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SALAMYAAN: A Community-Driven Modernization of the Marikina Sports Center through Universal Design

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CHAPTER 1: INTRODUCTION

1.1. The Project

Globally, modernization in architecture has gained prominence as cities and communities transform aging buildings, structures, and facilities to meet the evolving needs of modern society (Migdol, 2020, para. 2). This trend often involves the revitalization of outdated public spaces and infrastructure to accommodate expanding populations, promote innovation, and enhance functionality. In many cases, modernization also incorporates principles of sustainability, inclusivity, and accessibility, ensuring that new developments address environmental challenges while providing equitable access to resources and services (California College of the Arts, 2017; Welch, 2023; Cromwell Architects Engineers, Inc., 2024). This international movement reflects a shift in architectural practices that embrace adaptive reuse, technological advancements, and community-centered design to create spaces that are both forward-thinking and responsive to societal changes.

In the Philippines, the Marikina Sports Center, established in 1969 (Tugano, 2019, p. 249), stands as an example of an aging facility that no longer fully serves the needs of the modern community. Built over five decades ago, it was designed for a much smaller population and under very different social conditions. The population of Marikina grew by approximately 1027.32% from 40,455 in the 1960s to 456,059 in 2020 (Marikina City Planning Office, 2023). Today, it struggles to provide the level of service and accessibility required by a growing and diverse society, as evidenced with a lack of universal design just by simply visiting the center. Moreover, its aging infrastructure is a cause for concern (Tugano, 2019, p. 251). Marikina City's mission to become a model for local governance—focused on providing participative, inclusive, and high-quality public services—underscores the urgent need to upgrade the sports center. The city is committed to addressing both the practical and strategic needs of its institutions, environs, and constituents, but the current state of the sports center does not entirely reflect these aspirations. Furthermore, Marikina's objective of fostering a "healthier, livelier, and community-centered citizenry" (Marikina City Planning Office, 2018, p. 43) is hindered by the outdated infrastructure of the sports center. One of the ways that the city envisions encouraging a healthy lifestyle is by promoting the use of the Marikina Sports Center for local events. The center boasts numerous amenities, yet, despite these offerings, the facilities require substantial updates to cater to a wide and diverse set of users (Reyes, 2023).

Additionally, Marikina's vision to promote health and wellness includes providing residents with greater access to health and recreational facilities. A key success indicator for this goal is the increased number of visitors and participants in activities at the Marikina Sports Center by 2024. Moreover, Marikina City 1st District Rep. Marjorie Ann "Maan" Teodoro has further emphasized the importance of athletic development by expressing her goal of helping the city produce its first Olympic gold medalist (Quismorio, 2024). However, achieving such an ambitious goal requires the sports center to be upgraded to meet international standards, providing local aspiring athletes with the training facilities they need to compete at the highest level.

Given the current state of the Marikina Sports Center and the evolving needs of its community, modernization is not only necessary but urgent. The transformation into the Modern Marikina Sports Center (henceforth, Modern MSC) would enable the facility to meet the city's vision of promoting health and wellness while aligning with international architectural trends focused on sustainability, innovation, and inclusivity. This modernization would equip the center with updated and adaptable infrastructure, enhanced accessibility, and new innovations, allowing it to serve as a community hub that promotes active lifestyles and supports Marikina's aspiration to develop world-class athletes. By aligning with global trends and local goals, the Modern MSC would stand as a beacon of progress and a replicable model for other sports facilities across the Philippines.

1.2. STATEMENT OF THE PROBLEM

1.2.

Primary Issue: Outdated Infrastructure and Lack of Accessibility.

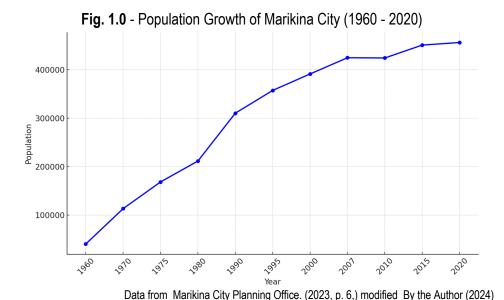
The Marikina Sports Center, built in 1969, was designed for a smaller community with simpler needs. Over time, the facility has become outdated, no longer serving the growing, diverse population of Marikina effectively. Its aging structure lacks the necessary inclusivity and accessibility features, preventing equitable access for vulnerable groups, including PWDs, the elderly, women, and children. As a result, the community is deprived of a sports facility that meets universal design standards and supports broad participation across all demographics, from recreational users to aspiring athletes.

Sub-Problems:

1. Growing Demand and Limited Functionality

Marikina's population has surged by over 1,000% from the 1960s, rising to 456,059
residents by 2020. This expansion demands enhanced facilities to accommodate varied
sports, training, and community activities. Currently, the sports center's limited layout and
outdated amenities do not allow for such versatility, constraining its potential as a vibrant
community hub and reducing its overall functionality





2. Insufficient Accessibility and Inclusivity Features

The existing design lacks universal accessibility, failing to provide the necessary features for PWDs and other marginalized users. This exclusionary setup contrasts sharply with Marikina's mission of being a model for inclusive public service. Without architectural interventions that meet universal design standards, the sports center limits opportunities for equitable participation and isolates certain groups from a public resource intended for all.

3. Need for Community-Centered, Sustainable Solutions

Marikina's mission to promote health, wellness, and community cohesion is hampered by the outdated state of the sports center. The current facility does not fully align with Marikina's vision of fostering a healthier, more active community, nor does it support sustainability efforts essential to urban development. An upgraded, sustainable design would not only benefit users but also position the sports center as a model for other facilities nationwide.

Justification and Need for Architectural Intervention is that the issues facing the Marikina Sports Center call for an architectural solution that addresses these problems with a comprehensive, design-based approach. Modernizing the facility through community-centered design and universal accessibility features would enable it to serve as a true community resource, supporting both everyday recreation and athletic training. Furthermore, by incorporating sustainable design principles, the modernization can mitigate

environmental impact while meeting Marikina's goals of inclusivity and public wellness. This transformation aligns with global trends in architecture that emphasize adaptive reuse, inclusivity, and innovation, positioning the Modern Marikina Sports Center as a replicable model for inclusive, sustainable design in the Philippines.

Call for Action to meet these needs, the modernization of the Marikina Sports Center will focus on adaptable, inclusive, innovative, and sustainable design interventions that address the community's evolving needs and support Marikina's goal of producing world-class athletes. This architectural project will serve as both a local solution and an adaptable model for nationwide application.

1.3. POSITIONALITY OF THE RESEARCHER

1.3.

The choice to carry out this study was motivated in large part by the proponent's own experiences as a PWD with an active lifestyle, which is one of the many groups utilizing the spaces within the MSC. Consistent physical activity has improved the proponent's physical and emotional well-being and significantly impacted their life. The researcher's recent experiences have inspired him to continue investigating the many advantages of exercise and how it may improve people's quality of life regardless of their circumstances.

The researcher approaches this work from both an academic and a personal perspective, having firsthand knowledge of the advantages of keeping an active, healthy body. The proponent hopes to uplift others by sharing personal tales and adding to the expanding amount of research emphasizing physical fitness's vital role in overall well-being. Furthermore, a thorough and impartial strategy will be adopted to guarantee a true and complete perspective that appeals to a wide audience, despite the researcher's awareness that personal experiences may bring bias.

1.4. PROJECT GOALS AND OBJECTIVES

1.4.

1.4.1. Project Goal

The proposed Modern Marikina Sports Center (Modern MSC) aims to redevelop the facility into a state-of-the-art sports complex that exemplifies inclusivity, accessibility, and sustainability. Designed as a fully modernized space, the project will provide for diverse user needs, including those of individuals with disabilities and other vulnerable sectors, in a facility optimized for environmental sustainability. The Modern MSC seeks to serve as a transformative model for future sports centers across the Philippines, setting a new national standard for inclusive design and sustainable practices within the built environment.

1.4.2. Project Objectives

The primary goals and expected results of the study are highlighted in the objectives of this research, which are listed below:

- To redevelop the sports center with innovative technologies design strategies and contemporary
 accessibility and universal design principles, ensuring all users, regardless of ability, can easily
 navigate and utilize the facility.
 - (Performance Indicator: Compliance with universal accessibility standards)
- To create specialized areas and amenities tailored to support a range of abilities and physical activities, encouraging participation from all segments of the community.
 - (Performance Indicator: Completion of dedicated inclusive spaces)
- To incorporate sustainable architectural practices from the ground up, emphasizing eco-friendly materials, energy efficiency, and resilience to environmental impacts.
 - (Performance Indicator: Reduction in carbon footprint, surveys one year post-completion)
- To design spaces that foster a strong sense of community through accessible, inclusive layouts and programming, encouraging participation across all backgrounds.
 - (Performance Indicator: Increased community satisfaction measured through surveys one year post-completion)

Fig. 1.1 - Project Goals and Objectives



By the Author (2024)

1.5. THE CLIENTS

1.5.1. Background of the Marikina City Local Government

Fig 1.2 - Marikina City Seal



Marikina City 2023

According to the government website, Marikina City (2023, para. 26), is a verdant valley surrounded by mountain ranges and divided by a river, Marikina is one of the sixteen cities and municipalities that make up the Metro Manila region. It is located at 14° 35' latitude and 14° 41' longitude, about 21 kilometers from Manila. Moreover, The Augustinians arrived in 1500, and the Jesuits followed in 1630, founding a mission in what was then known as Mariquina, which was renamed Marikina in 1901. These events marked the beginning of Marikina's history. The city, which was well-known for its shoe manufacturing, had fast industrial expansion in the 20th century but also had to deal with issues including urban sprawl and river pollution. Marikina, which became a city in 1996, has seen tremendous revitalization since 1992. It is now a dynamic, contemporary metropolis renowned for its urban development, government, and well-behaved citizenry (Marikina City, 2023, para. 1-7).

1.5.1.1. Vision and Mission Statement of Marikina City

Vision: "A sustainable city of empowered, value-driven, and heritage-rich community-centered citizens; thriving in an orderly and livable environment; propelled by a vibrant economy; supported by well-planned infrastructure systems and responsive public service recognized in the Philippines as a model city for local governance." (Marikina City, n.d. p.4)

Mission: "Marikina City is moving towards becoming a model city for local governance providing participative, inclusive and excellent quality of public services which timely responds to both the practical and strategic needs of the city: its local institution, environs, community and constituents." (Marikina City, n.d. p.4)

By promoting a modernized environment for all residents, Marikina's goal of a sustainable, community-centered, heritage-rich city backed by well-planned infrastructure is in line with the proposed Inclusive Marikina Sports Center (Modern MSC). The purpose of Modern MSC is to provide world-class sporting facilities that are accessible to a broad range of groups, including women, children, people with disabilities, and other vulnerable sectors, while also encouraging equality and community involvement. This goal is closely linked to the mission's emphasis on engagement and inclusive governance.

1.5.1.2. Organizational Chart of the Marikina City Government

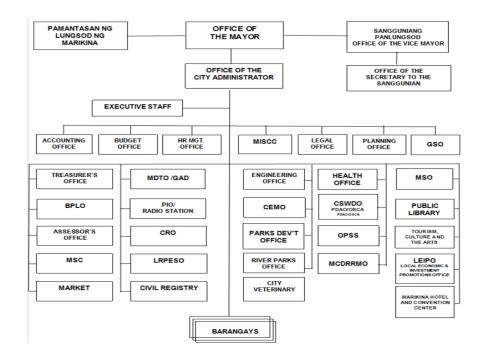


Figure 1.3 - Marikina City Government Organizational Chart

Marikina City (2023)

The Office of the Mayor is at the highest level of the Marikina City Government organizational chart, which also shows important divisions including the Executive Staff, the Office of the City Administrator, and the Sangguniang Panlungsod (City Council). Several offices, such as the GSO, the Legal Office, the MISCC (Management Information System & Call Center), and the like, are responsible for certain tasks. These offices include health, engineering, parks development, and local economic investment. The organizational structure makes sure that all sectors work together in collaboration to support the infrastructure, community needs, and administration of the city.

1.5.2. Background of the Marikina Sports Center

Fig. 1.4 - Marikina Sports Park Logo



Marikina Sports Center (n.d.)

Fig. 1.5 - Marikina Sports Center Running Track and Swimming Pool



Alvez (2024)

The Marikina Sports Center (MSC), originally established in 1969 as the Rizal Sports Complex (Tugano, 2019, p. 248), has long been a significant fixture in the city of Marikina. Over the years, it has evolved beyond just a venue for sporting events, becoming a vibrant hub for various community activities and civic functions. Its architect was **Arch. Ruperto Cecilio Gaite** (Olivares, 2020). The sports center holds a special place in the lives of Marikina residents, as it serves not only local athletes but also the general public, making it an integral part of the city's social and cultural fabric. The MSC's spacious grounds and accessible location have made it a go-to spot for public gatherings, including recreational and fitness activities for people of all ages (Tugano, 2019, pp. 262-275).

During the COVID-19 pandemic, the MSC took on a new role as one of Metro Manila's largest quarantine facilities, accommodating a large number of patients and serving as a vital component in the city's pandemic response. This transformation into a medical and isolation center was critical in managing the region's healthcare capacity during the height of the crisis (Marquez, 2020, para. 1,3). This highlights the versatility and significance of the facility in addressing public health emergencies, not just sporting needs. In addition to its use during the pandemic, the MSC has hosted prominent events such as the Palarong Pambansa in 2023, a national sports competition that brings together athletes from all over the Philippines (Dioquino, 2023, para. 1). The event demonstrated the center's ability to cater to high-profile sporting events, drawing attention to the potential of the MSC as a prime venue for both national and regional competitions. Despite the milestones achieved by the Marikina Sports Center (MSC), its aging infrastructure has become inadequate for meeting the evolving needs of its users, particularly persons with disabilities (PWDs). The facilities, which have not undergone significant upgrades in recent decades, present accessibility challenges for PWD athletes. Tugano (2019) highlights that the MSC's outdated design falls short in modern safety standards (p. 251).

1.5.2.1. Timeline of Architecturally Relevant Events of the Marikina Sports Center

May 3, 1914

- The land on which the Marikina Sports Center (MSC) stands was officially registered with the Land Registration Commission (1982). The Transfer Certificate of Title documented the lot as covering approximately 57,305 square meters.
- The initial registration of the MSC land reflects Marikina's long-standing commitment to designated public spaces for recreation and community gatherings. This foundational event underscores the importance of maintaining this historical site while adapting it to meet the needs of a contemporary urban population. The modernization can emphasize respecting this legacy by enhancing the center's relevance and accessibility for future generations.

1969

- The construction of the Marikina Sports Center, then named the Rodriguez Sports Center (RSC), was completed (Tugano, 2019. p. 248). Its architect was **Arch. Ruperto Cecilio Gaite** (Olivares, 2020). This development marked the establishment of a dedicated space for sports and public recreation within Marikina
- The original construction as the Rodriguez Sports Center marks the first formal step toward creating a dedicated sports and recreational facility in Marikina. Modernization efforts can build on this foundation by upgrading the infrastructure to reflect present-day standards and amenities, responding to how recreational and sporting activities have evolved since the center's inception

2001

- Upon Marikina's designation as a city in 1996, full management of the sports complex transferred to the city government. Olivares (2016) and Tugano (2019) stated that the sports was fully renovated when it was under Mayor Bayani Fernando. Moreover, under Mayor Maria Lourdes "Marides" Fernando, the complex was renamed the Marikina Sports Center, later rebranded as the Marikina Sports Park, a name emphasizing accessibility and community use. This rebranding reflected a vision of the complex as an inclusive public park, even amidst Marikina's growth as an urban center (Andres, 2019; ETMSP, 2019, as cited in Tugano, 2019).
- This change represented Marikina's growing urban identity and an effort to make the space more accessible to a broader community, aligning with modernization. This rebranding serves as a precedent for creating an inclusive, accessible, and sustainable facility that accommodates diverse groups and activities.

2017

- Significant renovations were undertaken at the sports center, focusing on upgrading the football field to meet international standards. This enhancement increased the facility's capacity to host official events and large gatherings (Guerrero, 2018).
- The 2017 upgrades, specifically to the football field, marked a shift towards meeting international standards, allowing the MSC to attract and accommodate more competitive and high-profile events. This sets a benchmark for your modernization project, as it indicates the city's willingness to invest in high-quality sports infrastructure.

2023

- The Marikina Sports Center underwent refurbishments in July 2023 in preparation for the Palarong Pambansa. The center was closed for most of the month and reopened in early August. These updates aimed to improve facilities for both athletes and spectators (Vibal, 2023).
- The 2023 refurbishments in preparation for the Palarong Pambansa reaffirm the MSC's role as a key sports and community venue in Marikina and the broader region. These updates show the facility's potential to attract large-scale events, highlighting the need for sustained modernization efforts to ensure that it remains functional, appealing, and fully equipped to handle significant gatherings.

The MSC has evolved over decades, with the 2001 renovation marking its most transformative period. Initially built in 1969 as the Rodriguez Sports Center, it was rebranded in 2001 as the Marikina Sports Park under Mayor Maria Lourdes "Marides" Fernando, integrating significant upgrades to reflect Marikina's urban growth and community focus. Later efforts in 2017 and 2023, which focused on field improvements and general maintenance, is not as large as the scale of renovations done in 2001.

Fig. 1.6 - Aerial Shot of the Marikina Sports Center when it was still named the Rizal Sports Center during 1969



Marikeno (2022)

Fig. 1.7 - Aerial Shot of the Marikina Sports Center, taken 2019



Metro News Central (2019)

REFERENCES

- Ahmed, A., Mateo-Garcia, M., & Mcgough, D. (2016). Innovative retrofitting activities for the enhancement of Energy Efficiency in Public Buildings. *HERITAGE 2016 Proceedings of the 5th International Conference on Heritage and Sustainable Conference*.
- Altmeyer, S. (2018). A theory of recognition as framework for religious education. Reading Axel Honneth from a pedagogical and theological perspective. *Journal of Beliefs & Values*, 39(4), 416–428. https://doi.org/10.1080/13617672.2018.1442979
- Andersen, M., Ottesen L., & Thing, L. (2019). The Social and Psychological Health Outcomes of Team Sport Participation in Adults. Scandinavian Journal of Public Health 47(8), 832-850.
- AZUSA SEKKEI, Kengo Kuma & Associates, & Taisei Corporation . (2021, July 12). Japan National Stadium / Taisei Corporation + AZUSA SEKKEI + Kengo Kuma & Associates. Retrieved from ArchDaily website: https://www.archdaily.com/964848/japan-national-stadium-taisei-corporation-plus-azusa-sekkei-plus-kengo-kuma-and-associates
- Bansal, K. (2018). Structural retrofitting in historic buildings the case of Hearst Greek theatre, California. *International Journal of Engineering* & *Technology*, 7(1.4), 1. https://doi.org/10.14419/ijet.v7i1.4.9027
- Benj. (2023). Athletics Stadium New Clark City. Retrieved September 22, 2024, from New Clark City website: https://newclark.ph/all_facilities/athletic-stadium/
- Bianco, L. (2020). Universal design: from design philosophy to applied science. *Journal of Accessibility and Design for All*, 10(1), 70–97. https://doi.org/10.17411/jacces.v10i1.249
- California College of the Arts. (2017). How architectural design can improve social equity.

 Retrieved from CCA website: https://www.cca.edu/newsroom/architectural-design-improves-social-equity/
- Chung, J, K. Yon Hwang, and Y. Bae. (2012). The loss of road capacity and self-compliance: Lessons from the Cheonggyecheon stream restoration. Transport Policy 21(1), 165-178.
- City of Marikina. (2018). Comprehensive Land Use Plan 2018-2027. City of Marikina.
- Civil Service College Singapore. (2014). Making Public Private Partnerships Work: Implications for Singapore and the Region. Retrieved from knowledge.csc.gov.sg website: https://knowledge.csc.gov.sg/ethos-issue-13/making-public-private-partnerships-work-implications-for-singapore-and-the-region/
- Conference on Cultural and Educational Interchange. (2022, May 15). Accessibility Lessons from the Tokyo Olympics and Paralympics Have Implications for Paris in 2024...and For All Cities. Retrieved from culcon.jusfc.gov website: https://culcon.jusfc.gov/accessibility-lessons-from-the-tokyo-olympics-and-paralympics-have-implications-for-paris-in-2024-and-for-all.
- Cromwell Architects Engineers, Inc. (2024, August 13). Sustainable Design Practices in Modern Architecture and Engineering Cromwell Architects Engineers. Retrieved October 24,

- 2024, from Cromwell Architects Engineers website: https://cromwell.com/2024/08/13/sustainable-design/
- Dean, H. (2023). Marginalization, Outsiders. *The Blackwell Encyclopedia of Sociology*, 1–2. https://doi.org/10.1002/9781405165518.wbeosm026.pub2
- Deja, B. M. (2008). Renovation of Buildings and Modernization of Built-Up Areas A Case Study. *Technical Sciences*, *11*(-1), 117–130. https://doi.org/10.2478/v10022-008-0009-9
- Department of Education. (n.d.). NCR About the Region | Department of Education. Retrieved from deped.gov.ph website: https://www.deped.gov.ph/regions/ncr/ncr-about-the-region/
- Department of Public Works and Highways (DPWH). (2018, July 12). INCORPORATION OF CONSERVATION OF BUILT HERITAGE INTO THE BUILDING PERMIT PROCESS. NBCDO Memorandum Circular No. 03, Series of 2018. Retrieved October 29, 2024, from https://www.dpwh.gov.ph/DPWH/files/NBCDO%20MC/18-NBCDO%20MC/NBCDO%20MC 03 s2018.pdf
- Disability Sport NI. (2016). Accessible Sports Facilities Design Guidelines Guide. Retrieved from https://www.dsni.co.uk/wp-content/uploads/2022/08/Guide_1_Accessible_Sports_Facilities_Design_Guidelines_20_16..pdf
- Duncan-Andrade, J. (2010). The Impact of Sport on Society and Youth: A Case for Sport in Schools. Counterpoints 293(1), 33-51.
- Dwivedi, O. P., Khator, R., & Nef, J. (2007). Marginalization and Exclusion. *Managing Development in a Global Context*, 62–79. https://doi.org/10.1057/9780230627390_5
- Ekins, P. & Tombazis, A. (1997). The Contribution of Architecture to Sustainable Development: Should Green Architecture be Something Different? Royal Society for Arts Journal 145(5479), 39-47.
- Evans, G. (2018). Inclusive and Sustainable Design in the Built Environment: Regulation or Human-Centred? Alexandrine Press.
- Fermeglia, M. (2017). The Show Must Be Green: Hosting Mega-Sporting Events in the Climate Change Context. Carbon & Climate Law Review 11(2), 100-109.
- Frost, D. (2020). More Than Medals: A History of the Paralympics and Disability Sports in Postwar Japan. Cornell University Press. Retrieved from https://www.jstor.org/stable/10.7591/j.ctvxrpx7n
- Fukumoto, S., & Mimachi, T. (2006). Application of microtremor array explorations for architectural seismic design. *BUTSURI-TANSA(Geophysical Exploration)*, 59(2), 151–162. https://doi.org/10.3124/segj.59.151
- Gahl, C. (2011, August 11). Universiade Sports Center and Bao'an Stadium / gmp Architekten. Retrieved September 22, 2024, from ArchDaily website: <a href="https://www.archdaily.com/158838/universiade-sports-center-and-bao%25e2%2580%2599an-stadium-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerkan-marg-architects-von-gerka

- partners/50153bdb28ba0d02f00008d8-universiade-sports-center-and-bao%25e2%2580%2599an-stadium-architects-von-gerkan-marg-and-partners-photo
- Gahl, C. (2024, September 21). Shenzhen Universiade Sports Center sbp. Retrieved September 22, 2024, from sbp website: https://www.sbp.de/en/project/shenzhen-universiade-sports-center/
- GeoCities. (2024). Rodriguez Soil. Retrieved October 27, 2024, from Geocities.ws website: https://www.geocities.ws/eco psychology/R soil.htm
- Graham, J., Berardi, U., Turnbull, G., & McKaye, R. (2020). Microclimate Analysis as a Design Driver of Architecture. *Climate*, *8*(6), 72. https://doi.org/10.3390/cli8060072
- Guerrero, B. (2018, March 7). Can Marikina become a football mecca? Retrieved October 26, 2024, from RAPPLER website: https://www.rappler.com/sports/football/197598-can-marikina-become-football-mecca/
- Harvard University. (2024). Urban Design Case Study Archive. Retrieved from udcsa.gsd.harvard.edu website: https://udcsa.gsd.harvard.edu/projects/9
- Hathaway, J., & Niess, L. (2018). MEDIA CONTACTS. In *usbankstadium.com*. U.S. Bank Stadium. Retrieved from U.S. Bank Stadium website: https://www.usbankstadium.com/assets/doc/U.S.-Bank-Stadium-Fact-and-Media-Guide-for-SBLII-dad2800067.pdf
- Helanko, R. (1958). Sports and Socialization. Acta Sociologica 2(4), 229-240.
- International Paralympic Committee. (2018). Paralympics History History of the Paralympic Movement | International Paralympic Committee. Retrieved from paralympic.org website: https://www.paralympic.org/ipc/history
- International Paralympic Committee. (2021). *IPC GUIDE TO PARA AND IPC TERMINOLOGY*. Retrieved from https://www.paralympic.org/sites/default/files/2021-08/IPC%20Guide%20to%20Para%20and%20IPC%20Terminology.pdf
- Japan National Tourism Organization. (2020). New National Stadium | Tokyo Attractions | Travel Japan | JNTO. Retrieved from Travel Japan website: https://www.japan.travel/en/spot/2037/#:~:text=Tokyo%202020%E2%80%94The
- Japan Sport Council. (n.d.). Develop the future, with the power of sports. In *jpnsport.go.jp*. Japan Sport Council. Retrieved from Japan Sport Council website: https://www.jpnsport.go.jp/corp/Portals/0/kokuritsu/overview_of_the_JapanNationalStadium.pdf
- Johnson, L. (2017, March 3). Greener horizons: The Cheongyecheon stream restoration project. Retrieved from Planet Forward website: https://planetforward.org/story/greener-horizons-the-cheongyecheon-stream-restoration-project/
- Kastrup, M. (2023). Marginalized People. *Oxford University Press EBooks*, 232-C19P125. https://doi.org/10.1093/med/9780197521359.003.0019

- Kim, J. (2023, May 16). Cheonggyecheon Restoration Project. Retrieved from Green City Blog website: https://greencityblog.com/cheonggyecheon-restoration-project/
- Kim, Y. & H. Yang. (2023). Rethinking Cheonggye Stream Restoration Project: Is urban greening strategy socially inclusive? Land Use Policy 131(1).
- Kwek, M. (2023, December 15). All 29 ActiveSG Gyms In Singapore By Location, With Unique Facilities & Equipment Revealed. Retrieved from TheSmartLocal Singapore's Leading Travel and Lifestyle Portal website: https://thesmartlocal.com/read/activesg-gyms/
- Lagro, J., Jr. (2013). Site Analysis: Informing Context-Sensitive and Sustainable Site Planning and Design . John Wiley & Sons, Inc.
- Lagundino, M., Marc, E., Reyes, Francis, R., & Cayubit, O. (n.d.). Makara Human Behavior Studies in Asia Makara Human Behavior Studies in Asia Identity after Impairment: Development of an Athletic Identity Identity after Impairment: Development of an Athletic Identity Model of Filipino Para-athletes Model of Filipino Para-athletes. Retrieved from https://scholarhub.ui.ac.id/cgi/viewcontent.cgi?article=1524&context=hubsasia
- Lee, J. & Anderson, C.D. (2014). The Restored Cheonggyecheon and the Quality of Life in Seoul. Journal of Urban Technology 20(4), 3-22.
- Lee, M., & Jung, I. (2015). Assessment of an urban stream restoration project by cost-benefit analysis: The case of Cheonggyecheon stream in Seoul, South Korea. *KSCE Journal of Civil Engineering*, 20(1), 152–162. https://doi.org/10.1007/s12205-015-0633-4
- Lescovec, B. (1998). Spatial Planning of Sports Infrastructure. Urbani Izziv 9(1), 128-131.
- Li, S. (2020). An Analysis of the Value of Sports Park Construction Based on the Concept of Ocean Ecological Environment. Journal of Coastal Research 104(1), 921-924.
- Madrogaba, C. A. (2024). Site Selection and Development Suitability Test. Technological Institute of the Philippines.
- Manzanilla-Manalo, A., & Manalo, F. (2014, July 1). Bringing Psychology to the Marginalized: Exploring the Role of Community-Based Counseling. Retrieved from Semantic Scholar website: https://www.semanticscholar.org/paper/Bringing-Psychology-to-the-Marginalized%3A-Exploring-Manzanilla-Manalo-Manalo/29d108182eee2749bbcd339c29efb0a3e5ec47d2
- Marella, M., Devine, A., Armecin, G. F., Zayas, J., Marco, M. J., & Vaughan, C. (2016). Rapid assessment of disability in the Philippines: understanding prevalence, well-being, and access to the community for people with disabilities to inform the W-DARE project. *Population Health Metrics*. 14(1), https://doi.org/10.1186/s12963-016-0096-v
- Marikeño. (2022). Isang lumang larawan ng Marikina Sports Center, kuha noong 1969. Retrieved October 26, 2024, from Facebook.com website: https://www.facebook.com/photo/?fbid=783455963942170&set=a.489108613376908
- Marikina City. (2023). Marikina City. Retrieved from www.marikina.gov.ph website: https://www.marikina.gov.ph/our-city

- Marikina City. (n.d.). *Ecological Profile MARIKINA CITY*. Marikina City. Retrieved from Marikina City website: https://mail.marikina.gov.ph/facts/Ecological-Profile.pdf
- Marikina City Planning Office. (2018). *Marikina City CLUP (2018-2027)*. Marikina City Planning Office.
- Marikina City Planning Office. (2023). Marikina Facts and Figures (2023rd ed.). Marikina City.
- Marikina Sports Center. (n.d.). MSC Narrative.
- Martinez, C. (2020, September 28). People with Disabilities: the Guidelines for Stadium Accessibility. Retrieved from Inclusive City Maker website: https://www.inclusivecitymaker.com/guidelines-stadium-accessibility-people-disabilities/
- Migdol, E. (2020, July 16). Getty: Resources for Visual Art and Cultural Heritage. Retrieved from Getty website: https://www.getty.edu/news/what-is-modern-architecture-anyway/
- Minneapolis.org. (2016). U.S. Bank Stadium. Retrieved September 22, 2024, from Meet Minneapolis website: https://www.minneapolis.org/sports-minneapolis/venues/us-bank-stadium/#:~:text=Total%20Event
- Moe, K. (2007). Compelling Yet Unreliable Theories of Sustainability. Journal of Architectural Education 60(4), 24-30.
- Montemayor, Ma. T., Gatpolintan, L., Rocamora , J. A., & Arayata, Ma. C. (2018, July 18). Empowering people with disabilities in Quezon City. Retrieved from www.pna.gov.ph website: https://www.pna.gov.ph/articles/1042457
- National Council for Disability Affairs. (2009, July 27). Establishing Institutional Mechanism To Ensure The Implementation Of Programs And Services For Persons With Disabilities In Every Province, City and Municipality, Amending Republic Act No. 7277, Otherwise Known As The Magna Carta For Disabled Persons, As Amended, And For Other Purposes RA 10070 | National Council on Disability Affairs. Retrieved from ncda.gov.ph/ website: https://ncda.gov.ph/disability-laws/republic-acts/republic-act-no-10070/
- National Council on Disability Affairs. (n.d.). United Nations Conventions on the Rights of Persons with Disabilities | National Council on Disability Affairs. Retrieved from ncda.gov.ph website: https://ncda.gov.ph/united-nations-conventions-on-the-rights-of-persons-with-disabilities/
- National Paralympic Heritage Trust. (2017, October 11). Professor Sir Ludwig Guttmann. Retrieved from paralympicheritage.org.uk website: https://www.paralympicheritage.org.uk/professor-sir-ludwig-guttmann
- New Clark City Stadium. (2019). New Clark City Stadium | New Clark City Sports Complex. Retrieved from New Clark City Stadium website: https://www.newclarkcitystadium.com/
- Newcomb, T. (2016, June 10). U.S. Bank Stadium will bring Vikings fans close to elements, game action. Retrieved September 22, 2024, from Sports Illustrated website: https://www.si.com/nfl/2016/06/10/vikings-new-stadium-minnesota-us-bank-stadium

- Nikolajsen, H., Sandal, L. F., Juhl, C. B., Troelsen, J., & Juul-Kristensen, B. (2021). Barriers to, and Facilitators of, Exercising in Fitness Centres among Adults with and without Physical Disabilities: A Scoping Review. *International Journal of Environmental Research and Public Health*, 18(14), 7341. https://doi.org/10.3390/ijerph18147341
- Olivares, J. P. (2016, February 28). Marikina City: The Marikina Sports Park. Retrieved from Lakbay ng Lakan website: https://lakansining.wordpress.com/2016/02/28/marikina-city-the-marikina-sports-park/
- Olivares, J. P. (2020, June 5). Stories Carved into Stone: Searching for Eugenio R. Bunuan. Retrieved October 26, 2024, from Lakbay ng Lakan website: https://lakansining.wordpress.com/2020/06/05/stories-carved-into-stone-searching-for-eugenio-r-bunuan/comment-page-1/
- Ordenes, L., Imperial, M. F., Morales, Y., & Retulin, V. (n.d.). PDAOs in Metro Manila. Retrieved September 18, 2024, from StoryMapJS website: https://s3.amazonaws.com/uploads.knightlab.com/storymapjs/ed99e5310e197ad9e9d31890f21bc873/pdaos-in-metro-manila/index.html
- Pajarin, J., Conrad, M., Soriano, & Regin, J. (2017). Assessment of Mobility of Persons with Disabilities (PWDs) in Cainta, Rizal. Retrieved from https://ncts.upd.edu.ph/tssp/wp-content/uploads/2017/07/TSSP2017-02-Pajarin-Soriano-and-Regidor.pdf
- Payo, J. (2024, September 11). Malacañang sets heroes' welcome for Filipino Paralympians. Retrieved September 16, 2024, from rappler.com website: https://www.rappler.com/sports/malacanang-sets-heroes-welcome-filipino-paralympians-paris-games-2024/
- Pearson, E. (2021, September 2). Paralympians still don't get the kind of media attention they deserve as elite athletes. Retrieved September 16, 2024, from rappler.com website: https://www.rappler.com/sports/paralympians-still-do-not-get-media-attention-deserve-elite-athletes/
- Persons with Disability Affairs Office Marikina City. (2024). Facebook. Retrieved September 19, 2024, from Facebook website: https://web.facebook.com/photo/?fbid=793925462773933&set=a.228363085996843&locale=tl PH
- Petrola, J. P. (2017, November). (PDF) Paralympics: Spheres of Recognition for PWDs in the Philippines. Retrieved from ResearchGate website: https://www.researchgate.net/publication/322365866 Paralympics Spheres of Recognition for PWDs in the Philippines
- Philippine Statistics Authority. (2021a, July 23). Highlights of the Population Density of the Philippines 2020 Census of Population and Housing (2020 CPH) | Philippine Statistics Authority. Retrieved from psa.gov.ph website: https://psa.gov.ph/content/highlights-population-density-philippines-2020-census-population-and-housing-2020-cph

- Philippine Statistics Authority. (2021b, August 23). | Philippine Statistics Authority | Republic of the Philippines. Retrieved from psa.gov.ph website: https://psa.gov.ph/statistics/population-and-housing/node/165009
- Quismorio, E. (2024, October 2). Cong Teodoro eyes Marikina's 1st Olympic champion; bares blueprint for sports development. Retrieved October 24, 2024, from Manila Bulletin website: https://mb.com.ph/2024/10/2/cong-teodoro-eyes-marikina-s-1st-olympic-champion
- Republic of the Philippines (auth.), & United Architects of the Philippines, Makati Chapter (UAP Makati) (vis.). (1982, December 6). Batas Pambansa Blg. 344 An Act to Enhance the Mobility of Disabled Persons by Requiring Certain Buildings, Institutions, Establishments and Public Utilities to install Facilities and Other Devices. Retrieved October 29, 2024, from https://uapmakati.wordpress.com/wp-content/uploads/2007/07/bp344-comments-on-bp-344-irr-amendments-complete-part-1-july-10-2013.pdf
- Reyes, A. (2023). Product-Plan Product Plan of Marikina Sports Complex. In *studocu.ph*. studocu. Retrieved from studocu website: https://www.studocu.com/ph/document/fareastern-university/legal-aspects-in-tourism-and-hospitality/product-plan-product-plan-of-marikina-sports-complex/48242526
- Richardson, C. (2022, September 21). FREEWAY to GREENWAY in Seoul

 #Cheonggyecheon. Retrieved October 14, 2024, from YouTube website:
 https://www.youtube.com/watch?v=hWwt6ZJrgFc
- Robinson, A. (2011, December 1). Cheonggyecheon Stream Restoration Project | Landscape Performance Series. Retrieved from www.landscapeperformance.org website: https://www.landscapeperformance.org/case-study-briefs/cheonggyecheon-stream-restoration-project
- Sambatyon, E. (2019, November 15). New Clark City Athletics Stadium given Olympic Grade Class 1 mark, 1st for PHL. Retrieved September 22, 2024, from GoodNewsPilipinas.com website: https://www.goodnewspilipinas.com/new-clark-city-athletics-stadium-given-olympic-grade-class-1-mark-1st-for-phl/
- Schmitt, R. & Leonard, W. (1986). Immortalizing the Self Through Sport. American Journal of Sociology 91(5), 1088-1111.
- Seippel, O. (2017). Sports and Nationalism in a Globalized World. International Journal of Sociology 47(1), 43-61.
- Shabban, N., & Abdelmaksoud, A. (2022). UNIVERSAL DESIGN APPROACH TO A SMART, SUSTAINABLE, SAFE, AND ACCESSIBLE CITY FOR ALL. WIT Transactions on Ecology and the Environment. https://doi.org/10.2495/sc220211
- Singapore Sports Hub. (2023). FACT SHEET SINGAPORE SPORTS HUB FACT SHEET SINGAPORE SPORTS HUB 1. In *sportshub.com*. Singapore Sports Hub. Retrieved from Singapore Sports Hub website: https://www.sportshub.com.sg/sites/default/files/2023-12/Singapore Sports Hub Fact Sheet Updated 19Dec2023.pdf

- Sport Cares. (2024, May 8). Disability Sports Master Plan. Retrieved from sportcares.sportsingapore.gov.sg website: https://sportcares.sportsingapore.gov.sg/persons-with-disabilities/inclusive-sports-facilities/
- Sport Singapore. (2023, September 20). Financial Records. Retrieved from sportsingapore.gov.sg website: https://www.sportsingapore.gov.sg/files/Media%20Centre/Annual%20Reports/22_23b.pd
- StadiumDB. (2023, December). New Clark City Athletics Stadium . Retrieved September 22, 2024, from Stadiumdb.com website: https://stadiumdb.com/stadiums/phi/new clark city stadium
- Taher, M. A., Jamaluddin, S. Z., Mohd Yusoff, J. Z., Tahir, Z., & Thambapillay, S. (2020). ENSURING THE WELL-BEING OF THE ELDERLY: REVISITING THE ROLE AND ADEQUACY OF SOCIAL PROTECTION SCHEMES IN MALAYSIA AND THE PHILIPPINES. *UUM Journal of Legal Studies*. https://doi.org/10.32890/uumjls.9.2018.9109
- Tang See, K. (2022, May 10). SportSG will take over ownership of Singapore Sports Hub to make it more accessible to the community. Retrieved from channelnewsasia.com website: https://www.channelnewsasia.com/singapore/singapore-sports-hub-sportsg-take-over-ownership-community-access-kallang-2739186
- Tanguay, D., Camp, R., Endres, M., & Torres, E. (2012). The Impact of Sports Participation and Gender on Inferences drawn from Resumes. Journal of Managerial Issues 24(2), 191-206.
- Tan, T. & Lee, J. (2023). Technology, innovation, and the future of the sport industry in Asia Pacific. Sport in Society 26(3), 383-389.
- The International Platform on Sport and Development. (2024). Participation barriers and opportunities. Retrieved from sportanddev.org/ website: <a href="https://www.sportanddev.org/thematic-areas/disability/participation-barriers-and-opportunities#:~:text=Lack%20of%20understanding%20and%20awareness%20of%20how%20to%20include%20people%20with%20a,training%20and
- Theerkadharshini, Ann, E., Satish, S., & None A. Uma Mageshwari. (2018). Integrated approach to Retrofitting of walls. *International Journal of Engineering Research And*, *V6*(02). https://doi.org/10.17577/ijertcon015.
- Tugano, A.C. (2019). "Ang Marikina Sports Complex Bilang Espasyo ng Kasaysayan, Kalinangan, at Palakasang Marikeño," Saliksik E-Journal, 8(1) (forthcoming).
- Tugano, A.C. (2020). "Kasaysayang Buhay ni Kapitan Moy (1851-1891) sa Konteksto ng Kasaysayang Mariqueño." Hasaan Journal 6(1), 48-90.
- United Nations. (2006). Convention on the Rights of Persons with Disabilities. Treaty Series, 2515, 3.

- Velasco, D. (2007). Marginalized Groups and Political Participation: Perspectives from the Philippines. *Development*, 50(1), 117–121. https://doi.org/10.1057/palgrave.development.1100342
- Vibal, L. (2023, May 9). "Refurbished" Marikina Sports Center Is Now Open 24/7. Retrieved October 26, 2024, from Spot.ph website: https://www.spot.ph/things-to-do/the-latest-things-to-do/105868/marikina-sports-center-reopens-to-the-public-august-2023-a5138-20230809
- Vilhjalmsson, R. & Thorlindsson, T. (1992). The Integrative and Physiological Effects of Sport Participation: A Study of Adolescents. The Sociological Quarterly 33(4), 637-647.
- Wall-Tweedie, J. & Nguyen, S. (2018). Is the Grass Greener on the Other Side? A Review of the Asia-Pacific Sport Industry's Environmental Sustainability Practices. Journal of Business Ethics 152(3), 741-761.
- Watt, L. (2021, June 30). The Ultimate Architectural Site Analysis Guide. Retrieved from ArchiMash.com website: https://archimash.com/articles/architectural-site-analysis-guide/
- Welch, A. (2023, October 4). Role of sustainability in modern architecture. Retrieved from e-architect website: https://www.e-architect.com/articles/role-of-sustainability-in-modern-architecture