



# Cultural Landscape:

Insights from Environment,  
Economy, Policy, and Health



Chun Hyun Jin, Ray March Syahadat, Muhammad Baiquni, Chafid Fandeli, Dyah Widiyastuti, Nappy L. Navarra, Xu Jiahao, David Suwarno Kuswanto, Kevin Lo, Mohammad Zaini Dahlan, Maria Monica E. Pujalte, Moh. Sanjiva Refi Hasibuan, Daisy Radnawati, Desy Fatmala Makhmud, Ruben M. Felizarte Jr., Kathleen A. Gabriel-Mandapat, Carl Cristopher P. Verdadero, Cathe Desiree S. Nadal, Zenaida DC. Galingan, Awal Laizal Fajar, Rizki Alfian, Dian Kartika Santoso, Julianti Isma Sari Usman, Christel Hannah C. Go, Diomari G. Centeno, Camille Cassandra A. Avila, Jomari Patrick M. Guzman, Jose B. Juson, Arjay John B. Secugal, Daniel Joseph M. Tan, Muhamad Nizar Maulid Junaedi, Ismail Saleh, Leijh Hanne Y. Alianza, Jaclyn Alexandra Marie Brillantes, Villa Saniky Trisnaningrum.

# Cultural Landscape:

Insights from Environment,  
Economy, Policy, and Health

Chun Hyun Jin, Ray March Syhadat, Muhammad Baiquni, Chafid Fandeli, Dyah Widiyastuti, Nappy L. Navarra, Xu Jiahao, David Suwarno Kuswanto, Kevin Lo, Mohammad Zaini Dahlan, Maria Monica E. Pujalte, Moh. Sanjiva Refi Hasibuan, Daisy Radnawati, Desy Fatmala Makhmud, Ruben M. Felizarte Jr., Kathleen A. Gabriel-Mandapat, Carl Cristopher P. Verdadero, Cathe Desiree S. Nadal, Zenaida DC. Galingan, Awal Laizal Fajar, Rizki Alfian, Dian Kartika Santoso, Julianti Isma Sari Usman, Christel Hannah C. Go, Diomari G. Centeno, Camille Cassandra A. Avila, Jomari Patrick M. Guzman, Jose B. Juson, Arjay John B. Secugal, Daniel Joseph M. Tan, Muhamad Nizar Maulid Junaedi, Ismail Saleh, Leijh Hanne Y. Alianza, Jaclyn Alexandra Marie Brillantes, Villa Saniky Trisnaningrum.

**CULTURAL LANDSCAPE:  
INSIGHTS FROM ENVIRONMENT, ECONOMY, POLICY, AND HEALTH**

Authors:

**Chun Hyun Jin, Ray March Syahadat, Muhammad Baiquni, Chafid Fandeli, Dyah Widiyastuti, Nappy L. Navarra, Xu Jiahao, David Suwarno Kuswanto, Kevin Lo, Mohammad Zaini Dahlan, Maria Monica E. Pujalte, Moh. Sanjiva Refi Hasibuan, Daisy Radnawati, Desy Fatmala Makhmud, Ruben M. Felizarte Jr., Kathleen A. Gabriel-Mandapat, Carl Cristopher P. Verdadero, Cathe Desiree S. Nadal, Zenaída DC. Galingan, Awal Laizal Fajar, Rizki Alfian, Dian Kartika Santoso, Julianti Isma Sari Usman, Christel Hannah C. Go, Diomari G. Centeno, Camille Cassandra A. Avila, Jomari Patrick M. Guzman, Jose B. Juson, Arjay John B. Secugal, Daniel Joseph M. Tan, Muhamad Nizar Maulid Junaedi, Ismail Saleh, Leijh Hanne Y. Alianza, Jaclyn Alexandra Marie Brillantes, Villa Saniky Trisnaningrum.**

Cover Design:

**Fawwaz Abyan**

Illustration Source:

**www.freepik.com**

Layout:

**Handarini Rohana**

Editors:

**Chun Hyun Jin  
Priambudi Trie Putra  
Fitria Nurhasanah**

ISBN:

**978-623-500-117-3**

First Printing:

**April, 2024**

---

Copyright Protected by Law

**by Penerbit Widina Media Utama**

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including translate, photocopying, recording, or information storage and retrieval) without permission in writing from the authors or publisher.

**PUBLISHER:**

**WIDINA MEDIA UTAMA**

Komplek Puri Melia Asri Blok C3 No. 17 Desa Bojong Emas  
Kec. Solokan Jeruk Kabupaten Bandung, Provinsi Jawa Barat

**IKAPI Member No. 360/JBA/2020**

Website: [www.penerbitwidina.com](http://www.penerbitwidina.com)

Instagram: @penerbitwidina

Telephone (022) 87355370

# FOREWORD

Welcome to Asian Cultural Landscape Association (ACLA). This book is a comprehensive exploration of the interconnectedness of culture, environment, economy, policy, and health. It delves into the complex relationships between these elements and how they shape our world.

In this era of rapid global change, understanding these connections is more important than ever. As we navigate the challenges of climate change, economic inequality, and public health crises, it is crucial that we approach these issues with a holistic perspective. This book offers a unique perspective, drawing from various disciplines and perspectives.

The authors of this book are experts in their fields, with a wealth of knowledge and experience to share. They bring together insights from various disciplines to provide a comprehensive understanding of the cultural landscape.

This book is not just for academics and researchers but for anyone who wants to gain a deeper understanding of the world around them. It is for those who want to make a difference in their communities and contribute to a more sustainable, equitable, and healthy world.

We hope that this book will inspire you to think critically about the world, to question the status quo, and to work towards a better future. We invite you to join us on this journey of discovery and learning.

Thank you for choosing "Cultural Landscape: Insights from Environment, Economy, Policy, and Health" as your book. We hope you enjoy reading it as much as we enjoyed writing it.

Sincerely,

Editors  
ASIAN CULTURAL LANDSCAPE ASSOCIATION

# TABLE OF CONTENTS

<b>FOREWORD</b> .....	iii
<b>TABLE OF CONTENTS</b> .....	iv
<b>ANALYSIS OF THE CULTURAL LANDSCAPE OF KOREAN TRADITIONAL GARDEN</b> .....	1
Chun Hyun Jin <i>Nanjing University of Aeronautics and Astronautics, China</i>	
<b>THE IMPORTANCE OF VISUAL PROTECTION FOR CULTURAL LANDSCAPE</b> .....	11
Ray March Syahadat, Muhammad Baiquni, Chafid Fandeli, & Dyah Widiyastuti <i>Gajah Mada University, Indonesia</i>	
<b>TRACKING THE HISTORY OF LUZON’S NORTH MAIN LINE</b> .....	21
Nappy L. Navarra <i>University of the Philippines Diliman, Philippines</i>	
<b>ANALYZING THE DEVELOPMENT OF JINAN TOURISM INDUSTRY BASED ON DATA VISUALIZATION TECHNOLOGY</b> .....	43
Xu Jiahao <i>Nanjing University of Aeronautics and Astronautics, China</i>	
<b>BIOPHILIC DESIGN IMPLEMENTATION IN TAMBAK MULYO, INDONESIA: HARMONIZING COASTAL LANDSCAPE WITH LOCAL HISTORY AND CULTURE</b> .....	55
David Suwarno Kuswanto & Kevin Lo <i>Diponegoro University, Indonesia</i>	
<b>ADAPTIVE MANAGEMENT ON CULTURAL LANDSCAPE: LEARNING FROM KABUYUTAN A SACRED NATURAL SITE IN INDONESIA</b> .....	71
Mohammad Zaini Dahlan <i>Institut Teknologi Bandung, Indonesia</i>	
<b>UMMAH: THE SPATIAL CHARACTERIZATION OF THE CULTURAL DISTRICT “MUSLIM TOWN” IN THE CITY OF MANILA, PHILIPPINES</b> .....	89
Maria Monica E. Pujalte & Nappy L. Navarra <i>University of the Philippines, Philippines</i>	

**CONCEPT OF VEGETATION ARRANGEMENT IN THE LANDSCAPE  
BETAWI CULTURAL VILLAGE SETU BABAKAN ZONE-C, SOUTH JAKARTA ..... 113**

Moh. Sanjiva Refi Hasibuan, Daisy Radnawati, & Desy Fatmala Makhmud  
*National Institute of Science and Technology, Indonesia*

**A PATCHWORK OF AGRICULTURAL, COASTAL, AND  
CULTURAL LANDSCAPES: STITCHING LANDSCAPE  
CHARACTER AREAS AND TYPES FOR LANDSCAPE  
CHARACTERIZATION OF GUMACA, QUEZON ..... 131**

Ruben M. Felizarte Jr., Kathleen A. Gabriel, Carl Cristopher P. Verdadero,  
Cathe Desiree S. Nadal, & Zenaida DC. Galingan  
*University of the Philippines Diliman, Philippines*

**TENGER TRIBE YARD MODEL BASED ON  
INDIGENOUS PLANTS BROMO TENGER SEMERU  
NATIONAL PARK (CASE STUDY: NGADAS VILLAGE,  
PONCOKUSUMO, MALANG DISTRICT)..... 151**

Awal Laizal Fajar, Rizki Alfian, & Dian Kartika Santoso  
*Tribhuwana Tunggaladewi University, Indonesia*

**ETHNOBOTANY AS CULTURAL HERITAGE IN INDONESIA..... 165**

Julianti Isma Sari Usman  
*Poltekkes Kemenkes Kendari, Indonesia*

**GUMACA, THE PEOPLE, AND THE LANDSCAPE:  
A LANDSCAPE CHARACTER MANAGEMENT PLAN  
FOR THE HISTORICAL, AGRICULTURAL, AND  
COASTAL ASSETS OF GUMACA, QUEZON PROVINCE..... 181**

Christel Hannah C. Go, Diomari G. Centeno, Ruben M. Felizarte Jr.,  
Camille Cassandra A. Avila, Kathleen A. Gabriel-Mandapat,  
Jomari Patrick M. Guzman, Jose B. Juson, Arjay John B. Secugal,  
Daniel Joseph M. Tan, Carl Cristopher P. Verdadero,  
Cathe Desiree S. Nadal & Zenaida DC. Galingan  
*University of the Philippines Diliman, Philippines*

**SPIRALING HARMONY: UNDERSTANDING THE LANDSCAPE TAPESTRY  
OF GUMACA, QUEZON PROVINCE THROUGH THE DPSIR FRAMEWORK..... 205**

Diomari G. Centeno, Camille Cassandra A. Avila, Jose B. Juson,  
Daniel Joseph M. Tan, Cathe Desiree S. Nadal, & Zenaida DC. Galingan  
*University of the Philippines Diliman, Philippines*

**POTENTIAL OF SETUPATOK AS A HYBRID LANDSCAPE IN CIREBON ..... 229**

Muhamad Nizar Maulid Junaedi, Ismail Saleh, & Ray March Syahadat  
*Swadaya Gunung Jati University, IPB University, &  
National Institute of Science and Technology, Indonesia*

**GEOSPATIAL DIMENSIONS IN STRATEGIC PLANNING:  
AN INDICATOR-BASED SWOT-PEST ANALYSIS OF  
GUMACA, QUEZON PROVINCE ..... 243**

Christel Hannah C. Go, Jomari Patrick M. Guzman,  
Arjay John B. Secugal, Cathe Desiree S. Nadal, & Zenaida Dc. Galingan  
*University of the Philippines Diliman, Philippines*

**ASSESSMENT OF SOIL EROSION SUSCEPTIBILITY  
WITHIN THE BESSANG PASS NATURAL  
MONUMENT/LANDMARK (BPNML) USING THE  
REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE) ..... 263**

Leijh Hanne Y. Alianza, Jaclyn Alexandra Marie Brillantes  
*University of the Philippines Diliman, Philippines*

**THE EFFECT OF *EUPHORBIA HIRTA* L. AS TRADITIONAL  
MEDICINE PLANT FOR HYPERURICEMIA..... 285**

Villa Saniky Trisnaningrum  
*University of Muhammadiyah Kudus, Indonesia*

# **ANALYSIS OF THE CULTURAL LANDSCAPE OF KOREAN TRADITIONAL GARDEN**

---

## **INTRODUCTION**

Korean traditional garden has a special cultural landscape. And Korean traditional garden is influenced by China and has many similarities with Chinese garden. Korean traditional garden is characterized by utilizing the natural landscape without transforming the topography. These representative cultural landscapes are characterized by poetry and naming. The main activity in the Korean traditional garden was writing poetry. Writing poetry was an important hobby for scholars in general. These gardens are used not only in Korea but also in Chinese and Japanese gardens. These characteristics not only reveal cultural differences between the West and the East but also examine the similarities between Eastern cultures. A typical feature of Korean traditional gardens is to name objects in the garden space. After constructing a garden, Joseon scholars give meaning by naming not only the building but also the surrounding environment. Scholars of the Joseon Dynasty thought that it was completed by naming the space and facilities of the garden. In addition, Joseon scholars recognize various spaces and facilities in the garden as their property by giving names. Therefore, Joseon scholars consider not only the interior space of the garden of the traditional Korean garden, but also the fences, surrounding mountains, fields, and the sky as garden space.

## **KOREAN TRADITIONAL LANDSCAPE**

Before analyzing Korean traditional gardens, the traditional landscape of Korea was first analyzed. Korean landscaping is historically very old, but not much is known compared to Japanese and Chinese landscaping. Korea's landscaping is a part of nature and has nature-friendly features. So, Korean landscaping tries to minimize its artificiality. The characteristic of traditional landscaping is that it uses the natural scenery as the interior space for landscaping. In this characteristic, the Korean traditional landscape tried to maximize the natural beauty. Korean traditional landscape did not prefer a completely symmetrical structure because it preferred the natural one.



## REFERENCES

- Jin, Hye-Young. et al. (2011) A Study on the Cognition of Design Elements for Making Korean Traditional Garden. *Journal of Korean Society of Rural Planning*, vol. 17, no. 4, pp. 51-60.
- Lee, Uk (2014) A Study on Joseon Confucian Scholars' Garden Making and the Characteristics of the Gardens in the 18th, 19th Centuries. *Namdo Munhwa Yongu*. vol., no.26, pp. 243-267.
- Lee, Hang Lyoul & Shin, Hyun Sil (2021) Characteristics of Cultural Landscapes about the Garden of the Traditional Korean Temple - In the Case of Hwaeomsa - *Journal of the Korea Institute of Garden Design* vol.7, no.3, 16 pp. 174-188.
- Lee, Sang-Hyuk (2021) A study on the implementation plan of the light design of 'Wolmi Korean Traditional Garden' in Incheon. *Journal of Korea Design Forum* vol.26, no.1, 70 pp. 157-166.
- Ryu, Yoonjin & Cho Donggil (2015) A Study on Comparing Traditional Garden and Modern Garden for Developing Garden Culture of Korea. *Journal of Korea Institute of Spatial Design*, Vol.10 No.5, pp. 113-124.
- Shin, Sang-Sup (2016) A Study on the Traditional House Landscape Styles Recorded in 'Jipkyungjaeyoungsi. *Korean Journal of Cultural Heritage Studies*. vol.49, no.3, 73 pp. 32-51.
- Yang, Eunji & Kim, Kai Chun (2012) A Study on the Sustainable Characteristics of Sustainable Architectural Space viewed in the Eco -Aesthetic perspective - Focusing on korean traditional residential space -. *Korean Institute of Interior Design Journal*. vol.21, no.4, 93 pp. 31-39

# THE IMPORTANCE OF VISUAL PROTECTION FOR CULTURAL LANDSCAPE

---

## INTRODUCTION

A cultural landscape is a type of landform that reflects the influence of human activity on the natural environment. It is a combination of physical elements, such as buildings, roads, and other structures, and natural elements, such as plants, animals, and weather patterns. The concept of a cultural landscape is important in preserving history and culture because it provides a tangible connection to the past, allowing people to understand and appreciate the history and traditions of their ancestors. Cultural landscapes can also serve as a source of inspiration for artists, writers, and other creative professionals, and they can contribute to the economic development of a region through tourism and other forms of cultural exchange.

Cultural landscapes reflect the values and beliefs of a society through the physical elements and structures that are created and maintained by the people who live there. The design and use of these spaces can reflect the values and beliefs of the society, such as the importance of community, the role of religion, or the relationship between people and the natural environment. For example, a society that values community might build public spaces that encourage social interaction, while a society that values nature might create parks and gardens that protect and preserve natural habitats. Cultural landscapes can also reflect the beliefs and values of a society through the use of symbols, such as monuments, statues, and other public art that represent important historical or cultural figures or events. Overall, cultural landscapes provide a tangible expression of the values and beliefs of a society and can help preserve and transmit these values to future generations (Nowicka, 2022; Pritsolas & Acheson, 2017).

Visual protection refers to the measures taken to preserve and protect visual elements, such as art, architecture, and other cultural heritage. In today's world, visual protection is relevant for several reasons. First, visual elements are an important part of our cultural heritage, and preserving them helps to maintain a connection to our past and the traditions and values of

## REFERENCES

- Baiquni, M. (2005). Sesat Pikir Perencanaan Pembangunan Regional: Refleksi Kritis di Era Otonomi. *Forum Perencanaan Pembangunan*, 1–10. <https://adoc.pub/sesat-pikir-perencanaan-pembangunan-regional-refleksi-kritis.html>
- Cao, X. (2019). Research on the Live Protection of Non-Material Cultural Heritage of Folk Art Based on the Principle of Visual Communication Design. *2019 International Conference on Humanities, Cultures, Arts and Design (IHCAD 2019)*, 192–195. <https://doi.org/10.25236/IHCAD.2019.037>
- Ferreira, T. C. (2014). Towards maintenance: Concepts and Portuguese experiences. In R. Lira & C. Pinheiro (Eds.), *REHAB 2014 – International Conference on Preservation, Maintenance and Rehabilitation of Historic Buildings and Structures* (pp. 161–168). Greenlines Institute. [https://d1wqtxts1xzle7.cloudfront.net/84095412/9fab90c68d9f6df10ced51d70c78db3c7122-libre.pdf?1649887488=&response-content-disposition=inline%3B+filename%3DTowards\\_maintenance\\_concepts\\_and\\_Portugu.pdf&Expires=1710924076&Signature=DnzeleC5YCN7CizQXWD1fmEO5](https://d1wqtxts1xzle7.cloudfront.net/84095412/9fab90c68d9f6df10ced51d70c78db3c7122-libre.pdf?1649887488=&response-content-disposition=inline%3B+filename%3DTowards_maintenance_concepts_and_Portugu.pdf&Expires=1710924076&Signature=DnzeleC5YCN7CizQXWD1fmEO5)
- Franch-Pardo, I., Cancer-Pomar, L., & Napoletano, B. M. (2017). Visibility analysis and landscape evaluation in Martin river cultural park (Aragon, Spain) integrating biophysical and visual units. *Journal of Maps*, 13(2), 415–424. <https://doi.org/10.1080/17445647.2017.1319881>
- Heuer, A., & Schubö, A. (2016). The Focus of Attention in Visual Working Memory: Protection of Focused Representations and Its Individual Variation. *PloS One*, 11(4), e0154228. <https://doi.org/10.1371/journal.pone.0154228>
- Nowicka, K. (2022). The Heritage Given: Cultural Landscape and Heritage of the Vistula Delta Mennonites as perceived by the contemporary Residents of the Region. In *Sustainability* (Vol. 14, Issue 2). <https://doi.org/10.3390/su14020915>
- Otero, A., Timothy, D. J., Galí, N., & Vidal-Casellas, D. (2023). Historical Pathways as Promotion and Protection of the Cultural Landscape: Tourism and the Camí de Ronda on the Costa Brava. *PASOS. Revista de Turismo y Patrimonio Cultural*, 21(2), 255–270. <https://doi.org/10.25145/j.pasos.2023.21.017>

- Pritsolas, J., & Acheson, G. (2017). The evolution of a small Midwestern cemetery: Using GIS to explore cultural landscape. *Material Culture*, 49(1), 49–77. <https://www.jstor.org/stable/44507802>
- Steinitz, C. (1979). Predicting the Visual Quality Impacts of Development: A Simulation of Alternative Policies for Implementing the Massachusetts Scenic and Recreational Rivers Act. In G. H. Elsner & R. C. Smardon (Eds.), *Proceedings of our national landscape: a conference on applied techniques for analysis and management of the visual resource* (pp. 598–609). [https://www.fs.usda.gov/psw/publications/documents/psw\\_gtr035/psw\\_gtr035\\_13\\_steinitz.pdf](https://www.fs.usda.gov/psw/publications/documents/psw_gtr035/psw_gtr035_13_steinitz.pdf)
- Sukwai, J., Mishima, N., & Srinurak, N. (2022). Balancing Cultural Heritage Conservation: Visual Integrity Assessment to Support Change Management in the Buffer Zone of Chiang Mai Historic City Using GIS and Computer-Generated 3D Modeling. In *Land* (Vol. 11, Issue 5). <https://doi.org/10.3390/land11050666>
- Wang, Y. (2015). Survey on the Structure of city Wall Comprehensive Landscape System Based on the Principle of “Authenticity” and “Integrity”-Take the Xi’an City Wall as an Example. *2015 3rd International Conference on Education, Management, Arts, Economics and Social Science*, 205–210. <https://doi.org/10.2991/icemaess-15.2016.46>

# TRACKING THE HISTORY OF LUZON'S NORTH MAIN LINE

---

## INTRODUCTION

One of the main factors that shaped cities and towns is the mode of transportation. Connecting different spaces separated by distance and functions, the past and the future of these different towns and cities are permanently linked as people, goods, and services move from one place to another. The shared history of these various places transcend the often limited perspective on the history of the place, since history is often defined by the people telling the story within their sphere of influence and experience. The mobile nature of transportation is left to the residual memory of the people who have experienced transience and not on the vessel or mode of getting to a certain place. History is often told as the beginning of permanence.

Unlike in other countries, particularly in Asia where greater efficiency in public transportation has been achieved due to the introduction of rail system in their own countries, the Philippines has not developed a system of chronicling and documenting the history of this system that has shaped and influenced a great part in the formation of our cities and towns that has created a common link to the consciousness of the people connected by rail, train stations, and experience in the train. The Philippine National Railway (PNR), a government agency tasked to operate the largest railway in Luzon (PNR, n.d.).

According to its corporate profile (PNR, n.d.), the Luzon North Main Line was created by virtue of the Royal Decree by King Alfonso XII of Spain to submit a general plan for a railroad in Luzon on 25 June 1875. The decree directed the then colonial Office of the Inspector of Public Works to carry out the planning of the rail system. On 31 July 1887, the construction of the line started. The first section of the Manila-Dagupan line was completed and commercially operational with its initial run from Manila to Bagbag on 24 March 1891. The entire line of 195.5 kilometers was completed and fully operational on 24 November 1892. The operation of the train was interrupted due to the Philippine revolution against Spain in November 1896.

## REFERENCES

- Batista, Desiderio and Matos, Jute Sousa (2015) The Douro Valley: Landscape heritage corridor of Humanity - From the past, towards the future. *Gardens & Landscapes of Portugal*, CIUHCT/CHAIA/CHAM/Mediterranean Garden Society, No. 3, pp. 60-70. [//www.chaia\\_gardens\\_landscapesofportugal.uevora.pt/index%20home%20presentation.htm](http://www.chaia_gardens_landscapesofportugal.uevora.pt/index%20home%20presentation.htm). Accessed 1 March 2017.
- Chaplin, Ian (2014) Revitalizing Community Values through Railway Regeneration in the Asia Pacific Region: Tourism Research and Education Approach. *Railway heritage and tourism: global perspectives*, edited by Conlin, Michael V. and Bird, Geoffrey R. Channel Publications.
- Cornell, Jim (2003) *Conserving Railway Heritage*. [www.buildingconservation.com](http://www.buildingconservation.com). Accessed 1 March 2017.
- Corpuz, A. G. (1999) *The Colonial Horse: Railroads and Regional Development in the Philippines 1875-1935*. University of the Philippines Press Quezon City.
- Coulls, A. (1999), *Railways as World Heritage Sites*. Occasional Papers for the World Heritage Convention. International Council on Monuments and Sites (ICOMOS).
- DOTC (2015) *Environmental Performance Report and Management Plan (EPRMP) for the North South Commuter Rail (NSCR) Project*. Vol. 1. Main Report (Draft).
- Liongson, Leonardo Q. (1999) A "Must" Reading for Regional and Urban Planners and Railroad Enthusiasts Alike. [www.journals.upd.edu.ph](http://www.journals.upd.edu.ph). Accessed 1 March 2017.
- Landingin, Roel (2010) Chinese foreign aid goes offtrack in the Philippines. *Philippine Center for Investigative Journalism*. <http://www.realityofaid.org/wp-content/uploads/2013/02/ROA-SSDC-Special-Report8.pdf>. accessed 1 March 2017.
- Orejas, Tonette (2013) Death March Landmark in Pampanga Saved. *Philippine Daily Inquirer*. <http://newsinfo.inquirer.net/387421/death-march-landmark-in-pampanga-saved>. Accessed 1 March 2017.
- Satre, Gary L. (2004) *Railway Diplomacy in the Philippines*. *Executive Intelligence Review*, Vol. 31, Number 36. <http://www.pnr.gov.ph/about-contact-us/who-we-are/corporate-profile>. Accessed 1 March 2017.

<http://www.pnr.gov.ph/about-contact-us/who-we-are/pnr-in-philippine-history/2014-12-12-03-16-34>. Accessed 1 March 2017.

<http://newsinfo.inquirer.net/387421/death-march-landmark-in-pampanga-saved>. Accessed 1 March 2017

# **ANALYZING THE DEVELOPMENT OF JINAN TOURISM INDUSTRY BASED ON DATA VISUALIZATION TECHNOLOGY**

---

## **INTRODUCTION**

With the steady development of the economy and the continuous improvement of people's living standards, tourism has become one of the important driving forces for economic growth in China. In recent years, an increasing number of people have chosen China as their desired travel destination to enjoy the pleasure of travelling. The prosperity of the Chinese tourism market is not only reflected in the continuous growth of tourist numbers but also in the ongoing pursuit and upgrading of tourist experiences by travellers. From traditional sightseeing tours to today's deep travel and customized tours, the demand for tourism from the public is becoming increasingly diverse and personalized. As the capital city of Shandong Province, China, Jinan is endowed with a unique spring water culture, rich historical relics, and magnificent natural scenery, making it charming and attractive. Against the backdrop of growing market demand, Jinan's tourism industry has tremendous development potential and advantages. To deeply understand the data characteristics of popular tourist attractions in Jinan and reveal the current situation of the tourism market in Jinan is of great significance for promoting the healthy development of Jinan's tourism industry.

In this context, information visualization technology, with its unique data processing capabilities and intuitive presentation of data, provides a fresh perspective for the analysis of the tourism industry. Through information visualization tools, large amounts of tourism data can be transformed into easily understandable and analyzable graphics and images. This technology not only makes the data clearer and more comprehensible but also helps analysts quickly discover trends, patterns, and issues within the data, uncovering potential market insights. The results of data analysis based on visualization tools can assist industry professionals and tourists in making tourism policies, planning travel routes, and adjusting tourism resource allocation more scientifically and rationally.



## REFERENCES

Cheng,H.(2007).济南城市史研究概述. *济南职业学院学报*(06),14-16+24.

Li,B., & Wang,X.(2003).济南近代城市规划历史研究. *城市规划汇刊*(02),50-55+95-96.

Zou,B., Sun,Y., &Sun,R.(2024).山东省 A 级旅游景区空间分布格局分析. *合作经济与科技*(01),23-25. doi:10.13665/j.cnki.hzjyjkj.2024.01.053.

Sun,Y., Liu, M., &Li, H. (2024).国家级旅游度假区空间分布特征及影响因素研究. *资源开发与市场*(01),118-126.

# BIOPHILIC DESIGN IMPLEMENTATION IN TAMBAK MULYO, INDONESIA: HARMONIZING COASTAL LANDSCAPE WITH LOCAL HISTORY AND CULTURE

---

## INTRODUCTION

Throughout history, the most livable regions for many civilizations have been along the coast (Asur, 2019). Most civilizations rose and developed nearby water, as there were plenty of resources. (Chellaney, 2011). One of these cities that developed from water points is Semarang City in Indonesia. Originally, this city shoreline was a lot different than it is now. As time passes, river sedimentation causes the shoreline to move forward and turn what used to be water into land (Andreas et al., 2019). Tambak Mulyo is one area that experienced this change and became a part of the Semarang land mass in 1947 (Firmandhani, 2020). Being a coastal area means Tambak Mulyo is subjected to various sea elements. The most common problem with shores is tidal flooding.

Tambak Mulyo does not only face water on one side, all three sides of Tambak Mulyo are exposed to water, either sea or river. This means Tambak Mulyo is exposed to tidal and river floods occasionally. Tidal flood in this neighborhood occurs twice daily, while river floods occur in the rainy season (Fajrin et al., 2021). A large chunk of this neighborhood is adjacent to the sea, creating more vulnerability for the people living there. Creating settlements directly adjacent to the sea reduces local biodiversity in areas such as Mangroves and birds (Oktiana & Antonio, 2015). The lack of biodiversity, in turn, creates more vulnerability as settlements become directly exposed to coastal elements (Sutton et al., 2019).

The biophilic idea has yet to stand up as the more significant to support resilient and sustainable neighborhoods (Zhao et al., 2022). The biophilic concept can be defined by the two words composing it: bio, which means nature, and philia, which means attraction. Biophilic design, by definition, is a design that would cause its user to be attracted to nature. Through this natural attraction, resilience and sustainability will spring out automatically (Gür et al., 2022). Biophilic design has three main attributes: direct experience, indirect experience, and experience of space and place (Kellert,

## REFERENCES

- Africa, J., Heerwagen, J., Loftness, V., & Ryan Balagtas, C. (2019). Biophilic design and climate change: Performance parameters for health. *Frontiers in Built Environment*, 5(28).
- Ahn, H., Kume, M., Terashima, Y., Ye, F., Kameyama, S., Miya, M., Yamashita, Y., & Kasai, A. (2020). Evaluation of fish biodiversity in estuaries using environmental DNA metabarcoding. *PLoS one*, 15(10), e0231127.
- Akbar, I., Poerbo, H. W., & Soedarsono, W. K. (2019, June). Adaptive urban design principles for land subsidence and sea level rise in the coastal area of Tambak Lorok, Semarang. In *IOP Conference Series: Earth and Environmental Science* (Vol. 273, No. 1, p. 012005). IOP Publishing.
- Amin, C. (2019). Modeling (Im) mobility: the decision to stay in a disaster prone area among the fishermen community in Semarang. In *E3S Web of Conferences* (Vol. 76, p. 03012). EDP Sciences.
- Andreas, Heri et al. (2019). "On the Acceleration of Land Subsidence Rate in Semarang City as Detected from GPS Surveys." In *E3S Web of Conferences*, 4002.
- Asim, F., Rai, S., & Shree, V. (2021). Biophilic architecture for restoration and therapy within the built environment: a review.
- Asur, F. (2019). "An Evaluation of Visual Landscape Quality of Coastal Settlements: A Case Study of Coastal Areas in the Van Lake Basin (Turkey)." *Applied Ecology & Environmental Research* 17(2).
- Beatley, Timothy. (2011). *Biophilic Cities: Integrating Nature into Urban Design and Planning*. In *Biophilic Cities*. Island Press. <https://doi.org/10.5822/978-1-59726-986-5>
- Beatley, Timothy. (2018). "Rethinking the Blue--Urban Edge." *Blue Biophilic Cities: Nature and Resilience Along The Urban Coast*: 79–101.
- Cahyono, H., Panut, Y. I., & Asmoro, A. A. (2022). Analisis Indeks Kepuasan Masyarakat pada Program Corporate Social Responsibility Wisata Mangrove Edupark Tambakrejo PT Pertamina Patra Niaga IT Semarang. *Humantech: Jurnal Ilmiah Multidisiplin Indonesia*, 1(12), 1838-1846.
- Chellaney, Brahma. (2011). *Water: Asia's New Battleground*. Georgetown University Press.
- Fajrin, Akhmad Raditya Maulana, Arina Hayati, and Muhammad Faqih. (2021). "The Spatial Characteristics of Tidal Flood Vulnerability and Adaptation Strategy in Tambak Lorok Kampung Settlement." *IPTEK Journal of Proceedings Series* (6): 363–71.

- Fama, A. (2016). Komunitas masyarakat pesisir di tambak lorok, semarang. *Sabda: Jurnal Kajian Kebudayaan*, 11(2), 65-75.
- Firmandhani, Satriya Wahyu. (2020). "Typology of Additional Facilities at The Dock of Tambak Lorok Fisherman Settlement in Semarang, Indonesia." *Journal of Architectural Design and Urbanism* 3(1): 40–48.
- Gür, Miray, and Timur Kaprol. (2022). "The Participation of Biophilic Design in the Design of the Post-Pandemic Living Space." In *Emerging Approaches in Design and New Connections with Nature*, IGI Global, 75–106.
- Handiani, D. N., Heriati, A., & Suciaty, F. (2022). Coastal Vulnerability Assessment Along The North Java Coastlines-Indonesia. *Jurnal Segara*, 18(1), 1–12.
- Hariyanto, H., & Rais, M. (2021). Strategi Pengembangan Wisata dengan Pendekatan Konsep Urban Community Based Tourism (UCBT) di Kawasan Teridentifikasi Kumuh Kampung Bahari Tambak Lorok Kota Semarang. *Geo-Image*, 10(2), 95-106.
- Hauer, M. E., Hardy, D., Kulp, S. A., Mueller, V., Wrathall, D. J., & Clark, P. U. (2021). Assessing population exposure to coastal flooding due to sea level rise. *Nature Communications*, 12(1), 1–9.
- Hidayat, A. S., Rajiani, I., & Arisanty, D. (2022). Sustainability of Floodplain Wetland Fisheries of Rural Indonesia: Does Culture Enhance Livelihood Resilience? *Sustainability*, 14(21), 14461.
- Hunaepi, & Firdaus, L. (2017). Integrating Local Wisdom of Sasak Tribe in Ecology Learning. *Proceeding 14th ADRI*, 65, 478–482.
- Indrianingrum, L., Azman, M. N. A., & Downing, K. J. (2019). Layout Tambaklorok fisherman village of low-income housing: a case study of the Central Java, Indonesia. *International Journal of Innovation, Creativity and Change*, 7(6), 162-178.
- Iskandar, P., Rukayah, R. S., & Suprpti, A. (2022). Morfologi dari Kampung Nelayan Menjadi Kampung Bahari. *Jurnal Arsitektur ARCADE*, 6(2), 190-198.
- Jabbar, A., Fariz, T. R., Putri, S. D., Rahmawati, D., Prahmani, Y. S., Putri, R. A., Siregar, Z.G.T., Holeng, V.A., & Chasanah, A. N. (2023). Tidal Flood Susceptibility Mapping and Community Adaptation Assesment in Semarang Utara District. *Journal of Environmental and Science Education*, 3(1), 56-62.
- Keesstra, Saskia et al. (2018). "The Superior Effect of Nature Based Solutions in Land Management for Enhancing Ecosystem Services." *Science of the Total Environment* 610: 997–1009.

- Kellert, S. R. (2008). "Dimensions, Elements, and Attributes of Biophilic Design." *Biophilic design: the theory, science, and practice of bringing buildings to life*: 3–19.
- Kellert, S. R., & Calabrese, E. F. (2015). The Practice of Biophilic Design.
- Kingsley, M. (2019). Climate change, health and green space co-benefits. *Health Promotion and Chronic Disease Prevention in Canada*, 39(4), 131–135.
- Kiswari, M. D. N., Listiati, E. E., & Mulyani, I. T. H. (2020). Strategi Pengembangan Perencanaan dan Perancangan Rumah Tinggal Nelayan Sebagai Respon Terhadap Rob. *Praxis: Jurnal Sains, Teknologi, Masyarakat dan Jejaring*, 3(1), 36-46.
- Kousky, C., & Walls, M. (2014). Floodplain conservation as a flood mitigation strategy: Examining costs and benefits. *Ecological Economics*, 104, 119–128.
- Lee, S., & Kim, Y. (2021). A framework of biophilic urbanism for improving climate change adaptability in urban environments. *Urban Forestry and Urban Greening*, 61, 127104.
- Li, M., Chau, H. W., & Aye, L. (2020). Biophilic design features in vernacular architecture and settlements of the Naxi. *Journal of Architecture and Urbanism*, 44(4), 196–211.
- López-Guzmán, T., Sánchez-Cañizares, S., & Pavón, V. (2011). Community-based tourism in developing countries: A case study. *Tourismos*, 6(1), 69-84.
- Luthfi, A., Husain, F., Prasetyo, K. B., Mustofa, M. S., & Santoso, A. B. (2020). Resilience of Small Fishermen in the Development of Tambak Lorok Marine Tourism Village in Semarang City. In *Proceedings of the 3rd International Conference on Social and Political Development (ICOSOP 3)* (pp. 126-31). SciTePress.
- Makwana, N. (2019). Disaster and its impact on mental health: A narrative review. *Journal of Family Medicine and Primary Care*, 8(10), 3090–3095.
- Maridi. (2015). Mengangkat Budaya dan Kearifan Lokal dalam Sistem Konservasi Tanah dan Air. *Proceeding Biology Education Conference*, 12(1), 20–39.
- Mtapuri, O., & Giampiccoli, A. (2019). Tourism, community-based tourism and ecotourism: a definitional problematic. *South African Geographical Journal Suid-Afrikaanse Geografiese Tydskrif*, 101(1), 22-35.
- Mulyati, A., & Burhany, N. R. (2018). Local Wisdom in Architecture of Vernacular Water Settlement of Bajo People in Central Sulawesi. *SMART: Seminar on Architecture Research & Technology*, 3(16), 213–221.

- Munana, N., Pribadi, R., & Suryono, C. A. (2023). Vulnerability Assessment of Mangroves using the Coastal Vulnerability Index in Timbulsloko Village, Sayung, Demak. *Jurnal Kelautan Tropis*, 26(3), 565–570.
- Oktiana, Dyna, and Wedi Antono. (2015). "Diversity of Birds in the Neighborhood Indonesia Power Generating Unit (UP IP) Tambak Lorok, Semarang." In *Prosiding Seminar Nasional Masyarakat Biodiversitas Indonesia*, 1045–49.
- Peng, C., Yamashita, K., & Kobayashi, E. (2016). Effects of the Coastal Environment on Well-being. *Journal of Coastal Zone Management*, 19(2), 1–7.
- Purwowibowo, Santoso, B., Hendrijanto, K., Hariyono, S., & Nufus, B. H. (2020). Local wisdom for mangrove conservation and ecotourism: Case study from Wringinputih, Muncar, Banyuwangi. *IOP Conference Series: Earth and Environmental Science*, 485(1).
- Richardson, M., & Butler, C. W. (2022). Nature connectedness and biophilic design. *Building Research and Information*, 50(1–2), 36–42.
- Rifai, A. J. (2010). Perkembangan Struktur dan Konstruksi Rumah Tradisional Suku Bajo di Pesisir Pantai Parigi Moutong. *Ruang*, 2(1), 31–38.
- Russo, Alessio, and Maria Beatrice Andreucci. (2023). "Raising Healthy Children: Promoting the Multiple Benefits of Green Open Spaces through Biophilic Design." *Sustainability* 15(3): 1982.
- Sandberg, C. (2022). Between the City and the Sea: Biophilic Design principles in coastal Norrbotten.
- Sari, K., & Soeprobowati, T. R. (2021). The impact of water quality deterioration in mangrove forest in semarang coastal area. *Indonesian Journal of Limnology*, 2(2), 37-48.
- Scarpi, D., & Raggiotto, F. (2023). A construal level view of contemporary heritage tourism. *Tourism Management*, 94, 104648.
- Septian, L. H., Abadi, A. A., & Nurdini, A. (2022). Strategi Adaptasi Bermukim dalam Merespon Banjir Rob di Tambak Lorok, Semarang. *RUAS*, 20(2), 144-155.
- Setiawana, I., Kustianingrum, D., & Buana Putra, W. (2023). Penerapan Biophilic Architecture Pada Perancangan Sekolah Menengah Kejuruan Kesenian di Kabupaten Majalengka. *E-Proceeding*, 3(1), 91–101.
- Setioko, B. (2013). Transformasi ruang perkotaan di permukiman nelayan (Studi kasus: Tambakmulyo, Semarang). *TATALOKA*, 15(3), 192-207.
- Shelef, O., Weisberg, P. J., & Provenza, F. D. (2017). The value of native plants and local production in an era of global agriculture. *Frontiers in plant science*, 8, 2069.

- Solihuddin, T., Husrin, S., Salim, H. L., Kepel, T. L., Mustikasari, E., Heriati, A., Ati, R. N. A., Purbani, D., Mbay, L. O. N., Indriasari, V. Y., & Berliana, B. (2021). Coastal erosion on the north coast of Java: Adaptation strategies and coastal management. *IOP Conference Series: Earth and Environmental Science*, 777, 012035.
- Stanke, C., Murray, V., Amlot, R., Nurse, J., & Williams, R. (2012). The effects of flooding on mental health: Outcomes and recommendations from a review of the literature. *PLOS Currents*.
- Stoltefaut, T., Haubrock, P. J., Welti, E. A. R., Baker, N. J., & Haase, P. (2024). A long-term case study indicates improvements in floodplain biodiversity after river restoration. *Ecological Engineering*, 198, 107143.
- Sutton-Grier, Ariana E, and Paul A Sandifer. (2019). "Conservation of Wetlands and Other Coastal Ecosystems: A Commentary on Their Value to Protect Biodiversity, Reduce Disaster Impacts, and Promote Human Health and Well-Being." *Wetlands* 39(6): 1295–1302.
- Volenec, Zoe M, and Andrew P Dobson. (2020). "Conservation Value of Small Reserves." *Conservation Biology* 34(1): 66–79.
- Warren, A., & French, J. R. (2001). *Habitat Conservation: Managing the Physical Environment* (Issue November). John Wiley & Sons.
- Weng, C. N., Ku-Mahamud, K. R., & Karim, M. Z. A. (2014). Local Wisdom in Adapting to and Coping with Flood Disaster in ASEAN Countries. *Reengineering Local Knowledge: Life, Science, and Technology*, 7, 59–72.
- Widiastuti, E. H. (2018). Kearifan Lokal Dalam Pembelajaran Sejarah. *Pawiyatan*, 25(2), 107–113.
- Zhao, Yang, Qinchuan Zhan, and Tiancheng Xu. (2022). "Biophilic Design as an Important Bridge for Sustainable Interaction between Humans and the Environment: Based on Practice in Chinese Healthcare Space." *Computational and Mathematical Methods in Medicine* 2022.
- Zhong, W., Schröder, T., & Bekkering, J. (2022). Biophilic design in architecture and its contributions to health, well-being, and sustainability: A critical review. *Frontiers of Architectural Research*, 11(1), 114–141.

# ADAPTIVE MANAGEMENT ON CULTURAL LANDSCAPE: LEARNING FROM KABUYUTAN A SACRED NATURAL SITE IN INDONESIA

---

## INTRODUCTION

Sacred natural sites are special locations that are acknowledged to be essential to preserving both culture and environment (Khan *et al.*, 2008; Verschuuren *et al.*, 2010). Global recognition of their significance can be found in the International Union for Conservation of Nature's Sacred Natural Site management recommendations (Wild & McLeod, 2008). According to these standards, locals have a thorough grasp of a site, making them important stakeholders in a management system. According to recent research on sacred natural sites, locals are playing a bigger part in administration (Allendorf *et al.*, 2014; Dudley *et al.*, 2010; Vodouhê *et al.*, 2010). However, few case studies have been done in Indonesia.

This study focused on *kabuyutan* sacred natural sites in Indonesia in order to broaden the geographical scope of studies (Dudley *et al.*, 2010) and enhance the body of knowledge in the field of sacred natural sites. The Sundanese people who inhabit the western portion of Java Island revere *kabuyutan* as the sacred sites. *Kabuyutan* have physical and cultural characteristics with other sacred natural sites (Dudley *et al.*, 2010; Khan *et al.*, 2008; Verschuuren *et al.*, 2010) that are connected to indigenous knowledge. They might be singular objects like a tree, small spring, distinctive rock formation, or ancestral grave, or they can be part of a larger landscape that stands out from the surrounding area (Kartakusuma, 2006; Wessing, 1999, 2006). They can also be of different sizes and shapes. They are primarily found in valleys, above hills or mountains, upstream (near springs), downstream, or in regions that are susceptible to dangers, like those with river tributaries. They are also primarily covered in tall, dense trees. Spring water, natural vegetation, and animals are typically maintained in *kabuyutan* settings.

Although not well known, academics who specialize in studying the Sundanese language, such as philologists and archaeologists, use the term *kabuyutan*. The phrase appears in inscriptions such as the *Sanghyang Tapak*,



## REFERENCES

- Allendorf, T. D., Brandt, J. S., & Yang, J. M. (2014). Local perceptions of Tibetan village sacred forests in northwest Yunnan. *Biological Conservation*, 169, 303–310. <https://doi.org/10.1016/j.biocon.2013.12.001>
- Andriotis, K. (2009). Sacred site experience: A Phenomenological Study. *Annals of Tourism Research*, 36(1), 64–84. <https://doi.org/10.1016/j.annals.2008.10.003>
- Bernard, H. R. (2006). *Research methods in anthropology: qualitative and quantitative approaches* (4th ed.). Oxford, UK: AltaMira Press. Retrieved from [http://www.dphu.org/uploads/attachements/books/books\\_476\\_0.pdf](http://www.dphu.org/uploads/attachements/books/books_476_0.pdf)
- Danasasmita, S. (1987). *Sewaka Darma, Sanghiyang Siksakandang Karesian, dan Amanat dari Galunggung*. Bandung.
- Daye, D. D., & Healey, J. R. (2015). Impacts of land-use change on sacred forests at the landscape scale. *Global Ecology and Conservation*, 3, 349–358. <https://doi.org/10.1016/j.gecco.2014.12.009>
- Dudley, N., Bhagwat, S., Higgins-Zogib, L., Lassen, B., Verschuuren, B., & Wild, R. (2010). Conservation of biodiversity in sacred natural sites in Asia and Africa: a review of the scientific literature. In B. Verschuuren, R. Wild, J. McNeely, & G. Oviedo (Eds.), *Sacred natural sites: conserving nature and culture* (pp. 19–32). London & Washington, DC: Earthscan. Retrieved from <https://portals.iucn.org/library/sites/library/files/documents/2010-045.pdf>
- Ekadjati, E. S. (1984). Sejarah Sunda. In E. S. Ekadjati (Ed.), *Masyarakat Sunda dan Kebudayaan* (pp. 76–124). Jakarta: Girimukti Pasaka.
- Ekadjati, E. S. (1995). *Kebudayaan Sunda (Suatu Pendekatan Sejarah)*. Jakarta: Dunia Pustaka Jaya.
- Jaafar, M., Noor, S. M., & Rasoolimanesh, S. M. (2015). Perception of young local residents toward sustainable conservation programmes: A case study of the Lenggong World Cultural Heritage Site. *Tourism Management*, 48, 154–163. <https://doi.org/10.1016/j.tourman.2014.10.018>
- Jalani, J. O. (2012). Local People's Perception on the Impacts and Importance of Ecotourism in Sabang, Palawan, Philippines. *Procedia - Social and*

- Behavioral Sciences, 57, 247–254.  
<https://doi.org/10.1016/j.sbspro.2012.09.1182>
- Kartakusuma, R. (2006). Situs (*Kabuyutan*) Kawali di Ciamis, Jawa Barat: Ajaran Sunda di dalam Tatanan Tradisi Megalitik. In A. Rosidi, E. S. Ekadjati, & A. C. Alwasilah (Eds.), *Konferensi Internasional Budaya Sunda Jilid 1* (pp. 254–271). Bandung: Yayasan Kebudayaan Rancage.
- Khan, M. L., Khumbongmayum, A. D., & Tripathi, R. S. (2008). The sacred groves and their significance in conserving biodiversity: An overview. *International Journal of Ecology and Environmental Sciences*, 34(3), 277–291.
- Koesoemadinata, R. M. S. (2006). Arti Gunung-Gunung dalam Budaya Sunda. In A. Rosidi, E. S. Ekadjati, & A. C. Alwasilah (Eds.), *Konferensi Internasional Budaya Sunda Jilid 2* (pp. 432–440). Bandung: Yayasan Kebudayaan Rancage.
- Morimoto, Y. (2004). Ecological Dynamics Of Urban And Rural Landscapes - The Need For Landscape Planning That Considers That Considers The Biodiversity Crisis In Japan. In S.-K. Hong, J. A. Lee, B.-S. Ihm, A. Farina, Y. Son, E.-S. Kim, & J. C. Choe (Eds.), *Ecological Issues in a Changing World: Status, Response and Strategy* (pp. 325–336). Dordrecht: Springer Netherlands. [https://doi.org/10.1007/978-1-4020-2689-8\\_20](https://doi.org/10.1007/978-1-4020-2689-8_20)
- Munandar, A. A. (2013). Kepurbakalaan Masa Hindu-Buddha di Jawa Bagian Barat. In D. P. Rini (Ed.), *Khasanah Budaya Jawa Barat* (pp. 62–114). Serang: Balai Pelestarian Cagar Budaya Serang, Kementerian Pendidikan dan Kebudayaan.
- Ormsby, A., & Edelman, C. (2010). Community-based ecotourism at Tafi Atome Monkey Sanctuary, a sacred natural site in Ghana. In B. Verschuuren, R. Wild, J. McNeely, & G. Oviedo (Eds.), *Sacred natural sites: conserving nature and culture* (pp. 233–243). London & Washington, DC: Earthscan. Retrieved from <https://portals.iucn.org/library/sites/library/files/documents/2010-045.pdf>
- Rasoolimanesh, S. M., Jaafar, M., Ahmad, A. G., & Barghi, R. (2017). Community participation in World Heritage Site conservation and tourism development. *Tourism Management*, 58, 142–153. <https://doi.org/10.1016/j.tourman.2016.10.016>
- Rigg, J. (1862). *A Dictionary of the Sundanese Language of Java*. Batavia: Lange & Co. Retrieved from <https://archive.org/details/sundanesedictgoog2>
- Spoon, J. (2010). Tourism meets the sacred: Khumbu Sherpa place-based spiritual values in Sagarmatha (Mount Everest) National Park and buffer zone, Nepal. In B. Verschuuren, R. Wild, J. McNeely, & G. Oviedo

- (Eds.), *Sacred natural sites : conserving nature and culture* (pp. 87–97). London & Washington, DC: Earthscan. Retrieved from <https://portals.iucn.org/library/sites/library/files/documents/2010-045.pdf>
- Sudaryat, Y. (2014). The Interpretation of Sundanese Educational Philosophy in Traditional Idiomatic Expressions. *EDUCARE: International Journal for Educational Studies*, 6(2), 119–128.
- Verschuuren, B. (2010). Arguments for developing biocultural conservation approaches for sacred natural sites. In B. Verschuuren, R. Wild, J. McNeely, & G. Oviedo (Eds.), *Sacred natural sites : conserving nature and culture* (pp. 62–72). London & Washington, DC: Earthscan. Retrieved from <https://portals.iucn.org/library/sites/library/files/documents/2010-045.pdf>
- Verschuuren, B., Wild, R., McNeely, J., & Oviedo, G. (2010). Introduction: sacred natural sites the foundations of conservation. In B. Verschuuren, R. Wild, J. McNeely, & G. Oviedo (Eds.), *Sacred natural sites : conserving nature and culture* (pp. 1–14). London & Washington, DC: Earthscan. Retrieved from <https://portals.iucn.org/library/sites/library/files/documents/2010-045.pdf>
- Wild, R., & McLeod, C. (Eds.). (2008). *Sacred Natural Sites: Guidelines for Protected Area Managers*. Gland, Switzerland: IUCN. Retrieved from [https://cmsdata.iucn.org/downloads/pa\\_guidelines\\_016\\_sacred\\_natural\\_sites.pdf](https://cmsdata.iucn.org/downloads/pa_guidelines_016_sacred_natural_sites.pdf)
- Vasilyeva, M. (2005). Spatial Cognition and Perception. In *Encyclopedia of Social Measurement* (pp. 591–597). <https://doi.org/10.1016/B0-12-369398-5/00542-9>
- Vodouhê, F. G., Coulibaly, O., Adégbidi, A., & Sinsin, B. (2010). Community perception of biodiversity conservation within protected areas in Benin. *Forest Policy and Economics*, 12(7), 505–512. <https://doi.org/10.1016/j.forpol.2010.06.008>
- Wessing, R. (1999). The sacred grove: founders and the owners of the forest in West java. *L’homme et La Foret Tropicale*, 59–74.
- Xu, J., Chen, L., Lu, Y., & Fu, B. (2006). Local people’s perceptions as decision support for protected area management in Wolong Biosphere Reserve, China. *Journal of Environmental Management*, 78(4), 362–372. <https://doi.org/10.1016/j.jenvman.2005.05.003>

# UMMAH: THE SPATIAL CHARACTERIZATION OF THE CULTURAL DISTRICT “MUSLIM TOWN” IN THE CITY OF MANILA, PHILIPPINES

---

## INTRODUCTION

From the personal, community, and environmental standpoint, Islam promotes a system guided by Allah through the Quran and conveyed by the Prophet Muhammad S.A.W, which is implemented, practiced, and focused towards submission to Allah in the development of humankind (Nurul, S.A.L.,Nor, Z.H.,et.al., 2020). Such particular focus on religion and history permeating all aspects of civic life intertwined Islamic communities with concepts of urbanity and civilization, as exemplified by the emerging study of the Islamic city. “That initial model was supplanted by a series of models that were either adopted from the various cultures which Muslims came in contact with or developed in response to the ever-changing cultural, environmental, and social conditions.” (Rabbat, 2010).

The pre-Spanish Philippines was once considered a philosophical and cultural mixing pot through economic interactions with various Asian civilizations. However, the cultural hegemony during Western colonization has monopolized the cultural, economic, and political influence under the guise of religion and democracy. These various experiences with different kinds of cultures and power dynamics of different powers have altered the production of the country’s historical narratives which shaped Filipino ideas and concepts of nation-state, religious and cultural orientations, and domestic relationships of the Filipino people. (Absari, D.J., & Morados, M.A., 2020)

***Origin Of Islam In The Philippines:*** The history of Islam in the Philippines can be attributed to the historical development of the whole country. It is often noted that Islam was already present in the Philippines before the coming of the Spanish and American colonizers. Sulu was the first Muslim community in the south to establish a centralized government, the Sultanate of Sulu in 1450, preceding the arrival of the Magellan by almost a century. The Sulu Sultanate was already 71 years old when Magellan came to Mactan in 1521, when Legazpi arrived in 1565. The introduction of this Sultanate

## REFERENCES

- Absari, D.J., & Morados, M.A. (2020). Philippine Muslim History Challenges and Prospect. *University of the Philippines Center for Integrative and Development Studies Islamic Studies Program*, 5-6.
- Bara, H. (n.d.). *National Commission for Culture and the Arts*. Retrieved from [ncca.gov.ph](https://ncca.gov.ph): <https://ncca.gov.ph/about-ncca-3/subcommissions/subcommission-on-cultural-communities-and-traditional-arts-scccta/central-cultural-communities/the-history-of-the-muslim-in-the-philippines/#>
- Bukhari, A. (1980). Some notes on the development of Contemporary Islamic Architecture. *Ekistics*, 1980pp. 76-77.
- Gonzales, L., Magnaye, D. (2016). Challenges to the Multi-Functional Uses and Multifarious Benefits of Urban Green Spaces: Basis of Urban Biodiversity Planning and Management in the City of Manila, Philippines. *International Journal on: Environmental Science and Sustainable Development*, 75.
- Hassan, R. (1972). "Islam and Urbanization in the Middle-East. Cities of the Past: Origin of Urban Settlements in Different Cultures. *Athens Center of Ekistics*, Vol. 33, No. 195, Pp. 108-112.
- Manila, T. C. (n.d.). Retrieved from <https://manila.gov.ph/city-profile/>
- Mapa, D. (2023, 02 22). Retrieved from <https://psa.gov.ph/content/religious-affiliation-philippines-2020-census-population-and-housing>
- Mapa, D. (2023, 02 22). Retrieved from <https://psa.gov.ph/content/religious-affiliation-philippines-2020-census-population-and-housing>
- Mohammad, A.K., Tahsinur, R.W., Osama, N. . (2023). ISLAMIC PRINCIPLES AS A DESIGN FRAMEWORK FOR URBAN SYSTEM: ENVIRONMENTAL CONCERN AND SUSTAINABLE DEVELOPMENT. *Journal of Islamic Architecture* , 1.
- Nathan, K.S & Mohammad, H.K. (2005). *Islam in Southeast Asia: Political, Social and Strategic Challenges for the 21st Century*. Singapore: Institute of Southeast Asian Studies.
- Nurul, S.A.L.,Nor, Z.H.,et.al. (2020). The Derivation of Urban Design Principles in Malay- Islamic Town of Kuala Terengganu. *PLANNING MALAYSIA: Journal of the Malaysian Institute of Planners*, Page 243 – 254.
- Pujalte, M.M. & Navarra, N. (2017). Places of Faith: A Reflection on Landscape of Manila Cathedral Plaza del Roma and Istiqlal Mosque Sacred

- Grounds of Jakarta. *2nd International Symposium for Sustainable Landscape Development*, (p. 1).
- Pujalte, N. (n.d.).
- Rabbat, N. (2010). The Islamic City: Historicity and Abstraction. *Department of Architecture, MIT*,.
- Seyed, M. (2010). The Environmental and Social Manifestation of Islamic-Iranian, Urban and Architectural Configuration. *International Journal Of Architecture and Urban Development*, 35.
- Watanabe, A. (2007 ). The Formation of Migrant Muslim Communities in Metro Manila. *Kasarinlan: Philippine Journal of Third World Studies 2007*, 22 (2): 68-96.
- World Population Review*. (2024, January 19). Retrieved from <https://worldpopulationreview.com/world-cities/manila-population>

# CONCEPT OF VEGETATION ARRANGEMENT IN THE LANDSCAPE BETAWI CULTURAL VILLAGE SETU BABAKAN ZONE-C, SOUTH JAKARTA

---

## INTRODUCTION

The Setu Babakan area, located in Jagakarsa District, South Jakarta, has become an attractive cultural and recreational tourist destination as well as a centre for preserving Betawi culture. This is stipulated in the Decree of the Governor of DKI Jakarta No. 92 of 2000 concerning the Environmental Arrangement of Betawi Cultural Villages in Srengseng Sawah Village, Jagakarsa District, South Jakarta Municipality. This decree was issued by the DKI Jakarta Provincial government due to the increasingly rapid and developing development in the capital which is rapidly threatening the preservation of arts and culture, local wisdom and the environmental system of the Betawi community. In line with this decree, an area of  $\pm 165$  Ha consisting of a land area (terrestrial) of  $\pm 130$  Ha and a water area (aquatic) of  $\pm 35$  Ha will be developed so that it has a function as a means of information, research and development, arts and culture, education and recreation, as well as tourism. The direction of its use and development is cultural tourism, agro tourism and water tourism. In 2005, the Setu Babakan area was further strengthened by Regional Regulation No. 3 of 2005 which designated this area as a Betawi Cultural Village with an area of  $\pm 289$  Ha consisting of 30% ownership rights by the DKI Jakarta Provincial government and 70% by local ownership. The follow-up to the plan for utilization and development of this area is the carrying out of planning activities and preparation of the PBB area Master Plan for 2005-2020. The results of this Masterplan planning produce an area spatial plan which is divided into 4 (four) development zones, namely Zones A, B, C, and the Embryo Zone (Figure 1). The Embryo Zone is an area that has been developed and is currently the centre of tourist visits with an area of 4,091 m<sup>2</sup>. Meanwhile, Zones A, B and C have not been fully developed because they are constrained by land ownership issues and problems in the field (Samsirina et al., 2018).

## REFERENCES

- Anisa, Ilham, J., Purnama, T. (2010). Perubahan Pola Permukiman Masyarakat Betawi di Condet. *Jurnal Inersia*, Vol 6(1), 65-72. <https://doi.org/10.21831/inersia.v6i1.10575>
- DKI Jakarta Government. (2018). *Peraturan Gubernur DKI Jakarta Nomor 144 Tahun 2018 tentang Pengelolaan Tanaman Nusantara Khas Jakarta*. DKI Jakarta Government: Jakarta.
- Fajriyah, N. (2014). *Revitalisasi Perkampungan Budaya Betawi di Setu Babakan, Srengseng Sawah, Jakarta Selatan*. [Thesis, IPB University]. IPB University Repository: <http://repository.ipb.ac.id/handle/123456789/68490>
- Nursyirwan, P. K. (2015). *Kajian Kearifan Lokal pada Pekarangan Masyarakat Betawi sebagai Basis Pengelolaan Lanskap Perkampungan Budaya Betawi Setu Babakan, DKI Jakarta*. [Thesis, IPB University]. Postgraduated School of IPB University: <http://repository.ipb.ac.id/handle/123456789/79326>
- Rambe, K. B. (2006). *Identifikasi Pola Pekarangan pada Perkampungan Budaya Betawi Situ babakan Jakarta Selatan*. [Thesis, IPB University]. IPB University Repository: <http://repository.ipb.ac.id/handle/123456789/1191>
- Reswari, A., Besila, Q. A., Setiawan, E. A. (2021). Konsep Penataan Tanaman pada Perkampungan Budaya Betawi Setu Babakan, Jagakarsa, Jakarta Selatan. *Jurnal Bhuwana*, Vol 1(1), 108-117. <https://doi:10.25105/bhuwana.v1i1.9288>
- Samsirina et al. (2018). *The Development of Historical and Eco-Tourism District of Setu Babakan in South Jakarta, Indonesia: Ecodistrict Planning Approach*. HABITechno 3 International Conference. doi :10.1088/1755-1315/152/1/012019
- Syamira, S. (2014). *Pelestarian Pekarangan Betawi di Perkampungan Budaya Betawi Setu Babakan Jakarta Selatan*. [Thesis, IPB University]. IPB University Repository: <http://repository.ipb.ac.id/handle/123456789/70463>
- Utami, W. (2013). *Studi Keragaman dan Fungsi Ekologis Pohon pada Lanskap Perkampungan Budaya Betawi Setu Babakan, Srengseng Sawah, Jagakarsa, Jakarta Selatan*. [Thesis, IPB University]. IPB University Repository: <http://repository.ipb.ac.id/handle/123456789/63220>



- Wahidah, B. F., Murhadi, Rusmadi, Janwar, Z. (2015). Pola Distribusi dan Keanekaragaman Jenis Pohon di Kebun Raya Lemor Kabupaten Lombok Timur, Nusa Tenggara Barat. *Seminar proceedings: Nasional Mikrobiologi Kesehatan dan Lingkungan Vol 1 No.1*. <https://doi.org/10.24252/psb.v1i1.2127>
- Wardiningsih, S. (2005). *Rencana Pengelolaan Lanskap Perkampungan Budaya Betawi di Setu Babakan - Srengseng Sawah, Kecamatan Jagakarsa Jakarta Selatan*. [Thesis, IPB University]. Postgraduated School of IPB University: <http://repository.ipb.ac.id/handle/123456789/10261>
- Wardiningsih, S., Syahadat, R. M., Putra, P. T., Purwati, R., Hasibuan, M. S. R. (2017). Konsep Perencanaan Tata Hijau Lanskap Sempadan Setu Mangga Bolong sebagai Area Konservasi Tumbuhan Bernilai Ekologis dan Budaya. *NALARs Jurnal Arsitektur. Vol 16(2)*, 135-144. <http://doi.org/10.24853/nalars.16.2.135-144>
- Yilmaz, S., Mumcu, S., Duzenli, T., Ozbilen, A. (2016). Analyzing the Unity Concept in Design on Student Works: A Case Study of Architectural Design Course. *Inonu University Journal of Art and Design. Vol 6(14)*, 1-13. <http://doi: 10.16950/iustd.37697>.

# **A PATCHWORK OF AGRICULTURAL, COASTAL, AND CULTURAL LANDSCAPES: STITCHING LANDSCAPE CHARACTER AREAS AND TYPES FOR LANDSCAPE CHARACTERIZATION OF GUMACA, QUEZON**

---

## **INTRODUCTION**

Landscape is not only the physical characteristics of the land but also the relationship between people and place (Swanwick, 2002). It is an area perceived by people whose character is the result of action and interaction of natural and/or human factors (Council of Europe, 2000). The landscape also plays an important role in the economy, attracting tourists, residents, and investments to an area, as well as supporting a range of primary production like farming, forestry, and horticulture. Furthermore, the landscape becomes an integral part of the identity of local communities, providing a sense of belonging for residents and visitors alike (Environment Guide, 2018).

To be able to assess a particular landscape, there is a need to explore its landscape character, which refers to the distinct and recognizable pattern of elements that occur consistently in a particular landscape. It is the combination of biophysical layers such as geology, landform, soils, vegetation, land use, field patterns, and human settlements, which makes each part of the landscape distinct and provides each its particular sense of place. Landscape character is composed of type and area. For clarity, landscape character types refer to distinct types of landscape that are homogenous in character. It can be generic, but they share broadly similar combinations of geology, topography, drainage patterns, vegetation, and historical land use and settlement patterns. Meanwhile, landscape character areas are unique and discrete areas of a particular landscape type (Swanwick, 2002). To fully comprehend landscape character, reference to its type and area is necessary. Thus, it bears repeating, that it is crucial to take into consideration all features of the landscape, to apply them to land use policies (Will, 2005).

From the determination of landscape character, an assessment may be had. This further step refers to landscape character assessment (LCA), which is the process of identifying and describing variations in the character of the landscape by mapping the Landscape Character Types and Areas (Scotland's

## REFERENCES

- Atik, M., Isikli, R.C., Ortacesme, V., & Yildirim, E. (2015). *Definition of landscape character areas and types in Side region, Antalya-Turkey with regard to land use planning*. Land Use Policy, Volume 44, 2015, Pages 90-100, ISSN 0264-8377. DOI: <https://doi.org/10.1016/j.landusepol.2014.11.019>
- Atik, M., Isikli, R.C., Ortacesme, V., & Yildirim, E. (2017). *Exploring a combination of objective and subjective assessment in landscape classification: Side case from Turkey*. Applied Geography, Volume 83, 2017, Pages 130-140, ISSN 0143-6228. DOI: <https://doi.org/10.1016/j.apgeog.2017.04.004>
- Avila, C., Centeno, J., Galingan, Z.D.C., Juson, J., Nadal, D.C., & Tan, D.J.M. (2024). *Spiraling Harmony: Understanding the Landscape Tapestry of Gumaca, Quezon Province through the DPSIR Framework*. [Unpublished manuscript].
- Cheung, S.C.H. (1999). The meanings of a heritage trail in Hong Kong. Annals of Tourism Research, Volume 26, Issue 3, 1999, Pages 570-588, ISSN 0160-7383. DOI: [https://doi.org/10.1016/S0160-7383\(99\)00006-7](https://doi.org/10.1016/S0160-7383(99)00006-7)
- Council of Europe. (2000). The European Landscape Convention (STE no. 176). <http://www.coe.int>
- Environment Guide. (2018, January 8). *Why are landscapes and features important?* <https://www.environmentguide.org.nz/issues/landscape/why-are-landscapes-and-features-iimportant/>
- Go, H., Galingan, Z.D.C., Guzman, J.P., Nadal, D.C., & Secugal, A.J. (2024). *Geospatial Dimensions in Strategic Planning: An Indicator-Based SWOT-PEST Analysis of Gumaca, Quezon Province*. [Unpublished manuscript].
- Li, G. & Zhang, B. (2017). *Identification of landscape character types for trans-regional integration in the Wuling Mountain multi-ethnic area of southwest China*. Landscape and Urban Planning, Volume 162, 2017, Pages 25-35, ISSN 0169-2046. DOI: <https://doi.org/10.1016/j.landurbplan.2017.01.008>
- Martín, B., Ortega, E., Otero, I., & Arce, R.M. (2016). *Landscape character assessment with GIS using map-based indicators and photographs in the relationship between landscape and roads*. Journal of

- Environmental Management, Volume 180, 2016, Pages 324-334, ISSN 0301-4797. DOI: <https://doi.org/10.1016/j.jenvman.2016.05.044>
- Moir Landscape Architecture. (2012). *Landscape and Visual Impact Assessment: Proposed Cherry Tree Wind Farm Project*. [Unpublished manuscript].
- Municipality of Gumaca. (n.d.). *Town Profile*. Gumaca Public Information Office. <https://gumaca.gov.ph/about/>
- Nayan, N. M., Jones, D.S., Ahmad, S., and Khamis, M.K. (2021). Exploring the built-environment: heritage trails, values and perceptions. IOP Conference Series: Earth and Environmental Science, Volume 881, 5th International Conference on Rebuilding Place. DOI: <https://doi.org/10.1088/1755-1315/881/1/012009>
- Swanwick, C. (2002). *Landscape character assessment. Guidance for England and Scotland*. Cheltenham (UK); Edinburgh: The Countryside Agency; Scottish National Heritage.
- Scotland's Nature Agency. (2023, January 18). *What is Landscape Character Assessment?* NatureScot. <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/what-landscape-character-assessment>
- Will, H. (2005). *Cultural landscape history - Possibilities for protection, participating institutions, and investigation methods in England*. *Naturschutz und Landschaftsplanung*, 37(11), 336-341.

# **TENGER TRIBE YARD MODEL BASED ON INDIGENOUS PLANTS BROMO TENGER SEMERU NATIONAL PARK (CASE STUDY: NGADAS VILLAGE, PONCOKUSUMO, MALANG DISTRICT)**

---

## **INTRODUCTION**

Indonesia is a country where natural diversity in each region influences the lives of its people in changing space. This country, Indonesia, has very diverse animals and fauna. The diversity of natural wealth in each region influences the way people live in each region. In terms of natural diversity, each region has the potential for natural wealth found in the marine and land riches contained in Indonesia's land. Natural riches are different, of course, and the landscape conditions in each region in Indonesia are different. These conditions affect the vegetation that grows in each region. Not all vegetation can grow in all places. Sometimes vegetation requires adaptation to adjust the character of the vegetation itself. Natural resources, including rural and agricultural landscapes, have high diversity in various traditional forms and accompanying local culture (Kuswendi, 2011). In Indonesia, some of them can be used for various needs, but some still cannot be used due to limited technological and economic capabilities.

The characteristics of plants are very different, each individual has characteristics and a way of life to reproduce and grow, one of the characteristics of a plant is that it becomes a parasite for other plants. If other plants are invasive, it will disrupt the continued growth of native or indigenous plants. These plants gain a competitive advantage after the removal of natural constraints on their reproduction which allows the species to spread rapidly to dominate new areas in the ecosystem where the species is dominant (Vale'ry, Herve, Jean-Claude and Daniel, 2008).

One area in Indonesia that has very unique and interesting landscape conditions is Bromo Tengger Semeru National Park, especially Ngadas Village, which has topography, temperature, soil, and climate with its characteristics so that only certain plants can grow there. Bromo Tengger Semeru National Park has potential natural resources such as flora/plants, unique ecosystems, active volcanoes, habitats for migrant animals, and unique phenomena such

## REFERENCES

- Agus, N.D.P. 2014. Evaluasi Pemilihan Jenis dan Penataan Tanaman pada Median Jalan Kota Malang. *Jurnal Protan* 3(4).
- Arikunto, S. 2006. *Metode Penelitian Kualitatif*. Jakarta: Bumi Aksara
- Arya Ronald, 1997. *Ciri-ciri Karya Budaya Di Balik Tatbir Keagungan Rumah Jawa*, Penerbit Universitas Atmajaya, Yogyakarta,
- Bandung. Dharmono. (2007). Kajian Etnobotani Tumbuhan Jalukap (*Centella asiatica* L.) di Suku Dayak Bukit Desa Haratai 1 Loksado. *Jurnal Bioscientiae*, 4(2) 71-78.
- Batoro, J. 2017. *Keajaiban Bromo Tengger Semeru*. Malang: UB Press.
- Clara, S. 2017. *Strategi Pemasaran Tanaman Hias*. Skripsi. Institut Pertanian Bogor.
- Dewi, R. 2018. Perencanaan Lanskap Untuk Pengembangan Wisata Alam di Sempadan Sungai Kemiri Kecamatan Margadana-Kota Tegal. *Jurnal Rekayasa, Teknologi, dan Sains*. 1(2):1-7.
- Dirdjosuseno, H, Priyatmoko. 2014. 2014 Tahun Kebudayaan di Jawa Timur. Surabaya: Biro Humas Dan Protokol Setdaprov Jatim.
- Direktorat Jenderal Kebudayaan Republik Indonesia. 2014. Suku Tengger Jawa Timur. <http://kebudayaanindonesia.net> (diakses tanggal 15 Juli 2022).
- Endahwati, Sri., Herman, J.W., Slamet, M. 2012. Upacara Adat Jolenan Di Kecamatan Kaligesing Kabupaten Purworejo. *Jurnal Penelitian Bahasa, Sastra Indonesia dan Pengajarannya*. Volume 1 (1): 65-76. ISSN I2302-6405.
- Endra, D. 2010. Beringin Putih (*Ficus benjamina* L.). [http://ccrc.farmasi.ugm.ac.id/?page\\_id=412](http://ccrc.farmasi.ugm.ac.id/?page_id=412) (diakses tanggal 26 Januari 2023).
- Eriyanto. 2011. *Analisis Isi: Pengantar Metodologi untuk Penelitian Ilmu Komunikasi dan Ilmu-ilmu Sosial Lainnya*. Jakarta (ID): Kencana
- Friza, G. 2016. *Perancangan Simulasi Bangunan Berbasis Tiga Dimensi (3d) Menggunakan Aplikasi SketchUp*. UIB Repository©.
- Garsinia Lestari, S.P. dan Ira Puspa Kencana, S.P., (2015). *TANAMAN HIAS LANSKAP (EDISI REVISI)*. Penebar Swadaya Grup.
- Hakim, R. dan Hardi, U. 2008. *Komponen Perancangan Arsitektur Lanskap: Prinsip, Unsur dan Aplikasi Desain*. Jakarta: Bumi Aksara. 162 hal.
- Hakim, Rustam. 2014. *Komponen Perancangan Arsitektur Lanskap*. Jakarta: Bumi Aksara

- Hapsari, B.A.E. 2008. Perencanaan Lanskap Bagi Pengembangan Agrowisata di Kawasan Agropolitan Merapi-Merbabu Kabupaten Magelang (skripsi). Bogor: Fakultas Pertanian, Institut Pertanian Bogor.
- Harris, Charles W., and Dines, Nicholas T. (1998), *Time-Saver Standards for Landscape Architecture*, New York: McGraw-Hill Professional. 1413 hal.
- Hudtexturez, 2012. *Main Entrance Design*.
- Hutomo, SuripanSadi. 1991. *Mutiara yang Terlupakan Pengantar Studi SastraLisan*. Jawa Timur: HISKI. \_\_\_\_\_. 1993. *Cerita Kentrung Sarah Wulan di Tuban*. Jakarta: Proyek Penelitian dan Pembinaan Bahasa dan Sastra Indonesia Daerah
- Kurniawan, H., dan R. Alfian. 2010. Konsep Pemilihan Vegetasi Lanskap pada Taman Lingkungan di Bunderan Waru Surabaya. PS. *Agroteknologi*, Fakultas IPSA Universitas Tribhuwana Tungadewi, Malang. Buana Sanin. Vol.10. No.2. 181-188.
- Kusmayadi, *Metodologi penelitian dalam bidang kepariwisataan-Jakarta: Gramedia Pustaka Utama, 2000*
- Lestari G, IP. Kencana. 2008. *Galeri Tanaman Hias Lanskap*. Penebar Swadaya, Jakarta.
- Lumion. 2020. *3D Rendering Software | Architectural Visualization*. <https://lumion.com/index.html> diakses pada 05 Januari 2023
- Pramita, N. H., Indriyani, S., & Hakim, L. 2013. Etnobotani Upacara Kasada Masyarakat Tengger, Di Desa Ngadas, Kecamatan Poncokusumo, Kabupaten Malang. *Journal Of Indonesian Tourism and Development Studies*, 1(2), 52–61. <https://www.neliti.com/publications/29327/etnobotaniupacara-kasada-masyarakattengger-di-desa-ngadas-kecamatanmalang-pon>
- Purnama, A. R. 2015. *Desain Taman Kota Cilegon Berbasis Konsep Eco.Design [Skripsi]*. Bogor: Departemen Arsitektur Lanskap Fakultas Pertanian Institut Pertanian Bogor.
- Raden Andriani Lestari, 2014 *Pengaruh Kepemimpinan Partisipatif Dan Komitmen Organisasi Terhadap Efektifitas Implementasi Rencana Strategik Pada Madrasah Aliyah Di Kabupaten Sukabumi Jawa Barat* Universitas Pendidikan Indonesia | [repository.upi.edu](https://repository.upi.edu) | [perpustakaan.upi.edu](https://perpustakaan.upi.edu).
- Redaksi PS. 2007. *Media Tanam untuk Tanaman Hias*. Penebar Swadaya, Jakarta
- Spriggs N.G., Wiesen, A. 2002. *The Therapeutic Garden: A Collaboration of Professions*. *Therapy. Gard. Des.* 3(1): 1-5.
- Sugiyono. 2011. *Metode Penelitian Kualitatif, Kuantitatif, dan R&D*. Bandung: Alfabeta.

- Sugiyono. 2014. Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R & D. 428.
- Sukari., Salamun., Mudjijono., Munawaroh, Siti., dan Sumarno. 2004. Kearifan Lokal di Lingkungan Masyarakat Tengger Pasuruan Jawa Timur. Yogyakarta: Kementerian Kebudayaan dan Pariwisata.
- Sumintarja Djauhari, 1999. Arsitektur Tradisional dan Kriterianya, Makalah pada Lokakarya Upaya Pelestarian Arsitektur Tradisional Indonesia melalui Sistem Informasi, Jakarta.
- The Ramsar Convention Secretariat (2014) Sites and countries. <https://www.ramsar.org/sites,countries>. Assessed 2 June 2019.
- Wudianto R. 2004. Membuat Setek, Cangkok, dan Okulasi. Penebar Swadaya, Jakarta.



# ETHNOBOTANY AS CULTURAL HERITAGE IN INDONESIA

---

## INTRODUCTION

Indonesia has one of the highest biodiversity in the world. Tropical rainforests, savannas, and other ecosystems create conditions that strongly favour the growth of various types of plants. This diversity became the basis for the development of ethnobotanical knowledge because local people coexisted with diverse flora. Humans have always been very dependent on the environment to meet their needs. For example, food, shelter, clothing, medicine, fertilizer, perfume, and even beauty can be obtained from the environment. The natural wealth that exists around humans is actually very useful, but it has not been fully studied, utilized, and even exploited. Indonesia has a wealth of knowledge about traditional medicine. Almost every ethnic group in Indonesia has a wealth of knowledge and methods related to traditional medicine. Indonesia's natural potential is huge because of the diversity of medicinal plants (Parwata, 2016).

Plants have been an important source of medicine for thousands of years. The use of plants for healing is perhaps the oldest form of medicine in the world. Every culture in the world has its traditional medicine system, and each region has different types of plants that can be used as medicine. Currently, treatment with natural ingredients is still one of the complementary therapies and treatment options to cure diseases and maintain health. In Indonesia, the use of medicinal plants to improve health has been done by our ancestors since ancient times. This knowledge was then passed down from generation to generation and is still used and developed in traditional medicine to this day, one of which is in the form of herbal medicine. Traditional medicine tends to be safer to use because the side effects are minimal compared to modern medicine (Muflishah, 2014).

The development of traditional medicine and traditional medicine is currently growing rapidly, especially traditional medicine derived from growing plants. We can see the increasing number of dosage forms of traditional medicine in the form of packaging that is very attractive to consumers. This development makes the Government or related agencies

## REFERENCES

- Amboupe, D. S., Hartana, A., & Purwanto, Y. (2019). Kajian Etnobotani Tumbuhan Pangan Masyarakat Suku Bentong di Kabupaten Barru Sulawesi Selatan-Indonesia. *Media Konservasi*, 24.
- Elfahmi, Woerdenbag, H. J., & Kayser, O. (2014). Jamu: Indonesian traditional herbal medicine towards rational phytopharmacological use. *Journal of Herbal Medicine*, 4(4), 51–37. <https://doi.org/10.1016/j.hermed.2014.01.002>
- Elfrida, Nursamsu, & Marfina. (2017). Etnobotani Tumbuhan Berkhasiat Obat Berdasarkan Pengetahuan Lokal Pada Suku Jawa Di Desa Sukarejo Kecamatan Langsa Timur Tahun 2016. *Jeumpa*, 4(1).
- Fransiska, Z., Arianto, W., & Anwar, G. (2022). Kajian Etnobotani Tumbuhan Obat Masyarakat Desa Tamiai Kecamatan Batang Merangin Kabupaten Kerinci Provinsi Jambi. *Journal of Global Forest and Environmental Science*, 2(1), 39–50.
- Helmina, S., & Hidayah, Y. (2021). Kajian Etnobotani Tumbuhan Obat Tradisional Oleh Masyarakat Kampung Padang Kecamatan Sukamara Kabupaten Sukamara. *Pendidikan Hayati*, 7(1), 20–28.
- Hisa, L., Mahuze, A., & Arka, I. W. (2018). *ETNOBOTANI Pengetahuan Lokal Suku Marori Di Taman Nasional Wasur Merauke*, ed. Mohamad Alwi. Balai Taman Nasional Wasur.
- IGP Suryadarma. (2005). Konsepsi Kosmologi dalam Pengobatan Usada Taru Pramana. *Journal of Tropical Ethnobiology*, 11(1).
- Kesehatan, U.-U. R. I. N. 3. tentang. (2009). *Undang-Undang Republik Indonesia No.36 Tahun 2009 tentang Kesehatan*.
- Kholifah, Tavita, G. E., & Indriyani, Y. (2020). Etnobotani Ritual Adat Suku Dayak Disekitar Hutan Desa Datah Dian Kabupaten Kapuas Hulu. *Hutan Lestari*, 8, 379.
- Kurniawan, E. (2015). *Studi Etnobotani Pemanfaatan Jenis-Jenis Tumbuhan Tradisional Tengger Oleh Masyarakat Tengger di Desa Ngadisari Kecamatan Sukapura Kabupaten Probolinggo Jawa Timur*. Institut Teknologi Sepuluh November.
- Muflisah. (2014). *Tanaman obat keluarga (TOGA)*.
- Ninawati, Biyatmoko, D., & Winarti, A. (2023). Kajian Etnobotani Tumbuhan Obat Oleh Masyarakat Bali Kabupaten Barito Kuala. *JURNAL HUTAN LESTARI*, 11, 1006–1015.

- Parwata, I.M.O.A. (2016). *Obat Tradisional*. Jurusan Kimia Laboratorium Kimia Organik FMIPA.
- Restu, Y. E. (2021). *Studi Etnobotani Pemanfaatan Tumbuhan Pada Ritual Adat Istiadat Masyarakat Suku Bali di Desa Bali Agung Kecamatan Palas Kabupaten Lampung Selatan*.
- Rukmana, R., Mukhtar, M., & Zulkarnain. (2021). Kajian Etnobotani Untuk Menggali Potensi Tanaman Obat. *Prosiding Biologi Achieving the Sustainable Development Goals with Biodiversity in Confronting Climate Change*, 232–236. <http://journal.uin-alauddin.ac.id/index.php/psb>
- Suryadarma, . IGP. (2008). *Diktat Etnobotani*.
- Syafitri, F. R., Sitawati, & Setyobudi, L. (2014). Kajian Etnobotani Masyarakat Desa Berdasarkan Kebutuhan Hidup. *Jurnal Produksi Tanaman*, 2(2).
- Walujo, E. (2008). Review: research ethnobotany in Indonesia and the future perspectives. *Biodiversitas*, 9(1), 59–63.
- Walujo, E. B. (2009). Etnobotani : memfasilitasi penghayatan, pemutakhiran pengetahuan dan kearifan lokal dengan menggunakan prinsip-prinsip dasar ilmu pengetahuan. *Seminar Etnobotani IV Cibinong Science Center-LIP*, 12–20.
- Zaitun Hidayat, Febriyani, W., & Tayubi, Z. (2018). Pengetahuan Etnobotani Tumbuhan Obat Pada Masyarakat Adat Cigugur, Desa Cigugur, Kecamatan Cigugur, Kabupaten Kuningan. *Ethnobotany Journal*, 1, 1–13.

# **GUMACA, THE PEOPLE, AND THE LANDSCAPE: A LANDSCAPE CHARACTER MANAGEMENT PLAN FOR THE HISTORICAL, AGRICULTURAL, AND COASTAL ASSETS OF GUMACA, QUEZON PROVINCE**

---

## **INTRODUCTION**

The Municipality of Gumaca is one of the coastal towns of Quezon Province, traversing along its provincial corridor through the Pan-Philippine Highway, connecting the Calabarzon Region from Metro Manila and the Bicol Region. The first-class municipality and heritage town has a total land area of 189.95 sq. km. and a population of 71,942 based on the 2020 Census. Apart from its rich historical significance and developing financial and government center, Gumaca's land use is primarily agricultural, with farming and fishing as the main source of livelihood for its residents.

One major infrastructure development set to impact Gumaca is the ongoing SLEx TR5 Project, the 417-km Quezon-Bicol Expressway (QuBEx) from Lucena to Matnog, Sorsogon, whose Segment 1 covers the 59.60-km stretch from Lucena to Gumaca. This infrastructure practically cuts through the production areas at the southern hills of Gumaca all the way north, connecting to the existing Pan-Philippine Highway.

As identified in the Calabarzon Regional Development Plan (RDP) for 2023 to 2028, another possible impact in the pipeline is Gumaca's potential as a port. A 300-hectare reclamation activity was embarked on for an international seaport project, aligned with its Comprehensive Land Use Plan in 2017. Gumaca's urbanization, albeit showing a decrease in population growth from the latest national statistics, can be monitored by the town's burgeoning services as a financial, business, and government center among its neighboring municipalities.

## **LANDSCAPE CHARACTER MANAGEMENT PLAN**

A Landscape Character Management Plan (LCMP) involves identifying and understanding the unique characteristics of a landscape, including its natural, cultural, and perceptual attributes. This approach integrates these attributes to portray the landscape effectively. It is a widely used tool for landscape

## REFERENCES

- Atik, M., Işıklı, R. C., Ortaçşeme, V., & Yıldırım, E. (2015). Definition of landscape character areas and types in Side region, Antalya-Turkey with regard to land use planning. *Land Use Policy*, *44*, 90–100. <https://doi.org/10.1016/j.landusepol.2014.11.019>
- Butler, A., & Berglund, U. (2012). Landscape Character Assessment as an Approach to Understanding Public Interests within the European Landscape Convention. *Landscape Research*, *39*(3), 219–236. <https://doi.org/10.1080/01426397.2012.716404>
- Centeno, D., Avila, C., Juson, J., Tan, D., Galingan, Z., & Nadal, C. (2024). *Spiraling harmony: Understanding the landscape tapestry of Gumaca, Quezon Province through the DPSIR framework*. [Unpublished paper]. College of Architecture, University of the Philippines Diliman.
- Cheung, S. C. H. (1999). The meanings of a heritage trail in Hong Kong. *Annals of Tourism Research*, *26*(3), 570–588. [https://doi.org/10.1016/s0160-7383\(99\)00006-7](https://doi.org/10.1016/s0160-7383(99)00006-7)
- DA-Department of Agriculture Regional Field Office No. 4 CALABARZON. (2019). Model coconut farm, launched in Gumaca, quezon. *Department of Agriculture Regional Field Office No. 4 CALABARZON*. <https://calabarzon.da.gov.ph/model-coconut-farm-launched-in-gumaca-quezon/>
- Felizarte, R., Gabriel-Mandapat, K., Verdadero, C., Galingan, Z., & Nadal, C. (2024). *A patchwork of agricultural, coastal, and cultural landscapes: Stitching landscape character areas and types for the landscape characterization of Gumaca, Quezon Province*. [Unpublished paper]. College of Architecture, University of the Philippines Diliman.
- Go, C., Guzman, J., Secugal, A., Galingan, Z., & Nadal, C. (2024). *Geospatial Dimensions in strategic planning: An indicator-based SWOT-PEST analysis of Gumaca, Quezon Province*. [Unpublished paper]. College of Architecture, University of the Philippines Diliman.
- GPIO-Gumaca Public Information Office. (2023). Seeds of prosperity: CALABARZON marine hatchery ignites hope in gumaca's fishing community. *Gumaca Public Information Office*. <https://gumaca.gov.ph/seeds-of-prosperity-calabarzon-marine-hatchery-ignites-hope-in-gumacas-fishing-community/>

- Kristensen, P. (2004, September 27-29). *The DPSIR Framework* [Paper presentation]. Workshop on a Comprehensive / Detailed Assessment of the Vulnerability of Water Resources to Environmental
- Nayan, N. M., Jones, D. S., Ahmad, S., & Khamis, M. K. (2021). Exploring the built-environment: heritage trails, values and perceptions. *IOP Conference Series: Earth and Environmental Science*, 881(1), 012009. <https://doi.org/10.1088/1755-1315/881/1/012009>
- Purwantiasning, A.W. & Bahri, S. (2023). Heritage Trail as a Method to Maintain the Historical Area. *Baltic Journal of Law & Politics*, 16:3. 64-81. <https://doi.org/10.2478/bjlp-2023-000005>

# **SPIRALING HARMONY: UNDERSTANDING THE LANDSCAPE TAPESTRY OF GUMACA, QUEZON PROVINCE THROUGH THE DPSIR FRAMEWORK**

---

## **INTRODUCTION**

The Municipality of Gumaca is one of the coastal towns of Quezon Province, traversing along its provincial corridor through the Pan-Philippine Highway, connecting the Calabarzon Region from Metro Manila and the Bicol Region. The first-class municipality and heritage town has a total land area of 189.95 sq.km. and population of 71,942 based on the 2020 Census. Apart from its rich historical significance and developing financial and government center, Gumaca's land use is primarily agricultural, with farming and fishing as the main source of livelihood for its residents.

One major infrastructure development set to impact Gumaca is the ongoing SLEx TR5 Project, the 417-km Quezon-Bicol Expressway “QuBex” from Lucena to Matnog, Sorsogon, whose Segment 1 covers the 59.60-km stretch from Lucena to Gumaca. This infrastructure practically cuts through the production areas at the southern hills of Gumaca all the way north, connecting to the existing Pan-Philippine Highway.

As identified in the Calabarzon Regional Development Plan (RDP) for 2023 to 2028, another possible impact in the pipeline is Gumaca's potential as a port. A 300-hectare reclamation activity was embarked for an international seaport project, aligned with its Comprehensive Land Use Plan in 2017. Gumaca's urbanization, albeit showing decrease in population growth from the latest national statistics, can be monitored by the town's burgeoning services as a financial, business and government center among its neighboring municipalities.

As Gumaca faces urban sprawl, it intends to further develop, conserve, and manage its natural and cultural resources through a comprehensive landscape management plan. In achieving this, there is a need for understanding Gumaca's driving factors, identify its pressures, states, and impacts, and evaluate current responses that seek to address these factors. This study explores the utilization of DPSIR Spiral Framework in

## REFERENCES

- AECOM Philippines, Inc. (2022). *Environmental Impact Statement (EIS) for Philippine National Railways South Long Haul (SLH) Project Contract Package 1 (Banlic to Daraga)*. AECOM Philippines, Inc. <https://drive.google.com/file/d/1iTQRmYY6lqtyh92wa7of9P4Ni0M9en4P/view>
- Azizi, N. Z. M., Razak, A. A., DIN, M. A. M., & Nasir, N. M. (2016, June 23). Recurring Issues in Historic Building Conservation. *Procedia - Social and Behavioral Sciences*, 222, 587-595. Elsevier. <https://doi.org/10.1016/j.sbspro.2016.05.217>
- Bello, J. A. (2019, February 23). *6 persons held on illegal logs in Gumaca aboard mun. gov't vehicle*. Sentinel Times. Retrieved January 19, 2024, from [https://www.sentineltimes.net/2019/02/6-persons-held-on-illegal-logs-in.html#google\\_vignette](https://www.sentineltimes.net/2019/02/6-persons-held-on-illegal-logs-in.html#google_vignette)
- CALABARZON Regional Development Council. (2018). *CALABARZON Regional Physical Framework Plan 2017-2046: Disaster Risk Reduction and Climate Change Adaptation Enhanced*. National Economic Development Authority Region IV-A.
- Cañido, S. J. (2023, November 22). *Kutang San Diego, Recognized as a 'National Cultural Treasure' by the National Museum of the Philippines*. Gumaca, Quezon. Retrieved January 17, 2024, from <https://gumaca.gov.ph/kutang-san-diego-recognized-as-a-national-cultural-treasure-by-the-national-museum-of-the-philippines/>
- Carl, R. (2023, November 24). *NSCR, South Long Haul projects to 'revive' PH railway industry*. Philippine News Agency. Retrieved January 20, 2024, from <https://www.pna.gov.ph/articles/1214319>
- China Power Team. (2021, January 25). *How Much Trade Transits the South China Sea? | ChinaPower Project*. ChinaPower Project. Retrieved January 18, 2024, from <https://chinapower.csis.org/much-trade-transits-south-china-sea/#easy-footnote-bottom-1-3073>
- Clark, J. (2022, December 12). *PNR South Long Haul: Rebuilding the PNR South Main Line (Bicol Express) in Luzon*. Future Southeast Asia. Retrieved January 20, 2024, from <https://futuresoutheastasia.com/pnr-south-long-haul/>
- DENR. (2019, May 27). *Enhanced National Greening Program*. DENR. Retrieved January 20, 2024, from



- <https://www.denr.gov.ph/index.php/priority-programs/national-greening-program>
- DENR CALABARZON. (2021, May 5). CENRO Barros monitors Gumaca and Pitogo NGP Sites. Retrieved January 20, 2024, from <https://calabarzon.denr.gov.ph/index.php/news-events/photo-releases/1910-2021-05-06-44-16>
- DENR-CALABARZON. (2021, July 14). Press Releases. Retrieved December 11, 2023, from <https://calabarzon.denr.gov.ph/index.php/news-events/press-releases?start=200>
- DENR CALABARZON. (2022, February 14). CENRO Calauag accumulated 36 sacks of solid wastes from Pipisik River. Retrieved December 10, 2023, from <https://calabarzon.denr.gov.ph/index.php/news-events/photo-releases/2265-cenro-calauag-accumulated-36-sacks-of-solid-wastes-from-pipisik-river>
- DENR-DILG. (2004). *Manual of Procedure for DENR-DILG-LGU Partnership on Devolved and Other Forest Management Functions*. Retrieved from: [https://mgb.gov.ph/images/stories/DENR-DILG\\_JNT\\_MC\\_98-01.pdf](https://mgb.gov.ph/images/stories/DENR-DILG_JNT_MC_98-01.pdf)
- Dissanayaka, D.M.N.S., Dissanayake, D.K.R.P.L., Udumann, S.S., Nuwarapaksha, T.D., & Atapattu, A. (2023, May 23). Agroforestry—a key tool in the climate-smart agriculture context: a review on coconut cultivation in Sri Lanka. *Agroecological Cropping Systems, 5-2023*. doi.org/10.3389/fagro.2023.1162750
- EMB-CALABARZON. (n.d.). *EMB CALABARZON LIST OF EXISTING DISPOSAL FACILITIES*. EMB CALABARZON. Retrieved December 11, 2023, from <https://calabarzon.emb.gov.ph/wp-content/uploads/2016/07/List-of-Existing-Disposal-Facilities.pdf>
- EMB CALABARZON. (2023, December 23). *Water Quality Sampling at Lopez Bay*. EMB CALABARZON. Retrieved January 19, 2024, from <https://calabarzon.emb.gov.ph/water-quality-sampling-at-lopez-bay/>
- Garcia, P. (2018, July 15). *SEAPORTS IN SEASON*. Manila Bulletin. Retrieved January 18, 2024, from [https://mb.com.ph/2018/07/15/seaports-in-season/?fbclid=IwAR3uDcHtYxmTXsu-BK\\_1lBxMNQf1t8DIuLjH8E\\_HOUNcdkoEJnd629tf-ak](https://mb.com.ph/2018/07/15/seaports-in-season/?fbclid=IwAR3uDcHtYxmTXsu-BK_1lBxMNQf1t8DIuLjH8E_HOUNcdkoEJnd629tf-ak)
- Global Forest Watch. (n.d.). *Gumaca, Quezon, Philippines Deforestation Rates & Statistics | GFW*. Global Forest Watch. Retrieved January 19, 2024, from <https://www.globalforestwatch.org/dashboards/country/PHL/62/13/?category=forest-change>

- Gumaca Public Information Office. (n.d.). *Town Profile*. Gumaca, Quezon. Retrieved January 17, 2024, from <https://gumaca.gov.ph/about/>
- Kristensen, P. (2004, September 27-29). *The DPSIR Framework* [Paper presentation]. Workshop on a Comprehensive / Detailed Assessment of the Vulnerability of Water Resources to Environmental
- Lacerna, S. A. (2023, November 23). *Quezon farmers struggle for climate resilient coconut industry*. Philippine Star. Retrieved January 20, 2024, from <https://www.philstar.com/headlines/climate-and-environment/2023/11/23/2313689/quezon-farmers-struggle-climate-resilient-coconut-industry>
- Lyu, H., Song, D., Zhang, S., Wu, W., & Bao, X. (2022, June 20). Compound effect of land reclamation and land-based pollutant input on water quality in Qinzhou Bay, China. *Science of The Total Environment*, 826. <https://doi.org/10.1016/j.scitotenv.2022.154183>
- Mallari, D. T. (2012, April 11). *In Quezon, towns start paving way for sanitary landfills*. Inquirer.net. Retrieved December 10, 2023, from <https://newsinfo.inquirer.net/175263/in-quezon-towns-start-paving-way-for-sanitary-landfills>
- Mallari, D. T. (2017, February 1). *Almost P200K worth of illegally cut coconut lumber seized in Quezon*. Inquirer.net. Retrieved January 19, 2024, from <https://newsinfo.inquirer.net/867149/almost-p200k-worth-of-illegally-cut-coconut-lumber-seized-in-quezon>
- Mallari, D. T. (2017, August 16). *Road bypass projects in Quezon to speed up Manila-Bicol trip*. Inquirer.net. Retrieved January 20, 2024, from <https://newsinfo.inquirer.net/923003/road-bypass-projects-in-quezon-to-speed-up-manila-bicol-trip>
- Mallari, D. T. (2021, May 16). *4 nabbed for illegal coconut logging in Quezon; hot lumber seized*. Inquirer.net. Retrieved January 19, 2024, from <https://newsinfo.inquirer.net/1432385/4-nabbed-for-illegal-coconut-logging-in-quezon-hot-lumber-seized>
- McAlpine, C. A., Johnson, A., Syktus, J., Wilson, K., Meijaard, E., Dargusch, P., Nordin, H., & Sheil, D. (2018, March 23). Forest loss and Borneo's climate. *Environmental Research Letters*, 13. 10.1088/1748-9326/aaa4ff
- Mihai, F. C. (2018, April). Waste collection in rural communities: challenges under EU regulations. A case study of Neamt county, Romania. *Material Cycles and Waste Management*. DOI: 10.1007/s10163-017-0637-x

- Moaje, M. (2022, November 7). *Quezon farmers trained on adapting to climate change*. Philippine News Agency. Retrieved January 19, 2024, from <https://www.pna.gov.ph/articles/1187956>
- NEDA. (n.d.). *Addressing the Impacts of Climate Change in the Philippine Agriculture Sector*. National Economic and Development Authority. Retrieved January 19, 2024, from <https://neda.gov.ph/addressing-impacts-climate-change-philippine-agriculture-sector/>
- National Historical Institute. *Kutang San Diego*. 1981. Inscription carving. Gumaca, Quezon. Viewed November 18, 2023
- Ochave, R. M. D. (2022, May 9). *PCCI seeks immediate action on NCR traffic to remove drag on economy*. BusinessWorld Online. Retrieved January 20, 2024, from <https://www.bworldonline.com/economy/2022/05/09/447325/pcci-seeks-immediate-action-on-ncr-traffic-to-remove-drag-on-economy/>
- Otorдоз, B. (2023, May 20). *LGU workers prioritized in Gumaca low-cost housing project*. Philippine News Agency. Retrieved January 17, 2024, from <https://www.pna.gov.ph/articles/1201897>
- Philippine Daily Inquirer. (2017, August 16). *Road bypass projects in Quezon to speed up Manila-Bicol trip*. Inquirer.net. Retrieved January 19, 2024, from <https://newsinfo.inquirer.net/923003/road-bypass-projects-in-quezon-to-speed-up-manila-bicol-trip>
- PRA. (2017, November 9). *Corporate Profile and Statements*. Philippine Reclamation Authority. Retrieved January 19, 2024, from <https://www.pea.gov.ph/corporate-profile/corporate-profile>
- Qin, Y., T. Gartner, S. Minnemeyer, P. Reig, and S. Sargent. 2016. "Global Forest Watch Water Metadata Document" Technical Note. Washington, D.C.: World Resources Institute. Available online at: [http://www.wri.org/publication/GFW\\_Water\\_metadata](http://www.wri.org/publication/GFW_Water_metadata).
- Quismorio, E. A., & Estacio, D. J. (2018, July 15). *Seaports In Season*. *Manila Bulletin*. <https://www.pressreader.com/philippines/manila-bulletin/20180715/page/6>
- Rodis, R. (2014, October 23). *Manila's traffic jams cost \$57 million a day*. Global News. Retrieved January 19, 2024, from <https://globalnation.inquirer.net/113269/manilas-traffic-jams-cost-57-million-a-day>
- SEARCA. (n.d.). *Development of the Coconut Industry Growth Areas in the Province of Quezon*. SEARCA. Retrieved January 19, 2024, from <https://www.searca.org/projects/research/development-coconut-industry-growth-areas-province-quezon>

- Senate of the Philippines. (2019, April 6). *Press Release - Angara cites Gumaca's potential as int'l seaport*. Senate of the Philippines. Retrieved January 18, 2024, from [https://legacy.senate.gov.ph/press\\_release/2019/0406\\_angara1.asp](https://legacy.senate.gov.ph/press_release/2019/0406_angara1.asp)
- Wang, W., Liu, H., Li, Y., & Su, J. (2014, December). Development and management of land reclamation in China. *Ocean & Coastal Management*, 102, Part B, 415-425. <https://doi.org/10.1016/j.ocecoaman.2014.03.009>
- Zhang, K., & Batterman, S. (2013, April 15). Air pollution and health risks due to vehicle traffic. *Sci Total Environ*, 0, 307-316. [10.1016/j.scitotenv.2013.01.074](https://doi.org/10.1016/j.scitotenv.2013.01.074)
- Zhou, L., Kong, X., Shen, G., Li, Y., Zhu, H., Chen, T., Yan, Y., & Liu, Y. (2023, October). Spatial-temporal impacts of landscape metrics and uses of land reclamation on coastal water conditions: The case of Macao. *Ecological Indicators*, 154. <https://doi.org/10.1016/j.ecolind.2023.110518>

# POTENTIAL OF SETUPATOK AS A HYBRID LANDSCAPE IN CIREBON

---

## INTRODUCTION

Cirebon is an area on the north coast of Java where most of the area is lowland in the north, and the southwest part is a mountainous area under the foot of Mount Ciremai and the land lies extending from the northwest to the southeast. In the past, Cirebon was an area that was once used as a silk route for trade from various nations, including Persia and the Middle East, China, India and Turkey, which transited the main port of Cirebon, so gradually cultural acculturation began to occur (Hariyanto, 2016).

Cirebon community culture is the descendants of Cirebon Javanese who acculturated with the Sundanese tribe and generally use the Cirebon Javanese language (*bebasan*). Cirebon's famous arts such as Tarling, Topeng Kelana Dance, and Sintren are very thick with a magical aura of local culture that aims to be a medium of Islamic preaching (Irmawati, 2020; Lasmiyati, 2011). Commonly known cuisines are Nasi Jamblang (rice wrapped in teak leaves), empal gentong, and docang. There are well-known historical tourist spots such as Sunyaragi Cave, Kasepuhan Palace, Kanoman Palace, Kacirebonan Palace, BAT Building (British American Tobacco), Sunan Gunung Jati Tomb, Chinatown Village, and natural tourism, one of which is Lake of Setupatok which is located in Mundu District, east of Cirebon City. Located ± 10 km from Cirebon city centre, making Setupatok an alternative tourist destination that is cheap and accessible to many people.

The word Situpatok comes from two words in Sundanese, namely the word '*Setu/Situ*' which means a lake, and the word '*Patok*' is a sign that is placed either on a stone, wood or something else. In the past, people believed why it was called Situpatok, because it was said that there were many stakes stuck into the ground which were used to strengthen the lake embankment so that when the rainy season arrived, undesirable things such as flooding in the area around the lake and downstream areas did not happen. Setupatok Lake was built because there was an initiative from the Dutch East Indies Government. After all, Cirebon City often experienced floods, and also Cirebon City was a strategic city for the Dutch East Indies Government

## REFERENCE

- Ariyani, R. M., Dhamera, V., & Suyitno, S. (2022). Pengaruh daya tarik wisata dan promosi media sosial terhadap minat berkunjung kembali wisatawan di waduk setu patok kabupaten cirebon. *Jurnal Pendidikan Ekonomi , Manajemen Dan Keuangan*, 6(2), 133–147. <https://doi.org/10.26740/jpeka.v6n2.p133-147>
- Elgawindasari, E. (2024). *Wajib dikunjungi ini 25 tempat wisata hits dan kekinian di cirebon*. <https://id.theasianparent.com/tempat-wisata-di-cirebon>
- Hariyanto, O. I. B. (2016). Destinasi wisata budaya dan religi di cirebon. *ECODEMICA*, 4(2), 214–222.
- Irmawati, I. (2020). Makna dan simbol kesenian sintren sebagai media dakwah islam. *Khulasah*, 2(1), 38–56.
- Kasiro, I., Isdiana, I., Pangular, D., Nugroho, C. L., Muchtar, A., Martadi, H., & Suryadilaga, R. (1995). *Bendungan Besar di Indonesia*. Yayasan Badan Penerbitan Pekerjaan Umum.
- Lasmiyati, L. (2011). Sejarah pertumbuhan dan perkembangan tari topeng cirebon abad xv - xx. *Patanjala*, 3(3), 472–487.
- Nisa, A. F., & Haryanto, R. (2014). Kajian keberadaan wisata belanja malioboro terhadap pertumbuhan jasa akomodasi di jalan sosrowijayan dan jalan dagen. *Jurnal Teknik PWK*, 1(3), 933–948.
- Studiofru, S. (2023a). *Beragam aktivitas yang dilakukan warga di danau setu patok pada musim panas*. <https://studiofrugreenproject.com/posts/beragam-aktivitas-yang-dilakukan-warga-di-danau-setu-patok-pada-musim-panas>
- Studiofru, S. (2023b). *Gua jepang di danau setupatok*. <https://studiofrugreenproject.com/posts/gua-jepang-di-danau-setu-patok-cirebon>
- Sunaryo, R. G., Soewarno, N., Ikaputra, I., & Setiawan, B. (2010). Posisi ruang publik dalam transformasi konsepsi urbanitas kota indonesia. *Paper Kumpulan Makalah Pada Seminar Nasional Riset Arsitektur & Perencanaan*.

- Yin, J., Cheng, Y., Bi, Y., & Ni, Y. (2020). Tourists perceived crowding and destination attractiveness: The moderating effects of perceived risk and experience quality. *Journal of Destination Marketing & Management*, 18, 1–13.  
<https://doi.org/https://doi.org/10.1016/j.jdmm.2020.100489>
- Zaki, Z. (2022). *Setu patok*. <https://salsawisata.com/setu-patok/>

# **GEOSPATIAL DIMENSIONS IN STRATEGIC PLANNING: AN INDICATOR-BASED SWOT-PEST ANALYSIS OF GUMACA, QUEZON PROVINCE**

---

## **INTRODUCTION**

Strategic planning, as a cornerstone of effective governance and sustainable development, demands a multifaceted approach that transcends conventional methodologies. In landscape management, understanding the intricate dynamics is essential for shaping a resilient and thriving future. This research endeavors to bridge the gap between strategic planning frameworks and contemporary geospatial technologies, offering a comprehensive solution that not only captures the nuances of specific landscapes but also integrates these insights into informed decision-making.

The study focuses on the Municipality of Gumaca in Quezon Province, Philippines, a place endowed with diverse landscapes and rich history that contribute to its unique identity and potential for development (Fig. 1). As a first-class municipality, it boasts a moderate competitive score of 35.51, securing the 65th position in the latest ranking of the Cities and Municipalities Competitive Index (CMCI). This index was developed by the National Competitiveness Council (NCC) through the Regional Competitiveness Committees (RCCs), with the assistance of the United States Agency for International Development. The index evaluates the economic dynamism, government efficiency, infrastructure, resiliency, and innovation to establish the rankings. In the case of Gumaca, the performance was notably strong in government efficiency, whereas infrastructure emerged as the sector requiring the most improvement.



## REFERENCES

- Abbas, S., Shirazi, S. A., & Qureshi, S. (2017). SWOT analysis for socio-ecological landscape variation as a precursor to the management of the mountainous Kanshi watershed, salt range of Pakistan. *International Journal of Sustainable Development & World Ecology*, 25(4), 351–361. <https://doi.org/10.1080/13504509.2017.141670>
- Bridge, R. (2008). The British invasion and occupation of the Philippines, October 1762 to April 1764. *Journal of the Royal Asiatic Society Hong Kong Branch*, 48, 205–209.
- Dapito, C. (2019a). *Gumaca, Quezon Vol 1. YouTube*. Retrieved January 8, 2024, from <https://www.youtube.com/watch?v=MPBaNI2n4VA>.
- Dapito, C. (2019b). *Gumaca, Quezon Vol.2. YouTube*. Retrieved January 8, 2024, from [https://www.youtube.com/watch?v=AB9U5I\\_98ng](https://www.youtube.com/watch?v=AB9U5I_98ng).
- Dapito, C. (2021). *Gumaca, Quezon Vol 3. YouTube*. Retrieved January 8, 2024, from <https://www.youtube.com/watch?v=X7-jwaTqZFI>.
- Cities and Municipalities Competitiveness Index. (n.d.-a). <https://cmci.dti.gov.ph/prov-profile.php?prov=Quezon>
- Comino, E., & Ferretti, V. (2016). Indicators-based spatial SWOT analysis: Supporting the strategic planning and management of Complex Territorial Systems. *Ecological Indicators*, 60, 1104–1117. <https://doi.org/10.1016/j.ecolind.2015.09.003>.
- Gkoltsiou, A., & Paraskevopoulou, A. (2021). Landscape character assessment, perception surveys of stakeholders and SWOT ANALYSIS: A holistic approach to historical public park management. *Journal of Outdoor Recreation and Tourism*, 35, 100418. <https://doi.org/10.1016/j.jort.2021.100418>
- NAMRIA. (2024). <https://www.geoportal.gov.ph/>
- Gumaca, Quezon - Municipal Government of Gumaca. (n.d.-b). <https://gumaca.gov.ph/Ho>, Joseph Kim-Keung. (2014). Formulation of a Systemic PEST Analysis for Strategic Analysis. *European Academic Research*, 2(5), 6478-6492.
- Mustika, R. D., & Rahmayanti, K. P. (2019). Environmental scanning: In creating strategic planning for the education of persons with different abilities. *IOP Conference Series: Earth and Environmental Science*, 328(1), 012051. <https://doi.org/10.1088/1755-1315/328/1/012051>
- OpenStreetMap. (n.d.). <https://www.openstreetmap.org/>

- PNR South Long Haul Project - Philippine National Railways. (n.d.). <https://pnr.gov.ph/foreign-assisted-projects/pnr-south-long-haul-project.html>
- Puyt, R. W., Lie, F. B., & Wilderom, C. P. M. (2023). The origins of SWOT analysis. *Long Range Planning*, 56(3), 102304. <https://doi.org/10.1016/j.lrp.2023.102304>
- Salvarci, S. (2022). Examination of cultural routes of Turkey in the context of destination marketing with PEST analysis. *DEU Journal of GSSS*, 24(1), 405–419. <https://doi.org/10.16953/deusosbil.1027989>
- United Nations Office for the Coordination of Humanitarian Affairs. (n.d.). *Philippines - Subnational Administrative Boundaries*. Humanitarian Data Exchange. <https://data.humdata.org/dataset/cod-ab-pzz>

# ASSESSMENT OF SOIL EROSION SUSCEPTIBILITY WITHIN THE BESSANG PASS NATURAL MONUMENT/LANDMARK (BPNML) USING THE REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE)

---

## INTRODUCTION

### *Background of the study*

The Bessang Pass Natural Monument/Landmark (BPNML) is known as one of the protected areas (PA) with historical landmarks within the Philippines. Within the site lies the Bessang Pass Marker which celebrates the valor and victory of the 1,395 Filipino guerilla soldiers hailing from the 11<sup>th</sup>, 14<sup>th</sup>, 15<sup>th</sup>, 66<sup>th</sup> and 121<sup>st</sup> infantry regiments of the 3<sup>rd</sup> battalion of the United States Army Forces in the Philippines – Northern Luzon (USAFIP-NL) who participated in the Battle of Bessang Pass in June 1945 — leading to the liberation of the whole Luzon Island after the defeat of Japanese forces led by Gen. Tomoyuki Yamashita (BPNML PAMP, 2021).

This PA is one of the few tropical pine reserves within the Philippines characterized with unique geological, biological, and ecological features (BPNML PAMP, 2021). Further, it is also dubbed as the summer capital of Ilocos Sur, with climates similar to that of Baguio City, and because of its steep, rolling terrains. It was declared as a natural monument in August 1954 due to its rich history and ecological resources, which includes three major forest ecosystems such as Pine Savanna, Sub Summit Mossy Forest, and Mix Montane Rain Forest. Likewise, it is home to a variety of fauna and flora such as the rare Benguet Bush Warbler (BPNML PAMP, 2021).

The municipality of Cervantes, where the BPNML is situated, is recognized as the “vegetable bowl of Ilocos Sur”; where the main source of livelihood within the PA is upland farming of highland vegetable and crops such as carrots, cabbage, broccoli, cauliflower, potatoes, and bell pepper. Other produce being cultivated within the agricultural lands of the area include sweet potatoes, ginger, pear squash, pigeon pea, yakon, banana, coffee, and tiger grass (BPNML PAMP, 2021). Because of its steep topography and elevation, one of the common farming practices being done within the region of interest are crop terracing. This farming practice is appropriate for

## REFERENCES

- Agricultural Research Service U.S. DEPARTMENT OF AGRICULTURE. (2016). *About the Universal Soil Loss Equation*. U.S. DEPARTMENT OF AGRICULTURE. <https://www.ars.usda.gov/midwest-area/west-lafayette-in/national-soil-erosion-research/docs/usle-database/research/>
- Aguilos F.M.T., Encanto F.A.V., Tolentino G.M.F., & Jolito M.D. (2021). *Assessment of soil erosion risk within the Maasin Watershed Forest Reserve, Iloilo, Philippines using the Revised Universal Soil Loss Equation (RUSLE) and Geographical Information System (GIS)*. *Publiscience*, 4(1), 106–111.
- Albut, S. (2020). Estimation of Slope Length (L) And Slope Steepness Factor (S) of RUSLE Equation by QGIS. *International Journal of Research in Engineering and Science (IJRES)*, 8(12), 43–48.
- Alewell, C., Borrelli, P., Meusburger, K., & Panagos, P. (2019). Using the USLE: Chances, challenges and limitations of soil erosion modelling. *International Soil and Water Conservation Research*, 7(3), 203–225. <https://doi.org/10.1016/j.iswcr.2019.05.004>
- Al-Kaisi, M. (2022). *Soil erosion: An agricultural production challenge / Integrated Crop Management*. Iowa State University Extension and Outreach. <https://crops.extension.iastate.edu/encyclopedia/soil-erosion-agricultural-production-challenge>
- Borrelli P., Robinson D.A., Fleischer L.R., Lugato E., Ballabio C., Alewell C., Meusburger K., Modugno, S., Schutt, B. Ferro, V. Bagarello, V. Van Oost, K., Montanarella, L., Panagos P. (2017). *An assessment of the global impact of 21st century land use change on soil erosion*. *Nature Communications*, 8 (1): art. no. 2013
- David W.P. (1988). *Soil and Water Conservation Planning: Policy Issues and Recommendations*. *J Philipp Dev*. 15(1): 47–84.
- DENR CENRO Region 1. (2021). *Bessang Pass Natural Monument/Landmark - Protected Area Management Plan 2021 – 2030*
- Durán Zuazo, V. H., & Rodríguez Pleguezuelo, C. R. (2008). Soil-erosion and runoff prevention by plant covers. A review. *Agronomy for Sustainable Development*, 28(1), 65–86. <https://doi.org/10.1051/agro:2007062>
- El-Swaify SA, Gramier CL, Lo A. 1987. *Recent advances in soil conservation in steepland in humid tropics*. In: Tay, T.H., Mokhtaruddin, A.M., & Zahari,

- A.B. (eds) Proceedings of the International Conference on Steepland Agriculture in the Humid Tropics. Kuala Lumpur, MARDI, 87–100.
- European Soil Data Centre (ESDAC), [esdac.jrc.ec.europa.eu](http://esdac.jrc.ec.europa.eu), European Commission, Joint Research Centre European Space Agency. (2020). *ESA WorldCover 10m v100*. Google Developers. [https://developers.google.com/earth-engine/datasets/catalog/ESA\\_WorldCover\\_v100#citations](https://developers.google.com/earth-engine/datasets/catalog/ESA_WorldCover_v100#citations)
- Farr, T.G., Rosen, P.A., Caro, E., Crippen, R., Duren, R., Hensley, S., Kobrick, M., Paller, M., Rodriguez, E., Roth, L., Seal, D., Shaffer, S., Shimada, J., Umland, J., Werner, M., Oskin, M., Burbank, D., and Alsdorf, D.E., (2007). *The shuttle radar topography mission: Reviews of Geophysics*, v. 45, no. 2, RG2004, at <https://doi.org/10.1029/2005RG000183>.
- Food and Agriculture Organization of the United Nations. (n.d.). *Revised Universal Soil Loss Equation*. <https://www.fao.org/land-water/land/land-governance/land-resources-planning-toolbox/category/details/en/c/1236444/>
- Forests and Landslides: The Role of Forests and Forestry in the Prevention and Rehabilitation of Landslides in Asia. (2012, January 1). Retrieved from <https://www.recoftc.org/publications/0000049>
- Ganasri, B., & Ramesh, H. (2016). Assessment of soil erosion by RUSLE model using remote sensing and GIS - A case study of Nethravathi Basin. *Geoscience Frontiers*, 7(6), 953–961. <https://doi.org/10.1016/j.gsf.2015.10.007>
- Ghosal, K., Das Bhattacharya, S. (2020). *A Review of RUSLE Model*. *J Indian Soc Remote Sens* 48, 689–707. <https://doi.org/10.1007/s12524-019-01097-0>
- Gwapedza, D., Hughes, D. A., Slaughter, A. R., & Mantel, S. K. (2021). Temporal Influences of Vegetation Cover (C) Dynamism on MUSLE Sediment Yield Estimates: NDVI Evaluation. *Water*, 13(19), 2707. <https://doi.org/10.3390/w13192707>
- Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Townshend. (2013). *High-Resolution Global Maps of 21st-Century Forest Cover Change*. *Science* 342 (15 November): 850–53. Data available on-line at: <https://earthenginepartners.appspot.com/science-2013-global-forest>.
- Karaburun, A. (2010). Estimation of C factor for soil erosion modeling using NDVI in Buyukcekmece watershed. *Ozean Journal of Applied Sciences*, 3(1), 77–82.

- Koirala, P., Thakuri, S., Joshi, S., & Chauhan, R. (2019). Estimation of Soil Erosion in Nepal Using a RUSLE Modeling and Geospatial Tool. *Geosciences*, 9(4), 147. <https://doi.org/10.3390/geosciences9040147>
- Luzon, P. K., Montalbo, K., Galang, J., Sabado, J. M., Escape, C. M., Felix, R., & Lagmay, A. M. F. (2016). Hazard mapping related to structurally controlled landslides in Southern Leyte, Philippines. *Natural Hazards and Earth System Sciences*, 16(3), 875–883. <https://doi.org/10.5194/nhess-16-875-2016>
- Menashe, E. (1998). *Vegetation and Erosion—A Literature Survey*. Greenbelt Consulting. <http://www.greenbeltconsulting.com/articles/vegetationerosion.html>
- NASA JPL (2020). *NASADEM Merged DEM Global 1 arc second V001 [Data set]*. NASA EOSDIS Land Processes DAAC. Accessed 2020-12-30 from [https://doi.org/10.5067/MEaSURES/NASADEM/NASADEM\\_HGT.001](https://doi.org/10.5067/MEaSURES/NASADEM/NASADEM_HGT.001)
- Olabisi L.S. (2012). *Uncovering the root causes of soil erosion in the Philippines*. Society & Natural Resources. 25: 37–51. doi: 10.1080/08941920.2011.563435.
- Panagos P., Van Liedekerke M., Jones A., Montanarella L., (2012). *European Soil Data Centre: Response to European policy support and public data requirements*. Land Use Policy, 29 (2), pp. 329-338. doi:10.1016/j.landusepol.2011.07.003
- Patil, R. J., & Sharma, S. K. (2014). Remote Sensing and GIS based modeling of crop/cover management factor (C) of USLE in Shakker river watershed. *International Journal of Advances in Agricultural & Environmental Engineering*, 1(1). <https://doi.org/10.15242/ijccie.c1213023>
- PhilRice Soils Information System. (2014). *Cervantes Series*. <https://dbmp.philrice.gov.ph/soils/series/llocos-Sur/Cervantes/property>
- Po, E. A., Sabines, M. A., & Taat, J. (2018). Determination of Farm Level Soil Erosion Using the Revised Universal Loss Equation (RUSLE). *Mindanao Journal of Science and Technology*, 16, 154–170.
- Project NOAH. (n.d.). *NOAH Landslide Hazard Maps*. COARE Data Catalog. <https://asti.dost.gov.ph/coare/data/datasets/noah-landslide-hazard>
- Queensland Government. (2013, October 25). *Impacts of erosion*. Environment, Land and Water | Queensland Government. <https://www.qld.gov.au/environment/land/management/soil/erosion/impacts>
- Renard, K. G., Foster, G. R., Weesles, G. A., & Porter, J. P. (1991). RUSLE: Revised universal soil loss equation. *Journal of Soil and Water*

- Conservation*, 16(1), 30–33.  
<https://www.jswconline.org/content/46/1/30>
- Roose, E. (1996). Land husbandry - Components and strategy. *Food and Agriculture Organization of the United Nations*.  
<https://www.fao.org/3/t1765e/t1765e0h.htm>
- SBCTC & Lumen Learning. (n.d.). *Reading: Avoiding Soil Loss | Geology*. Lumen Learning.  
<https://courses.lumenlearning.com/geo/chapter/reading-avoiding-soil-loss/>
- Thapa, P. (2020). *Spatial estimation of soil erosion using RUSLE modeling: a case study of Dolakha district, Nepal*. *Environ Syst Res* 9, 15.  
<https://doi.org/10.1186/s40068-020-00177-2>
- U.S. Geological Survey. (2013). *Landsat 8 Collection 1 Tier 1 8-Day NDVI Composite*. Google Developers. [https://developers.google.com/earth-engine/datasets/catalog/LANDSAT\\_LC08\\_C01\\_T1\\_8DAY\\_NDVI#terms-of-use](https://developers.google.com/earth-engine/datasets/catalog/LANDSAT_LC08_C01_T1_8DAY_NDVI#terms-of-use)
- Wischmeier, W., & Smith, D. (1978). *Predicting Rainfall Erosion Losses from Cropland East of the Rocky Mountains: Guide for Selection of Practices for Soil and Water Conservation*. U.S. Department of Agriculture handbook No.537.

# THE EFFECT OF *Euphorbia hirta* L. AS TRADITIONAL MEDICINE PLANT FOR HYPERURICEMIA

---

## INTRODUCTION

Hyperuricemia is a medical condition characterised by elevated uric acid levels in the blood. It is typically defined as a serum uric acid level greater than 6 mg/dL in women and 7 mg/dL in men. The cause of hyperuricemia is that foods containing high purines cause uric acid to accumulate in the tissues around the joints, resulting in causes pain (Pribadi and Ernawati, 2010).

The Indonesian community for many centuries used herbal medicine to maintain good health and treat diseases. It is considered an important part of Indonesian culture and has gained recognition as an official part of Indonesia's cultural heritage. In ancient times, humans used their environment to fulfil their daily needs (Sari, 2006). The environmental components used are herbal plants in the form of herbal medicine or traditional medicine (Katno, 2008). The patikan kebo (*Euphorbia hirta* L.) plant is a herbal plant that is used by the community for the herbal treatment of diseases including lung abscess, chronic bronchitis, asthma, dysentery, inflammation of the breast glands, typhus abdominalis and urine laxative (diuretic) (Hariana, 2006).

According to Harris. (2010) the patikan kebo plant contains alkaloids, saponins, tannins and flavonoids. In the research of Jiang et al. (2020) flavonoid, alkaloid and saponin compounds have the potential to reduce uric acid levels. According to Ling and Bochu. (2014) tannin compounds have the potential to reduce uric acid levels. Based on research on flavonoid, alkaloid, saponin and tannin compounds that have the potential to reduce uric acid levels, research needs to be carried out to determine the effect of giving ethanol extract of patikan kebo leaves on reducing uric acid levels in male white rats. Wistar strain potassium oxonate-induced hyperuricemia.



## REFERENCES

- Depkes RI. 1985. *Cara Pembuatan Simplisia*, Departemen Kesehatan Republik Indonesia. Direktorat Jendral Pengawasan Obat dan Makanan.
- Depkes RI. 1987. *Analisis Obat Tradisional*, Jilid I. ed. Departemen Kesehatan RI, Jakarta.
- Hariana, A. 2006. *Tumbuhan Obat Dan Khasiatnya. Edisi II*. Penebar Swadaya. Jakarta.
- Harlis. 2010. Uji Aktivitas Anti Bakteri Ekstrak Patikan Kerbau (*Euphorbia hirta* L.) Terhadap Pertumbuhan Bakteri Penyebab Diare (*Escherchia coli*). *Biospecies*, 2: .
- Jiang, L.L., Gong, X., Ji, M.Y., Wang, C.C., Wang, J.H., dan Li, M.H. 2020. Bioactive compounds from plant-based functional foods: A promising choice for the prevention and management of hyperuricemia. *Foods*, 9: .
- Katno. 2008. *Tingkat Manfaat, Keamanan Dan Efektifitas Tanaman Obat Dan Obat Tradisional*. Karanganyar: Balai Besar Penelitian dan Pengembangan Tanaman Obat dan Obat Tradisional (B2P2TO- OT), Badan Penelitian dan Pengembangan Kesehatan Departemen Kesehatan RI.
- Ling, X. dan Bochu, W. 2014. A review of phytotherapy of gout: Perspective of new pharmacological treatments. *Pharmazie*, 69: 243–256.
- Pribadi, F.W. dan Ernawati, D.A. 2010. Efek Catechin terhadap Kadar Asam Urat, C-Reaktif Protein (CRP) dan Malondialdehid Darah Tikus Putih (*Rattus norvegicus*) Hiperurisemia. *Mandala of Health*, 4: .
- Sari, L.O.R.K. 2006. Pemanfaatan Obat Tradisional Dengan Pertimbangan Manfaat Dan Keamanannya. *Pharmaceutical Sciences and Research*, 3: 1–7.
- Yuda, Cahyaningsih, E., dan Winariyanthi, N. luh putu yuni. 2017. Skrining fitokimia dan analisis kromatografi lapis tipis ekstrak tanaman patikan kebo (*Euphorbia hirta* L.). *Jurnal Ilmiah Medicamento*, 3

# Cultural Landscape:

Insights from Environment,  
Economy, Policy, and Health



The theme "Cultural Landscape: Insights from Environment, Economy, Policy, and Health" encompasses the intricate relationship between human societies and their natural surroundings, exploring the interplay of environmental, economic, policy, and health factors within diverse cultural landscapes. This theme seeks to delve into how cultural heritage, environmental conditions, economic activities, policy frameworks, and public health intersect and influence one another within various landscapes around the world, especially in Asia. By examining the unique interconnections between these elements, this symposium aims to shed light on the multifaceted nature of cultural landscapes and their significance in shaping societies and human well-being.



Penerbit  
**widina**  
www.penerbitwidina.com

ISBN 978-623-500-117-3



9 786235 001173