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Modernized Tuba: A 15-Minutes City Approach Towards A Sustainable And Modernized Community Of Tuba, Benguet

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ABSTRACT

Urban form and neighborhood design played a crucial role in shaping the physical landscape of cities and municipalities. This paper focusedonthe improvement of urban form and neighborhood design that enhanced the accessibility and sustainability of government services, ultimately contributed to the development of a modern and smarter city or municipality. The study centered on the municipality of Tuba in Benguet, characterized as a peri-urban area nestled within the mountainous topography of Cordillera. The community faces challenges in accessing government centers due to its periphery being intersected by three major road thoroughfares.

With the objectives of identifying barriers among the community in accessing different government services and finding appropriate approach to enhance the said barriers. This study addressed these issues and provided a more intelligent and accessible government, a qualitative approach was employed. This involved group discussions and personal interviews that identified community problems.

This research identified the Multi-Nodal Urban Form outlined in the Comprehensive Land Use Plan (CLUP) of Tuba and this urban form was integrated into a modernization program which incorporated Information and Communication Technology (ICT) concepts through 15-minutes city approach. The program focused on the development of a One-Stop-Shop service, strategically establish in the identified growth nodes of the municipality. The Four urban barangays—Población, Tadiangan, Camp 3, and Camp 4—were identified as Major Growth Centers in accordance with the CLUP and Philippine Statistics Authority data. These growth centers exhibited diverse economic modes capable of sustaining the identified nodes. A centralized ICT-equipped One-Stop-Shop Government Service Facility was established to servethese growth centers, fostering accessibility and efficiency in government services throughout the municipality sustaining 15-minutes city approach in its development.

Keywords: Urban Form, Neighborhood design, Multi-Nodal Urban Form, Modernization, Major Growth Centers, 15-minutes City

Introduction

Government access to the community is paramount for fostering transparency, trust, and effective governance. Engaging directly with citizens allows authorities to gain crucial insights into community needs, concerns, and aspirations, enabling informed decision-making for the betterment of society.According to the International City/County Management Association (ICMA), effective community engagement is foundational to local government practices, promoting citizen ownership and participation, which in turn leads to more responsive governance (ICMA, 2018).Moreover, research conducted by the Ash Center for Democratic Governance and Innovation at Harvard Kennedy School emphasizes the role of government-community interaction in enhancing accountability and legitimacy. Regular communication and collaboration between officials and constituents are shown to bolster public trust in government institutions and uphold democratic values (Ash Center, n.d.).

The urban form plays a crucial role in shaping the governance of cities and municipalities, influencing

various aspects of public life such as transportation, housing, economic development, and social equity. Infrastructure planning and service delivery are significantly impacted by the layout and design of urban spaces. Well-planned urban forms with accessible transportation networks, efficient utility systems, and strategically located amenities facilitate the provision of essential services to residents (Levy & Kochan, 2005). Furthermore, the physical arrangement of neighborhoods and public spaces can either encourage or hinder community engagement and participation in governance processes. Mixed-use developments, pedestrian-friendly streets, and accessible public parks promote social interaction and civic engagement, fostering a sense of belonging and collective responsibility among residents (Hoffman et al., 2017). Urban form also influences environmental sustainability by shaping patterns of resource consumption, energy use, and waste generation. Compact, mixed-use developments promote sustainable transportation options, reduce reliance on automobiles, and minimize urban sprawl, thereby mitigating environmental degradation and enhancing the resilience of cities to climate change (United Nations, 2018). Moreover, the spatial distribution of resources and amenities within cities can either exacerbate or alleviate socio-economic disparities. Equitable urban forms that provide affordable housing, quality education, healthcare facilities, and job opportunities within proximity ensure that all residents have equal access to essential services and opportunities for socio-economic advancement (Fainstein, 2010).

Communities situated in mountainous areas face unique challenges in shaping their urban form due to the topographical constraints inherent to their environment. These challenges can significantly affect their access to local government services and governance processes. Firstly, the rugged terrain and steep slopes often limit available land for development, leading to higher construction costs and restricted building areas (Bolay, 2016). This limitation may result in denser settlements and overcrowding in certain areas, exacerbating infrastructure strain and impeding the implementation of comprehensive urban planning strategies (Wu, 2019). Additionally, transportation networks may be more difficult and costly to establish and maintain in mountainous regions, leading to limited connectivity between communities and hindered access to essential services such as healthcare, education, and emergency response (Frey, 2017). The uneven topography can pose significant challenges for the provision of utilities such as water, sanitation, and electricity, further impacting the livability and sustainability of mountainous communities (Götz, 2018). These disparities in access to basic services and infrastructure may exacerbate socio-economic inequalities and hinder community development efforts (Ganapati & Cavalcanti, 2017). The rugged terrain may also hinder effective communication and engagement between mountainous communities and their local governments. Physical barriers such as mountains and valleys can impede travel and transportation, making it more difficult for residents to attend public meetings, access government offices, or participate in community decision-making processes (Manson, 2017). This limited access to local government can lead to feelings of isolation, marginalization, and disenfranchisement among mountainous populations, further exacerbating existing social and economic disparities (Held, 2020). As a result, the topographical challenges faced by communities situated in mountainous areas can significantly impact their urban form and access to local government services. Addressing these challenges requires innovative and context-specific solutions that consider the unique needs and constraints of mountainous regions.

The statement above can be noted similarly to the current urban form of Tuba in Benguet where it is situated in the mountainous terrain of Cordillera. Tuba was known to be the Gateway to Cordillera as it was bounded by three major road thoroughfares namely the Marcos Highway or Ben Palispis Highway, Kennon Road, and Asin Road being considered as the gateway it is also one of the challenges for the majority of the residents since their local government unit is pinned in one of its barangay and they will need to traverse one municipality before they can access to it. Often, since the upland has unpredictable weather conditions, communities within the territory of Tuba are facing vulnerabilities such as flooding, landslides, mudslides, and isolation which could lead to delay of providing aid as their local government has no direct access to them prior to their geographical location.

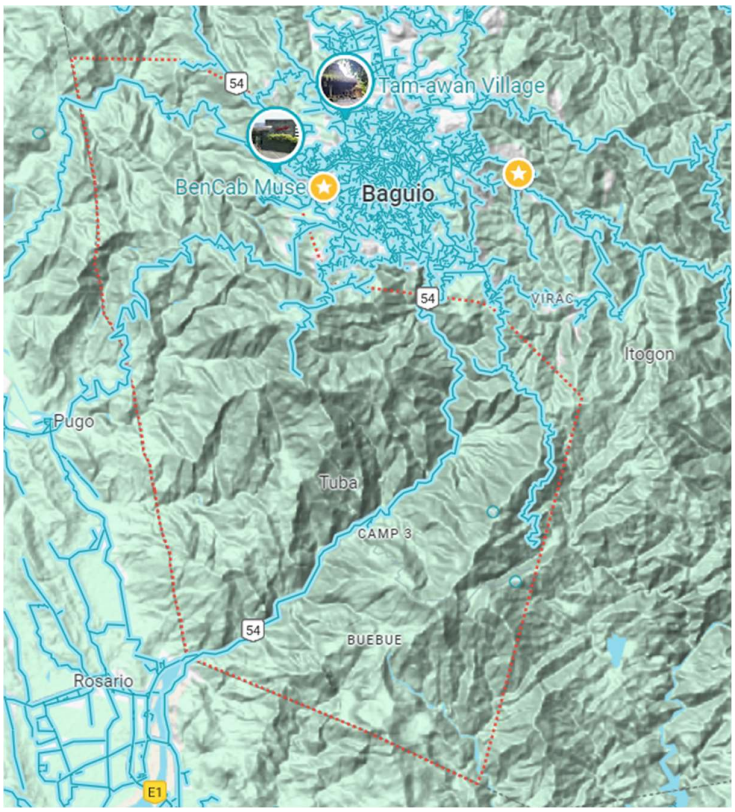


Figure 1: The red line shows the overall boundary of Tuba, Benguet including the view its Terrain, www.maps.google.com

With the current Urban form of Tuba, it was noted under their Comprehensive Land Use Plan their intention to create growth centers among the identified urban barangays, the Multi-Nodal Urban Form were among the solutions of the local government to extend their services within their jurisdiction integrating the 15-minutes city approach to ensure that this proposal is aligned the Philippine Modernization plan incorporating ICT as a tool leaning toward sustainable community. At present, the local government has taken their initiative to improve their services by developing a development plan for the modernization of the different government facilities in located at their government center in Población, Tuba, Benguet which will eventually extend in the creation of One-Stop-Service through its identified growth centers.

This paper attempted to solve the problem of accessing the government services in-line with the multi-nodal urban form and promoting modernization program through the 15-minutes city approach and a sustainable community in Tuba, Benguet

Furthermore, this research attempted to answer the following questions:

1. What are the different problems being experienced by the residents of Tuba in terms of accessing government services as being divided with different major road thoroughfare geographically.
2. What are the benefits of developing a One-Stop-Shop on the identified smart growth centers of Tuba to its residents.?
3. What type of Modernization concept shall be applicable and befitting to the creation of One-Stop-Shop in the Municipality of Tuba along with its identified growth centers sustaining the 15-minutes City approach?
4.

Objectives of the Study:

The 15-minute city approach was identified in this study to be an effective way of providing access to the residents of Tuba through their local government aligning with the modernization program of the national

government with the integration of ICT as a tool making Tuba smarter in handling its jurisdictions. Furthermore, the main objective of the study are as follows:

1. To Identify the different problems being experienced by the residents of Tuba in terms of accessing government services as being divided with different major road thoroughfare geographically.
2. To identify the benefits of developing a One-Stop-Shop on the identified smart growth centers of Tuba to its residents.
3. To identify the type of Modernization concept that is applicable and befitting to the creation of One-Stop-Shop in the Municipality of Tuba along with its identified growth center sustaining the 15-minutes City approach.

Scope and limitations:

Scope of the Study:

The study focuses on developing a design of a one-stop-shop for the identified growth centers of Tuba integrating 15-minutes city approach equipped with ICT and sustainable design for a smarter Community of Tuba. The goal of this study is solely to help the resident of Tuba easily access the service of their local government unit through the proposed one-stop-shop facility.

Limitation of the study:

This study does not include the creation of guidelines in forming legislation towards the provision for the identified growth centers. This study is limited to the design and does not include implementation of any design if deemed approved by the governing body. The location of the one-stop-shop shall be evaluated according to the recommendations of the governing body.

Methodology and Framework:

The research methodology used to satisfy the objectives of this study involves actual interviews and Focus group discussions on combination with qualitative research using review of related literature. Furthermore, actual observations were conducted to evaluate the actual condition of the identified growth centers of Tuba.

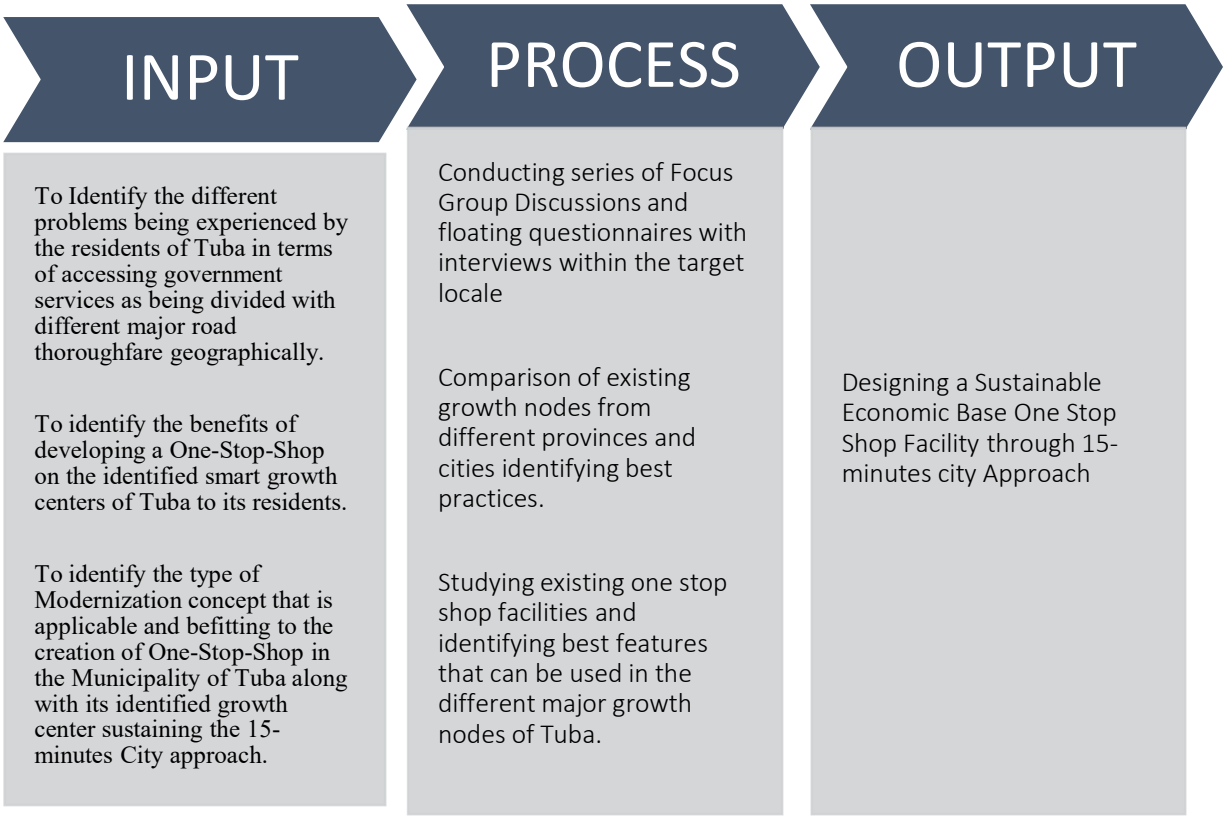


Figure 2: Conceptual Framework

Review of related literature:

The 15-minute city: How to make urban living work for everyone. Burdett, R., &Sudjic, D., 2020, Penguin

UK

This book delves into the concept of the 15-minute city and explores strategies for implementing it in urban environments. Burdett and Sudjic discuss the potential benefits of the approach, such as reducing reliance on cars, enhancing accessibility to essential services, and improving overall quality of life for residents. They provide insights into the principles underlying the 15-minute city concept and offer examples of cities around the world that are embracing this approach in their urban planning efforts.

The 15-minute city, Moreno, C. Year: 2019, Cities for People

Carlos Moreno, the originator of the 15-minute city concept, discusses the rationale behind this approach and its implications for urban development. Moreno emphasizes the importance of creating neighborhoods where residents can access their daily needs within a short walking or biking distance, promoting sustainability, social cohesion, and well-being. He provides practical insights into how cities can reorganize their infrastructure, services, and public spaces to realize the vision of the 15-minute city.

The Concept of Multi-Nodal Urban Development and its Implementation in European Cities Author: Färber, L., & Haase, A. Year: 2018 Journal: Urban Planning Volume: 3 Issue: 1 Pages: 53-65 DOI: 10.17645/up.v3i1.1227

This article examines the concept of multi-nodal urban development and its implementation in European cities. Färber and Haase explore the advantages of a multi-nodal approach, such as promoting mixed land use, reducing travel distances, and enhancing accessibility to amenities and services. They discuss case studies from European cities to illustrate the potential benefits and challenges of adopting a multi-nodal urban form.

Multi-nodal Urban Structures: A Review of Concepts and Applications Author: Newton, P. W., & Meyer, D. Year: 2018 Journal: European Planning Studies Volume: 26 Issue: 6 Pages: 1173-1190 DOI: 10.1080/09654313.2018.1452053

This review article provides an overview of concepts and applications related to multi-nodal urban structures. Newton and Meyer discuss the advantages of multi-nodal development, such as fostering compact urban forms, supporting sustainable transportation modes, and promoting social interaction. They analyze case studies from various cities worldwide to highlight the effectiveness of multi-nodal approaches in addressing contemporary urban challenges.

"Philippine e-Government Master Plan: A Platform for Digital Transformation", Vea, M. C., & Soriano, R. M., 2020, Philippine Journal of Development, 47-1, 79-94

This article discusses the Philippine government's efforts to modernize its systems and processes through the implementation of the e-Government Master Plan. The plan aims to leverage information and communication technology (ICT) to enhance government service delivery, promote transparency and accountability, and improve citizen engagement. The article provides an overview of the key components of the master plan, including the development of digital platforms, the establishment of interoperable systems, and the adoption of data-driven decision-making practices. It also highlights challenges and opportunities in the implementation of the plan and explores potential future directions for e-government initiatives in the Philippines.

"Public Sector Modernization in the Philippines: Insights from Case Studies", Fabella, R. V.,2019, Philippine Journal of Public Administration, 63, 1-2, 21-40

This article presents case studies of public sector modernization initiatives in the Philippines, focusing on efforts to improve efficiency, effectiveness, and responsiveness in government service delivery. The author examines various reform programs and projects, including the Performance-Based Incentive System (PBIS), the Citizen's Charter, and the Philippine Business Registry (PBR), to highlight lessons learned and best practices in public sector modernization. The article identifies key success factors and challenges in implementing these initiatives and offers insights into strategies for sustaining momentum and driving further progress in government modernization efforts.

Improving Public Services in the Philippines: The Case for One-Stop Shops. Philippine Governance Forum, 8(1), 45-56.

Santos (2018) argues that establishing one-stop-shop services for various government agencies in the Philippines is essential for streamlining bureaucratic processes, enhancing citizen convenience, and improving overall service delivery. By consolidating multiple services into a single accessible location, citizens can save time and effort when dealing with government transactions. This approach not only improves efficiency and reduces red tape but also promotes transparency and accountability in government operations. Santos emphasizes

that investing in one-stop-shop services is crucial for modernizing public administration and fostering a more citizen-centric approach to governance.

Results and Discussions:

1. Different problems being experienced by the residents of Tuba in terms of accessing government services as being divided with different major road thoroughfare geographically.
   a. Urban Vulnerability

   According to the National Risk Reduction and Management Council the Philippines experienced an average of 20 typhoons every year. Cordillera, being a mountainous region is often prone to mudslides, landslide and flooding which does not exclude Tuba from this climatic effect.

Figure 3: photos of typhoon effect in Tuba, www.google.com

   b. Isolation

   When extreme weather conditions hit the upland most of the communities are isolated and are not able to access government aid and basic amenities.

Figure 4: residents trailing the landslide area to access basic amenities. www.google.com

c. Long period of travel when going towards the govern center of Tuba.
Traffic congestion is a very common problem along the major road thoroughfare abutting Tuba as it is a neighbor to a highly urbanized city which is Baguio City. For residents along Kennon Road, Marcos Highway, and Asin Road they are likely to experience long periods of travel time to get access to their municipal hall as they will traverse the busy road of Baguio City. For the residents coming from the Kennon Road area, they will likely need at least 45 minutes to one hour to get to the municipal hall. For those residents coming from the Asin Road area, they will take at least 30-45 minutes to get to the municipal hall. While residents coming from the Marcos highway area will have at least 20-30 minutes travel time to their municipal hall.

Figure 5: Overview of traffic along Marcos Highway and Kennon Road. www.google.com

2. The benefits of developing a One-Stop-Shop on the identified smart growth centers of Tuba to its residents.

The idea of developing a one-stop-shop under the government of Tuba for its identified growth centers can help not only the residents but also its local government to supervise and assist its whole jurisdiction. Through the guide of using multi-nodal urban form, the one-stop-shop is a representation of uniting all its barangay. By using the 15-minute city approach in the context of walkability, accessibility, and connectivity, the residents of Tuba will no longer struggle to access their leaders, instead their leaders can already access and supervise them even from afar. Merging the idea of the 15-minutes city approach is the Philippine development plan 2023-2028 wherein the national government intend to equip all its government unit and agency with a modernize facilities and incorporation of technology to ensure smooth flow of transaction among its jurisdictions and clients. Among the modernization programs identified to be helpful for the one-stop-shop is the integration of ICT or Information and Communication technology where transactions can be done through online processing which only needs minimal supervision.

In the context of Smarter Tuba, through its growth centers, they will be equipped with a one-stop-shop facility with the following features:

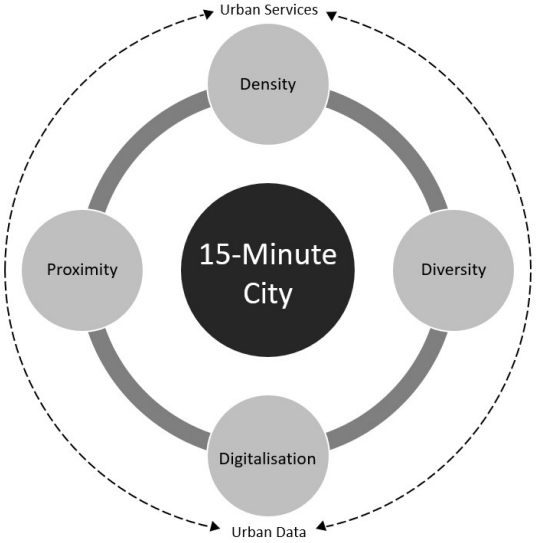


Figure 6: 15-minutes City Approach, www.google.com

The illustration above shows the 15-minutes city approach to be adopted, in the idea of

giving proximity to services among the population density of the growth centers in consideration of the diversity of the cultural differences among the resident providing digital services for their convenience.

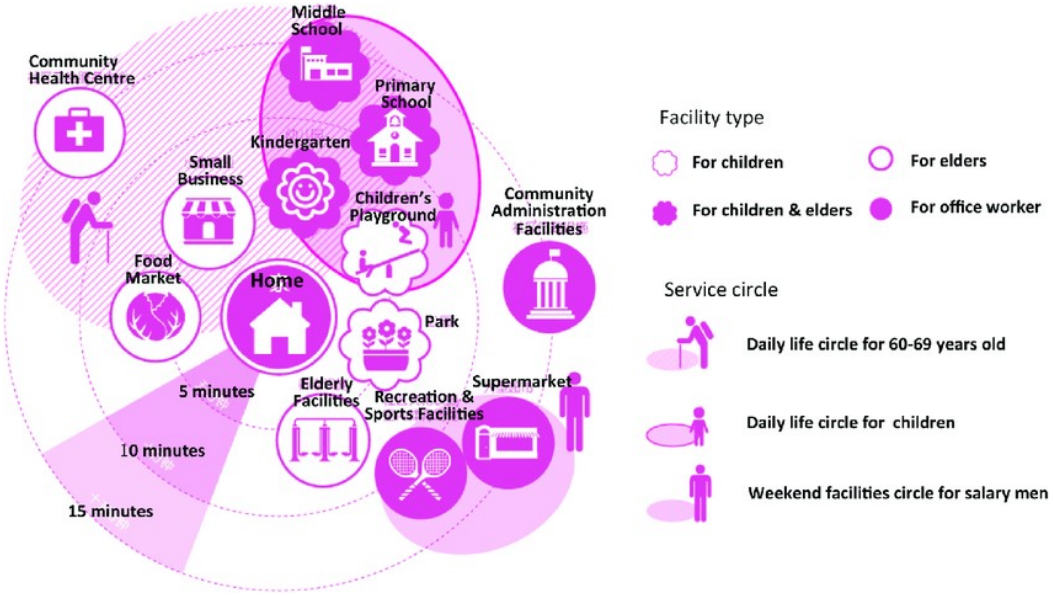
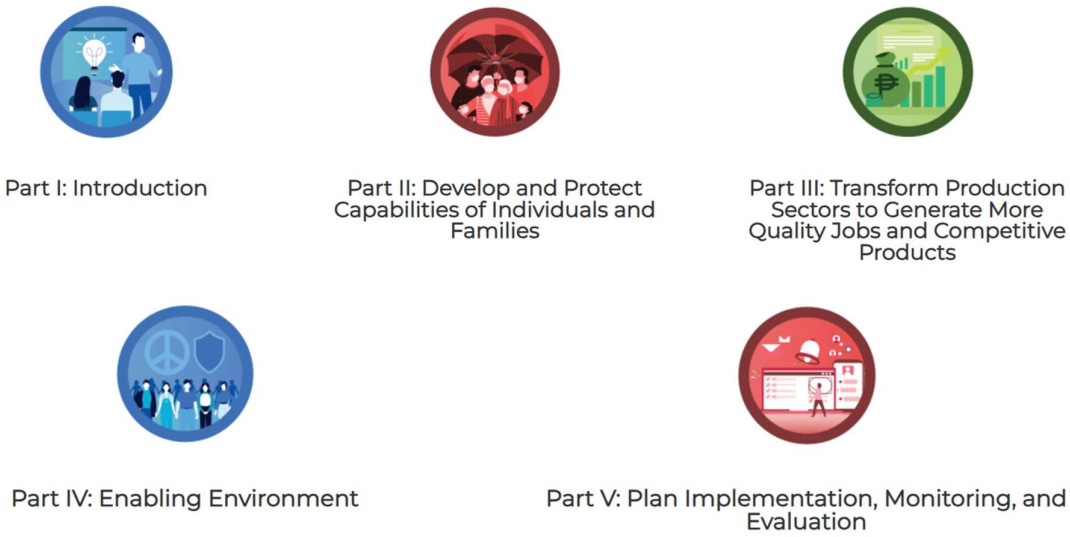


Figure 7: Consideration for the 15-minutes City Approach, https://www.researchgate.net/figure/Facilities-distribution-of-15-minute-community-life- circle-Source-Shanghai-Urban_fig2_319193985

3. The type of Modernization concept that is applicable and befitting to the creation of One-Stop-Shop in the Municipality of Tuba along with its identified growth center sustaining the 15-minutes City approach. In line with the Philippine Development Plan 2023-2028, the National government's intention is very clear. An accessible government leads to successful leadership.



plan-2023-2028/

CHAPTER 12

Expand and Upgrade Infrastructure

Enabling economic transformation builds on sustainable, resilient, integrated, and modern infrastructure systems as a solid foundation. Anchored on the long-term vision, the government will steer the nation toward a future where movement of people and goods is safely and efficiently facilitated by adequate and accessible transportation. Filipinos are empowered through cost-effective and reliable flow and exchange of information and are able to partake opportunities in the digital economy. Families have access to safe and adequate water and sanitation services; to reliable, clean, and affordable fuel and electricity; and to quality education, health, solid waste management, and other social infrastructure facilities. Communities and industries are served by green infrastructures that are not only adaptive and resilient against shocks and natural disturbances, but also contribute toward a low-carbon future.

Figure 9: Chapter 12 of the Philippine Development Plan 2023-2028 focusses on the expansion and Upgrade of Infrastructure with the inclusion of technological advancement and digitalization.https://pdp.neda.gov.ph/philippine-development-plan-2023-2028/

sustainability

Parks and recreation

Health services

Government service

One-Stop-Shop

walkability

ICT Capable

Digital kiosk

Risk reduction center.

Figure 10: Design Composition of the one-stop-shop sustaining the 15-minutes City approach and modernization.

a. Government services: The residents havedirect access to their local government services without dealing with the hassles of long travel.
b. ICT capable: the facility is fully equipped with uninterrupted internet connectivity for any online transactions.
c. Digital Kiosk: For online transactions a digital kiosk will be provided for those who are literate with technology and internet connectivity to minimize face-to-face interactions and minimal assistance from personnel.
d. Risk Reduction: Since the municipality is vulnerable to extreme weather conditions risk reduction control and evacuation center should be part of the consideration for the facility.
e. Walkability: as part of the 15-minutes approach ideally the facility should promote walkability or at least travel time to reach the area is within 15 minutes.
f. Health Services: Since Tuba does not have a major health facility aside from barangay health facilities and rural health facilities, it will be ideal to integrate local health services among the identified growth centers.
g. Parks and recreation: While Tuba is rich with different tourist activities, they lack green spaces such as parks and recreational spaces for all ages which make it advantageous to integrate it with the design of the One-Stop-Shop.
h. Sustainability: Among all the of the consideration, sustainability should also be one of the priorities in designing a human-centered facility, and renewable energy should be part of its sustainable design to keep the operation unstoppable especially during calamities.

Conclusion and recommendation:

Based on the analysis of the results found in this study, the following could be concluded: aside from being dissected by major road thoroughfare the often resulted to delay of accessing services, Tuba is also being found to be vulnerable to the different climatic conditions like forest fire, mudslides, and landslides which keeps them isolated during calamities and help assistance are usually delayed. Aside from these vulnerabilities, accessibility of the local government unit is one of their struggles, despite having rich economic activity, progress is yet to be determined.

With the initiative of the local government to catch up with its neighboring towns and cities and maximize the potential of its jurisdiction, forming an economic base growth center which promotes the economic advantage in each cluster. Aligning with this movement, this study has determined a tool to enhance the capabilities of each growth centers developing a One-stop-shop facility through 15-minutes city approach and integration of modernization program by providing provision for ICT and sustainable design.

The concept of this One-Stop-Shop Facility does not only focus on the government serviceability but also integrates adaptability and sustainability of the community. With this concept it will not only solve the problem of government access but also involve participation of the stakeholders in providing economic progress and creating healthy neighborhoods.

Hence, as researcher, I strongly believe that sometimes disadvantages can become an opportunity when we analyze them thoroughly, in comparison to the statement where Tuba is known to be the "Gateway of the Cordillera" as it is dissected by major road thoroughfares, at some point it can be considered as disadvantageous but with the factors identified in this study, it becomes a solution to boost its economy and an eye opener to the local government that multiple growth nodes is their greatest assets to catch up with the developmental progress of its neighboring city.

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