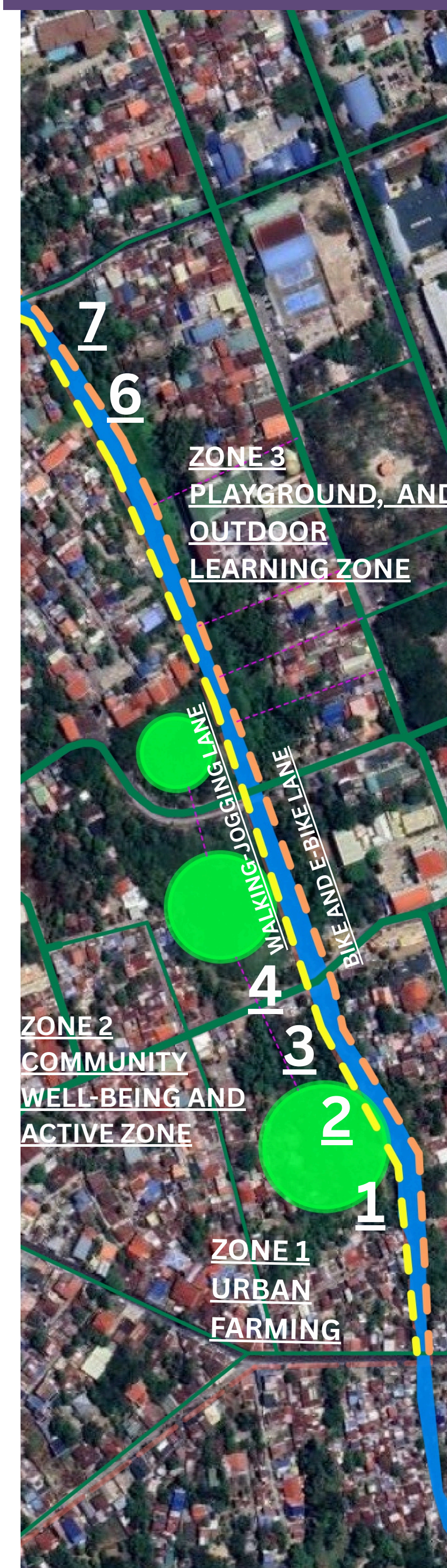
Site Analysis → Literature and Policy Review → Case Study Comparison → Community Survey → B.A.Y.A.N. Framework Development → Design



Key references and precedents:

Water-Sensitive Urban Design; Singapore Active, Beautiful, Clean Waters Program; Bishan-Ang Mo Kio Park; Jurong Lake Gardens; Sungei Ulu Pandan; Iloilo River Esplanade; Blue-Green Infrastructure; Nature-Based Solutions; Sustainable Development Goals 3, 6, 7, 8, 9, 11, 12, 13, 14, 15, and 17.

RESULTS & DISCUSSION



The study shows that Nabao Creek has significant potential. It can act as a **walkable, ecological, and social spine** in Cabanatuan City central district. Its location allows connections among neighborhoods, roads, public spaces, and possible recreational sites. However, the creek's present condition limits its use as a public and environmental asset. The project, therefore, calls for a shift from a gray infrastructure approach to a **blue-green, people-centered, climate-responsive creek corridor**.

The proposed design establishes a continuous creekside public realm featuring **walkways, bicycle paths, seating areas, playgrounds, outdoor learning spaces, urban farming areas, green buffers, riparian planting, and flood-sensitive landscape zones**. These interventions aim to enhance access, promote active mobility, restore ecological function, and provide new spaces for recreation and community gathering. The **B.A.Y.A.N. Framework** organizes the design into five integrated strategies:

Bayanihan emphasizes stakeholder participation, shared stewardship, and community-based management. It encourages residents, local government, schools, civic groups, and private partners to take part in the planning, care, monitoring, and long-term maintenance of the creek.

Accessibility focuses on transforming the creek edge into a connected and walkable corridor. This includes pedestrian paths, bicycle routes, inclusive access points, safe crossings, and connections to nearby public spaces and neighborhoods.

Yamang Inprastruktura brings in blue-green infrastructure as a key urban resource. Bioswales, rain gardens, permeable surfaces, vegetated creek edges, and floodable open spaces manage stormwater. They also improve landscape quality and public experience.

Adaptability covers governance, phasing, and long-term resilience. Revitalization needs coordination among agencies and stakeholders. The project proposes flexible implementation and institutional cooperation to support maintenance, funding, and future improvements.

Nature-Based Solutions restore the creek's ecological and hydrological roles. Instead of relying only on concrete drainage, the proposal uses vegetation, riparian buffers, natural filtration, and habitat-supportive landscapes. These improvements aim to boost water quality, biodiversity, and flood resilience.

Overall, the plan repositions Nabao Creek as more than infrastructure. It is seen as a dynamic public landscape that supports environmental health, mobility, recreation, education, and local identity.

CONCLUSION

The revitalization of Nabao Creek shows how a degraded urban waterway can become a valuable public asset. Using Water-Sensitive Urban Design and the B.A.Y.A.N. Framework, the project provides a localized strategy. This approach addresses the environmental, social, and spatial needs of Cabanatuan City.

The study finds that Nabao Creek should not be seen only as a drainage channel. It could become a **walkable urban spine** that boosts flood resilience, restores ecological value, supports public health, strengthens local identity, and raises urban livability. With blue-green infrastructure, public realm design, community participation, and nature-based solutions, the creek may serve as a model for sustainable rehabilitation in Philippine cities.

The proposal's success depends on coordination among local government, agencies, designers, communities, academic groups, and private stakeholders. Effective implementation and ongoing maintenance can turn Nabao Creek into a resilient, inclusive, and climate-friendly corridor. This transformation would reconnect Cabanatuan City with its natural water system.

FUTURE WORK / REFERENCES

Future work should focus on turning the concept into technical and implementation plans. This covers hydrological studies, flood modeling, water-quality testing, engineering review, cost estimates, land-ownership checks, maintenance planning, and policy coordination. A phased strategy should be adopted to ensure gradual, sustainable project development.

Further research should review the long-term impact on flooding, biodiversity, walkability, public health, tourism, local income, property values, and community involvement. Monitoring is needed to check water quality, plant growth, user activity, and maintenance needs.

The project has the potential to serve as a replicable model for other Philippine cities facing similar challenges, including creek degradation, urban flooding, limited green space, and disconnected public realms.