

PAPER • OPEN ACCESS

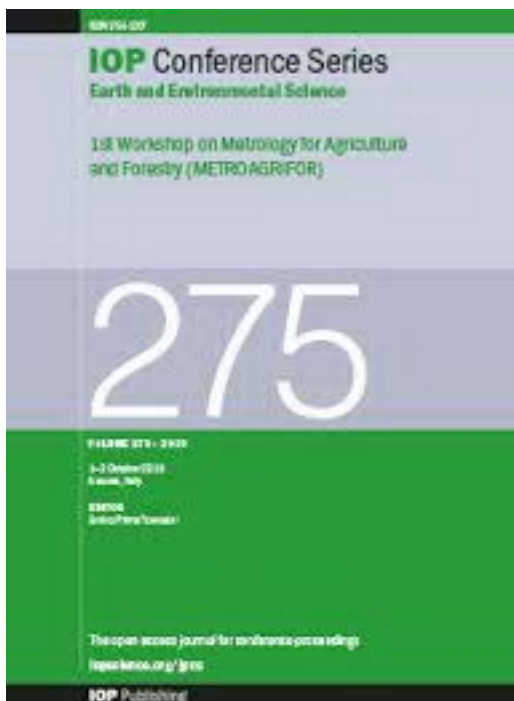
2nd International Symposium for Sustainable Landscape Development

To cite this article: 2017 *IOP Conf. Ser.: Earth Environ. Sci.* **91** 011001

View the [article online](#) for updates and enhancements.

Related content

- [Foreword](#)
Zhuang Qi Hu
- [Foreword](#)
Lord Rutherford
- [The 3rd International Symposium on LAPAN-IPB Satellite: For Food Security and Environmental Monitoring 2016](#)



Klik tombol berikut

FOREWORD

Landscape development is facing very high acceleration changes, considering the growth and development of a region. As a result of human activities, various negative impacts arose for the landscape development, such as the loss of greenery open space (GOS) and blue open space (BOS), decreased quality of comfort-related micro-climate, the omission of the potential landscape services as well as a variety of others environmental problems.

Awareness of the importance of sustainable landscape development has been proclaimed by the United Nations (UN) in the Sustainable Development Goals (SDGs) program at Goal 11th, namely *to make cities and human settlements inclusive, safe, resilient and sustainable* (source: <https://sustainabledevelopment.un.org/sdg11>). A way to ensure the achievement entire SDGs (2016-2030) are to involve communities in the implementation and attainment in accordance with **nawacita** Indonesia. Therefore, it is needed to bridge and facilitate the role of the community in order to realize the SDGs with **nawacita** that can be obtained in the form of scientific activities such as a symposium. The 2nd International Symposium for Sustainable Landscape Development (**The 2nd ISSLD**) is a continuation of the annually symposium, the sustainability of this activity is very important to be managed on a regular basis. The topic for this annually symposium has been adapted to specific conditions for each year.

The 2nd ISSLD was held on November 9-10, 2016 at the IPB International Convention Centre (ICC), Bogor, Indonesia. The 2nd ISSLD is jointly organized by the Department of Landscape Architecture, Faculty of Agriculture, Bogor Agriculture University (IPB), and the Directorate of Research and Innovation IPB (DRI IPB). This symposium produced 40 (forty) articles which are published in this issue of IOP Conference Series: Earth and Environmental Science (EES). Those articles were come from subtopic about green landscape, socio-cultural landscape, and landscape planning and design.

The 2nd ISSLD aims to assess the landscape issue through a variety of case studies related to the effort for achieving sustainable landscape development. Various ideas towards a sustainable landscape are currently an intense research topic in the international level such as research on urban resilience, ecocity, sustainable city, until the low carbon landscapes. At the 2nd ISSLD, the researchers, students, businessman, practitioners, stakeholders, and governments can meet each other and exchange ideas to jointly formulate effort to create sustainable and comfortable tropical landscape. Around 150 participants have joint the 2nd ISSLD that come from various academicians (A), businessman (B), government (G), community (C) and mass media (M) to reach an ABGCM penta helix collaboration for sustainable landscape development.

We are thankful to all authors who have contributed to yield a high scientific standard to this proceeding of the 2nd ISSLD. We are also grateful to IOP Publishing, especially Anete Ashton (Publisher, IOP Conference Series), for allowing us to guide some of the symposium results for being published in the IOP Conference Series: Earth and Environmental Science (EES). We are trully thank to all dedicated editorial and scientific committes who have reviewed and encouraged the authors to revised their papers. We also would like to thank Ministry of Research, Technology and Higher Education (*Kementerian Riset, Teknologi dan Perguruan Tinggi - RISTEKDIKTI*) for the opportunity to join the World Class University (WCU) agenda.

Regan Leonardus Kaswanto
Editor-in-Chief
Proceeding the 2nd ISSLD 2016



Editorial Committees

- Regan Leonardus Kaswanto, *Department of Landscape Architecture, Faculty of Agriculture, Bogor Agricultural University IPB, Jl. Meranti Kampus IPB Darmaga 16680, Bogor, West Java, Indonesia.*
- Hadi Susilo Arifin, *Department of Landscape Architecture, Faculty of Agriculture, Bogor Agricultural University IPB, Jl. Meranti Kampus IPB Darmaga 16680, Bogor, West Java, Indonesia.*
- Wahju Qamara Mugnisjah, *Department of Landscape Architecture, Faculty of Agriculture, Bogor Agricultural University IPB, Jl. Meranti Kampus IPB Darmaga 16680, Bogor, West Java, Indonesia..*
- Bambang Sulistyantara, *Department of Landscape Architecture, Faculty of Agriculture, Bogor Agricultural University IPB, Jl. Meranti Kampus IPB Darmaga 16680, Bogor, West Java, Indonesia.*
- Tatsuaki Kobayashi, *Departement of Environmental Science and Landscape Architecture, Graduate School of Horticulture, Faculty of Horticulture, Chiba University, Chiba 271-8510, Japan.*
- Nor Atiah Ismail, *Department of Landscape Architecture, Faculty of Design and Architecture, Universiti Putra Malaysia, UPM Serdang, Selangor Darul Ehsan, Malaysia.*

Scientific Committees

- Afra DN Makalew, *Bogor Agricultural University, Indonesia*
- Andi Gunawan, *Bogor Agricultural University, Indonesia*
- Aris Munandar, *Bogor Agricultural University, Indonesia*
- Damian Tang, *International Federation of Landscape Architects – Asia Pasific Region (IFLA-APR), Singapore*
- Hadi Susilo Arifin, *Bogor Agricultural University, Indonesia*
- Indung Sitti Fatimah, *Bogor Agricultural University, Indonesia*
- Nizar Nasrullah, *Bogor Agricultural University, Indonesia*
- Nor Atiah Ismail, *Universiti Putra Malaysia, Malaysia*
- Nurhayati HS Arifin, *Bogor Agricultural University, Indonesia*
- Prita Indah Pratiwi, *Bogor Agricultural University, Indonesia*
- Qodarian Pramukanto, *Bogor Agricultural University, Indonesia*
- Regan Leonardus Kaswanto, *Bogor Agricultural University, Indonesia*
- Siti Nurisjah, *Indonesian Society of Landscape Architects (ISLA / IALI), Indonesia*
- Saiful Arif Abdullah, *the National University of Malaysia, Malaysia*
- Syartinilia, *Bogor Agricultural University, Indonesia*
- Tati Budiarti, *Bogor Agricultural University, Indonesia*
- Tatsuaki Kobayashi, *Chiba University, Japan*
- Wahju Qamara Mugnisjah, *Bogor Agricultural University, Indonesia*

Assistant Editors

- Rosyidamayanti Twinsari Manningtyas, Yulius Budi Prastyo, Nike Dyah Permata
Department of Landscape Architecture, Faculty of Agriculture, Bogor Agricultural University IPB, Jl. Meranti Kampus IPB Darmaga 16680, Bogor, West Java, Indonesia.



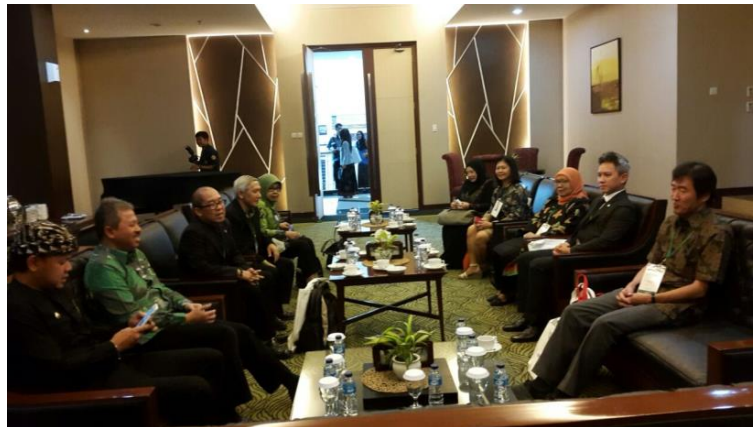
The 2nd International Symposium for Landscape Sustainable (The 2nd ISSLD)



The Opening Ceremony



All participants take a photo session together



All keynote and invited speakers are discussing their ideas.



Mayor of Bogor City is giving a keynote speech.



Bogor City towards Sustainable Landscape Development.



Invited speakers are giving their presentation.



Giving appreciation to invited speaker for their presentation.



Excursion activity in Bogor Regency.

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.



Table of contents

Volume 91

October 2017

◀ Previous issue Next issue ▶

2nd International Symposium for Sustainable Landscape Development 9–10 November 2016, Bogor, Indonesia

[View all abstracts](#)

Accepted papers received: 16 October 2017 Published online: 8 November 2017 Preface

OPEN ACCESS

2nd International Symposium for Sustainable Landscape Development

— Hide abstract  PDF

FOREWORD

Landscape development is facing very high acceleration changes, considering the growth and development of a region. As a result of human activities, various negative impacts arose for the landscape development, such as the loss of greenery open space (GOS) and blue open space (BOS), decreased quality of comfort-related micro-climate, the omission of the potential landscape services as well as a variety of others environmental problems.

Awareness of the importance of sustainable landscape development has been proclaimed by the United Nations (UN) in the Sustainable Development Goals (SDGs) program at Goal 11th, namely *to make cities and human settlements inclusive, safe, resilient and sustainable* (source: <https://sustainabledevelopment.un.org/sdg11>). A way to ensure the achievement entire SDGs (2016-2030) are to involve communities in the implementation and attainment in accordance with **nawacita** Indonesia. Therefore, it is needed to bridge and facilitate the role of the community in order to realize the SDGs with **nawacita** that can be obtained in the form of scientific activities such as a symposium. The 2nd International Symposium for Sustainable Landscape Development (**The 2nd ISSLD**) is a continuation of the annually symposium, the sustainability of this activity is very important to be managed on a regular basis. The topic for this annually symposium has been adapted to specific conditions for each year.

The 2nd ISSLD was held on November 9-10, 2016 at the IPB International Convention Centre (IICC), Bogor, Indonesia. The 2nd ISSLD is jointly organized by the Department of Landscape Architecture, Faculty of Agriculture, Bogor Agriculture University (IPB), and the Directorate of Research and Innovation IPB (DRI IPB). This symposium produced 40 (forty) articles which are published in this issue of IOP Conference Series: Earth and Environmental Science (EES). Those articles were come from subtopic about green landscape, socio-cultural landscape, and landscape planning and design.

The 2nd ISSLD aims to assess the landscape issue through a variety of case studies related to the effort for achieving sustainable landscape development. Various ideas towards a sustainable landscape are currently an intense research topic in the international level such as research on urban resilience, ecocity, sustainable city, until the low carbon landscapes. At the 2nd ISSLD, the researchers, students, businessman, practitioners, stakeholders, and governments can meet each other and exchange ideas to jointly formulate effort to create sustainable and comfortable tropical landscape. Around 150 participants have joint the 2nd ISSLD that come from various academicians (A), businessman (B), government (G), community (C) and mass media (M) to reach an ABGCM penta helix collaboration for sustainable landscape development.

We are thankful to all authors who have contributed to yield a high scientific standard to this proceeding of the 2nd ISSLD. We are also grateful to IOP Publishing, especially Anete Ashton (Publisher, IOP Conference Series), for allowing us to guide some of the symposium results for being published in the IOP Conference Series: Earth and Environmental Science (EES). We are trully thank to all dedicated editorial and scientific committes who have reviewed and encouraged the authors to revised their papers. We also would like to thank Ministry of Research, Technology and Higher Education (*Kementerian Riset, Teknologi dan Perguruan Tinggi - RISTEKDIKTI*) for the opportunity to join the World Class University (WCU) agenda.

Regan Leonardus Kaswanto

Editor-in-Chief

Proceeding the 2nd ISSLD 2016

List of Editorial Committees, Scientific Committees and Assistant Editors are available in this PDF.

<https://doi.org/10.1088/1755-1315/91/1/011001>

OPEN ACCESS

Peer review statement

— Hide abstract  PDF


All papers published in this volume of *IOP Conference Series: Earth and Environmental Science* have been peer reviewed through processes administered by the proceedings Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing.

<https://doi.org/10.1088/1755-1315/91/1/011002>

Green Landscape

OPEN ACCESS**Land Ecological on Public Transport Infrastructure Development In Indonesia**

N Sari

— Hide abstract  PDF

The development of public transport infrastructure in Indonesia has been growing rapidly since the last five years. The utilization of area as public transport infrastructure, for example bus depot, bus Station and terminal requires wide area and influences many elements, such as land ecological quality, water supplies, power supplies, and environmental balance. However the development of public transport infrastructure now days is less considering on environmental approach, especially for green and catchment area for water conservation (water balance). This paper aims to propose the concept of Public Transport Infrastructure using green concept. The green design concept is using GBCI (Green Building Council Indonesia) standard, which contains seven categories: land ecological enhancement, movement and connectivity, water management and conservation, solid waste and material, community wellbeing strategy, building and energy, and also innovation and future development. The result is, by using the GBCI standard for the green design of Public Transport Infrastructure, the land ecological impact could be decreased. The effective areas that required are at least 5000 m², from which the green areas for public increase 36% and 76% of areas could be used as catchment area for water conservation.

<https://doi.org/10.1088/1755-1315/91/1/012001>

OPEN ACCESS**Land Use Cover Changes and Run Off Potention of Cipunten Agung Watershed Banten**

A Karima and R L Kaswanto

— Hide abstract  PDF

The changes of landscape form such as Land Use Cover Changes (LUCC) of Cipunten Agung watershed could be identified periodically in 1995, 2005, and 2015. In general, land utilization in Cipunten Agung classified into protected region and cultivated region. In 2011, total of protected area is 885.80 ha or 22.54% of watershed area. Those conditions affected both positively to the community development and negatively to the water quantity condition in Cipunten Agung such as flooding, run off, and erosion. Therefore, the purpose of this research is to analyze LUCC impacts to run off potential in Cipunten Agung watershed. Supervised classification method and Soil Conservation Services (Qscs) approach were correlated to determine the figure out an optimal solution to reduce the rate of LUCC. Cipunten Agung watershed imagery was classified into five classes, namely water bodies, forest, cultivated tree, settlement and paddy field. The result shows that area of cultivation tree and paddy fields are larger than others in midstream, and settlement is denser in downstream, particularly at riparian landscapes. The LUCC into paddy field often occur at two period 1995 to 2005 and 2005 to 2015 with several area are 530.92 ha and 388.17 ha. The Qscs method calculation result for 1995 until 2015 was affected by land use cover composition in each year and it was defined by Curve Number (CN). High rainfall in 1995 was generating high run off potential volume. Nevertheless, curve number value was increase get near to 100, which indicate the potential of run off volume increases along with LUCC in each year, those are 70.95; 72.47; and 72.81.

<https://doi.org/10.1088/1755-1315/91/1/012002>

OPEN ACCESS**The Habitat Susceptibility of Bali Starling (*Leucopsar rothschildi* Stresemann> 1912) Based on Forest Fire Vulnerability Mapping in West Bali National Park**

F Pramataka, L B Prasetyo and S B Rushayati

[— Hide abstract](#)  PDF

Bali starling is an endemic and endangered species which tend to decrease of its population in the wild. West Bali National Park (WBNP) is the only habitat of bali starling, however it is threatened nowadays by forest fire. Understanding the sensitivity of habitat to forest & land fire is urgently needed. Geographic Information System (GIS) can be used for mapping the vulnerability of forest fire. This study aims to analyze the contributed factor of forest fire, to develop vulnerability level map of forest fire in WBNP, to estimate habitat vulnerability of bali starling. The variable for mapping forest fire in WBNP were road distance, village distance, land cover, NDVI, NDMI, surface temperature, and slope. Forest fire map in WBNP was created by scoring from each variable, and classified into four classes of forest fire vulnerability which are very low (9 821 ha), low (5 015.718 ha), middle (6 778.656 ha), and high (2 126.006 ha). Bali starling existence in the middle and high vulnerability forest fire class in WBNP, consequently the population and habitat of bali starling is a very vulnerable. Management of population and habitat of bali starling in WBNP must be implemented focus on forest fire impact.

<https://doi.org/10.1088/1755-1315/91/1/012003>

OPEN ACCESS**The Role Of Wetland Ecosystems To Reduce The Concentration Of Nitrate In Groundwater**

A J Sutrisno, Z Han, S Satake and K Fukumoto

[— Hide abstract](#)  PDF

Nitrate is a compound very soluble in water. Ichikawa city is one of the cities that have a pear farming. In this city, there was a wetland where this area was surrounded by pear farming in upland areas. There were 3 sites (S4, R2, and S14) in this area. S4 and S14 were close to pear farming, but R2 was in the middle of wetland. We used piezometers with different depth (1m, 2m, and 3m) in each site. The focus in this study is identification the role of wetland ecosystem as a green infrastructure to reduce nitrate concentration. Groundwater flow in the wetland comes from pear farming with 2 flow direction. First, groundwater comes from S4 with average nitrate concentration was 185.73 mg/L and average DO concentration 6.37 mg/L. Second, groundwater comes from S14 with average nitrate concentration was 190.29 mg/L and average DO concentration 7.00 mg/L. All this direction flow to the middle of wetland (R2) with average nitrate concentration was 3.46 mg/L and average DO concentration 1.52 mg/L.

<https://doi.org/10.1088/1755-1315/91/1/012004>

OPEN ACCESS**Evaluation of Aesthetic Function and Thermal Modification of Vertical Greenery at Bogor City, Indonesia**

B Sulistyantara and R Sesara

[— Hide abstract](#)  PDF

Bogor city currently develops vertical greenery due to counter the decreasing of green space quantity. Vertical greenery is a planting method using vertical structure similar to retaining walls. There are some benefits of vertical greenery, such as providing aesthetics value of the landscape, to protect from the heat, to reduce noise, and to reduce pollution. The purpose of this study were to identify thermal modification by vertical greenery in Bogor city, to assess the aesthetics value from vertical greenery, and to provide a recommendation in attempt to manage and improve the quality of vertical greenery in Bogor city. The study was conducted using Scenic Beauty Estimation method, and was done by providing questionnaires to the respondents in order to assess the aesthetics value of vertical greenery. Infrared thermometer was also used to measure the surface's temperature to evaluate thermal modification function of the vertical greenery. The result of study proved that vertical greenery in the Bogor city has considerably good aesthetic. It also showed that there is a decreasing in surface temperature of the vertical greenery structure.

<https://doi.org/10.1088/1755-1315/91/1/012005>

OPEN ACCESS**Productive Urban Landscape In Developing Home Garden In Yogyakarta City**

S N R Irwan and A Sarwadi

— Hide abstract  PDF

Home garden is one type of agroecosystem that supports ecosystem services even in the urban settlement. The studies involved literature references and field survey along with a framework of the productive urban landscape that support ecosystem services in home garden. Productive urban landscape provided environmentally, socially and economically benefits that contained in ecosystem services. Problems on limited space in the urban settlement have to be managed by modified home garden system in order to work for ecosystem service in developing productive landscape. This study aimed to assess home garden (Pekarangan) system in a cluster of high density settlement in Yogyakarta City. Structured interview and vegetation identification of home garden have been conducted on 80 samples in Rejowinangun Kotagede District, Yogyakarta City. People showed enthusiasm in ecosystem services provided by home garden "Pekarangan Produktif" through developing productive urban landscape. Some benefits on ecosystem services of home garden were revealed on this study consisted of food production for sale (4.7%), home industry (7.69%), aesthetics (22.65%), food (14.10%), biodiversity (10.68%), ecosystem (12.82%), education (2.56), social interaction (11.54%), recreation (4.70%), and others (8.55%). Nevertheless, vegetation and other elements of home gardens have been managed irregularly and in particularly, the planned home gardens were only 17.07%. Actually, home gardens provided a large set of ecosystem services including being cultural services those are the category most valued. The urban people almost hid the understanding of the cultural benefit of ecosystem services of home garden, even though Yogyakarta has known the cultural city. Thus, urban home garden, as way as "Pekarangan Produktif" in the limited space that managed and planned sustainably, provide many benefits of ecosystem services in a productive urban landscape.

<https://doi.org/10.1088/1755-1315/91/1/012006>

OPEN ACCESS**Correlation of Carbon Stock and Biodiversity Index at the Small Scale Agroforestry Landscape in Ciliwung Watershed**

M B S Choliq and R L Kaswanto

[— Hide abstract](#)
[PDF](#)

Pekarangan is part of a complex of small-scale agroforestry landscape. *Pekarangan* have 3 functions i.e. ecological, economic, and social. ecological function, for providing landscape services such as carbon stock and biodiversity; economic function, can supplies foods and nutrition; and social function, for building low carbon communities and increasing the environmental awareness. Therefore, this research aims to correlate carbon stocks and biodiversity index of *Pekarangan* in Ciliwung Watershed. This study has measured 48 samples which were divided in three stream, namely upstream, midstream, and downstream. The samples were divided into four groups, G1 (*pekarangan* size less than 120 m² and doesn't have other agricultural land (no other agricultural land - OAL), G2 (<120 m² with OAL < 1000 m²), G3 (120-400 m² with no OAL) and G4 (120-400 m² with OAL < 1000 m²). The results show that correlation between carbon stock and biodiversity index value is $R^2 = 0.05$. The results showed no correlation between carbon stocks and biodiversity index could be due to the amount of *Pekarangan* owners who prefer potted plants than plant a tree, so that the carbon sequestered in the *Pekarangan* only slightly.

<https://doi.org/10.1088/1755-1315/91/1/012007>

OPEN ACCESS
Identification of Potential Wild Herbal as parts of Landscape Elements

Bambang Sulistyantara and Nio Mentari

[— Hide abstract](#)
[PDF](#)

Many landscape plants can grow on their own without cultivated by humans. They are type of plants that can be found anywhere, so they can be categorized as wild plants. The economic value of wild plants are easy to obtain and their maintenance costs are low. Because wild plants not widely known even a just a few of people that aware of their existence, it is necessary to do a study to learn the potential of the wild plants to be used as an element of landscape. This research aims to identify the species that have potential to be used in landscape design, to describe the benefits of the their implementation as a landscape element, and to recommend the wild plants that have functional value and visual. This research used a scoring method based on the functional and visual criteria, and questionnaires were conducted to 50 students of Landscape Architecture IPB who have completed Landscape Plants courses. Based on the research, there are 150 species of wild plants that found in the study site, and 60 of them are recommended as landscape elements. Then all of the species were arranged as a recommendations book so they can be used as alternative landscape plants.

<https://doi.org/10.1088/1755-1315/91/1/012008>

OPEN ACCESS
The Influence of Vegetation Function towards the Langsep Street Thermal Comfort

R Alfian, I Setyabudi and R S Uran

[— Hide abstract](#)
[PDF](#)

Streetscape is an important element for character building of the environment, spatial, and visual in order to provide an urban identity, especially in Malang City protocol streets. Langsep Street is one of the protocol streets in Malang City. Langsep Street famous with central education and offices area. This study aims (1) to identify vegetation of streetscape; (2) to analyze the thermal comfort of the

streetscape, and (3) to evaluate the comfort level of Langsep Street. The method used was the THI approach. THI value that obtained was analyzed using the standard of Laurie (1990). Based on observations, the THI value of Langsep Street was 27.60. This was influenced by the trees canopy density and spacing of the trees on the streetscape. It can be concluded that streetscape required (1) shaded plants that have root systems that do not damage the construction of roads, (2) the branching plants are not easily broken and easy to maintain, and (3) the combination of trees, shrubs and ground cover.

<https://doi.org/10.1088/1755-1315/91/1/012009>

OPEN ACCESS

Diversity and Utilization of Bamboo Plants in The Area of Hotel in Kedewatan Village, Ubud, Bali

N W F Utami and N L M Pradnyawathi

— Hide abstract  PDF

Bamboo or *tiying* (Balinese language) is a widely used non-timber plant in Indonesia especially in Bali. The presence of bamboo appertains to its ethno-botanical function of bamboo especially for rituals. However, there are other utilization of bamboo which is naturally grown or intentionally planted. Kedewatan as a famous place in northern Ubud, Bali have many lavish hotels with its natural environment and appealing place. The aims of this study is to invent bamboo species diversity and bamboo utilization on private areas of hotel in Kedewatan. Methods used in this study was field survey with observation and interview technic. Observation was implemented by purposive sampling methods by selecting hotel which adjacent to Ayung and Wos rivers. Interview was conducted with some key persons in charge on managing hotel garden. In addition, bamboo species identification was established through literature study. The results show that there are eleven bamboo species found on the survey area with most commonly employed species in the area were *tiying tali* (*Gigantochloa apus* (J.A. & J.H. Schultes) Kurz.) and *tiying gading* (*Phyllostachys sulphurea* (Carr.) A. e.t. C. Riv.) which were belong to exotic species. The areas which bamboo cultivated were welcome area as a hedgerow and near hotel lobby, between, outside and inside villa buildings, and naturally grown in the riverbanks with a good landscaping arrangement. Bamboo plantations were utilized to adorn and support the quality of the hotel building as well as to conserve soil and water along Ayung and Wos river canyons. The other utilization of bamboo was to facilitate ritual activity in Kedewatan village. They are allowed to ask for limited amount of bamboo culms with condition not to damage the physical appearance and function that desired by the hotel manager or hotel owner.

<https://doi.org/10.1088/1755-1315/91/1/012010>

OPEN ACCESS

Comfort Evaluation of Some City Parks in Menteng Subdistrict Using Grid Method

P T Putra and N Nasrullah

— Hide abstract  PDF

This article aims to evaluate the thermal comfort in three parks at Menteng Sub District, Central Jakarta. The method used in this research is grid method that mapped the parks into squares. Grid method indicated the spread of temperature and humidity value with the canopy coverage. This study purposed to identify the distribution of temperature and humidity in Menteng Park, Suropati Park, and Situ Lembang Park. From the results, the highest temperature was in Menteng Park


indicated by the average value of temperature is 35.6°C compared with Situ Lembang Park (34.7°C) and Suropati Park (34.3°C). The highest humidity was in Suropati Park indicated by the average value of humidity was 52.6% compared with Menteng Park (50.5%) and Situ Lembang Park (48.2%).

<https://doi.org/10.1088/1755-1315/91/1/012011>

OPEN ACCESS

Evaluation of roadside greenbelt trees damage caused by strangler plants in Bogor

Dibyanti Danniswari and Nizar Nasrullah

— Hide abstract  PDF

Certain plants are called stranglers (hemiepiphyte) because they grow on host trees and slowly choking the host, which often results in the host's death. The existence of strangler plants on roadside greenbelt trees is quite common in Bogor, but they may cause tree's failure and threaten users' safety. To prevent such hazard, evaluation of roadside greenbelt trees damage caused by strangler plants is important. This study was directed to analyse the vegetation of strangler plants in Bogor, to assess the damage caused by stranglers, and to compose strangled trees maintenance recommendations. This study was conducted in March to May 2014 by doing survey at five major roads in Bogor, which were Jalan Ahmad Yani, Jalan Sudirman, Jalan Pemuda, Jalan Semeru, and Jalan Juanda. The results showed that strangler species found in Bogor are *Ficus benjamina*, *Ficus glauca*, *Ficus elastica*, and *Schefflera actinophylla*. The most common species in Bogor is *F. benjamina*. Host trees that tend to be preferred by strangler plants are trees with large trunk, many branches, and medium to high height. The maintenance for every strangled tree is different according to the damage level, mild to severe damage could be treated by strangler root cutting to tree logging, respectively.

<https://doi.org/10.1088/1755-1315/91/1/012012>

Socio-Economic Cultural Landscape

OPEN ACCESS

Converging social classes through humanized urban edges

M V Abuan and Z D Galingan

— Hide abstract  PDF

Urban open spaces are created to be used by people. It is a place of convergence and social activity. However, these places have transformed into places of divergence. When spaces become dehumanized, it separates social classes. As a result, underused spaces contribute to urban decay. Particularly an urban edge, the JP Rizal Makati Waterfront Area is the center of this paper. The JP Rizal Makati Waterfront Area is a waterfront development situated along the banks of one of Metro Manila's major water thoroughfare --- Pasig River. The park and its physical form, urban design and landscape tend to deteriorate over time --- creating a further division of social convergence. Social hostility, crime, negligent maintenance and poor urban design are contributing factors to this sprawling decay in what used to be spaces of bringing people together. Amidst attempts to beautify and renew this portion of Makati City's edge, the urban area still remains misspent. This paper attempts to re-humanize the waterfront development. It uses the responsive environment design principles to be able to achieve this goal.

<https://doi.org/10.1088/1755-1315/91/1/012013>

OPEN ACCESS

Stakeholders analysis on criteria for protected areas management categories in Peninsular Malaysia

Z Hashim, S A Abdullah and S Md. Nor

— Hide abstract  PDF

The establishment of protected areas has always been associated with a strategy to conserve biodiversity. A well-managed protected areas not only protect the ecosystem and threatened species but also provides benefits to the public. These indeed require sound management practices through the application of protected areas management categories which can be seen as tools for planning, establishment and administration of protected areas as well as to regulate the activities in the protected areas. However, in Peninsular Malaysia the implementation of the protected areas management categories was carried out based on the '*ad-hoc*' basis without realising the important of the criteria based on the local values. Thus, an investigation has been sought to establish the criteria used in application to the protected areas management categories in Peninsular Malaysia. The outcomes revealed the significant of social, environment and economic criteria in establishing the protected area management categories in Peninsular Malaysia.

<https://doi.org/10.1088/1755-1315/91/1/012014>

OPEN ACCESS

User Satisfaction Assessment To Edu-Eco Tourism Services Of Cibodas Botanical Garden

I W Hidayat and Winarni

— Hide abstract  PDF

Cibodas Botanical Garden (CBG) is a government institution which has principal duties and functions as area of conservation *ex situ* of wet highland plants, research, education and tourism, it very closely related to aspect of the services to user. Good services will support the sustainability and existence of CBG as a world class edu-eco tourism destination. The purpose of this study was to measure the quality of services which delivered and improvement which necessary at the future. Assessments were made based on 14 criteria of services aspect for user which need research-education services and regular tourism services activities. The study was conducted by distributing questionnaires to users of these services. Questionnaires distribution was conducted in early August 2015 and August 2016, the respondents were 124 and 207. The results were showed the user satisfaction at good level, there were 77.685 in 2015 and 72.08 in 2016. Although still at a good level, there were a decline in satisfaction levels based on the value. In the future, the managerial needs to continuously to improve it, in order to get a good or very good valuation.

<https://doi.org/10.1088/1755-1315/91/1/012015>

OPEN ACCESS

Identifying the characteristic of *SundaParahiyangan* landscape for a model of sustainable agricultural landscape

M Z Dahlan, H S A Nurhayati and W Q Mugnisjah

— Hide abstract  PDF

This study was an explorative study of the various forms of traditional ecological knowledge (TEK) of Sundanese people in the context of sustainable agriculture. The qualitative method was used to identify *SundaParahiyan* landscape by using Rapid Participatory Rural Appraisal through semi-structured interviews, focus group discussions, and field survey. The Landscape Characteristic Assessment and Community Sustainability Assessment were used to analyze the characteristic of landscape to achieve the sustainable agricultural landscape criteria proposed by US Department of Agriculture. The results revealed that the *SundaParahiyan* agricultural landscape has a unique characteristic as a result of the long-term adaptation of agricultural society to their landscape through a learning process for generations. In general, this character was reflected in the typical of Sundanese's agroecosystems such as forest garden, mixed garden, paddy field, and home garden. In addition, concept of *kabuyutan* is one of the TEKs related to understanding and utilization of landscape has been adapted on revitalizing the role of landscape surrounding the agroecosystem as the buffer zone by calculating and designating protected areas. To support the sustainability of production area, integrated practices of agroforestry with low-external-input and sustainable agriculture (LEISA) system can be applied in utilizing and managing agricultural resources.

<https://doi.org/10.1088/1755-1315/91/1/012016>

OPEN ACCESS

Analysis of Green Space Characteristic Effect to the Comfort Microclimate in the Simple Flats in Jakarta

Nenah Suminah, Bambang Sulistyantara and Tati Budiarti

— Hide abstract  PDF

Existence of green spaces on simple flats (Rusunawa), especially trees, greatly affect the ambient temperature outside and inside the building. Density of tree canopy can modify air temperature under trees or buildings by reducing solar radiation on building facade. The aims of this study is to analyze the characteristics of green space in Rusunawa and its influence on the microclimate. The experiment was conducted at four Rusunawa building located in Jakarta, i.e. Rusunawa Jatirawasari, Tambora, Pulogebang, and Marunda Cluster A. Species and number of trees were identified, while the ground cover was identified by its species and coverage. Physical characteristics of trees were measured by tree trunk, tree height, and width crown. Measurement of temperature, relative humidity (RH), and wind velocity was conducted at seven points in each Rusunawa to determine their effects. The results showed the presence of trees can modify the temperature of building outside similar with in the building. The decrease of temperature was influenced by green coverage area, green coverage index, and environmental condition around Simple flats. In this study, the best microclimate was modification by the ability to reduce largest temperature differences. Further more, green space in Rusunawa Marunda Cluster A was considered as the most effective one in reducing temperature.

<https://doi.org/10.1088/1755-1315/91/1/012017>

OPEN ACCESS

Identification Of Minangkabau Landscape Characters

M Asrina, A Gunawan and Munandar Aris

— Hide abstract  PDF


Minangkabau is one of cultures in Indonesia which occupies landscape intact. Landscape of Minangkabau have a very close relationship with the culture of the people. Uniqueness of Minangkabau culture and landscape forming an inseparable character. The landscape is necessarily identified to know the inherent landscape characters. The objective of this study was to identify the character of the Minangkabau landscape characterizes its uniqueness. The study was conducted by using descriptive method comprised literature review and field observation. Observed the landscape characters comprised two main features, they were major and minor features. Identification of the features was conducted in two original areas (darek) of the Minangkabau traditional society. The research results showed that major features or natural features of the landscape were predominantly landform, landcover, and hidrology. All luhak (districts) of Minangkabau showed similar main features such as hill, canyon, lake, valley, and forest. The existence of natural features such as hills, canyon and valleys characterizes the nature of minangkabau landscape. Minor features formed by Minangkabau cultural society were agricultural land and settlement. Rumah gadang (big house) is one of famous minor features characterizes the Minangkabau culture. In addition, several historical artefacts of building and others structure may strengthen uniqueness of the Minangkabau landscape character, such as The royal palace, inscription, and tunnels.

<https://doi.org/10.1088/1755-1315/91/1/012018>

OPEN ACCESS

Local Knowledge About The Structure, Function And Conversion Of Landscape In The Karangwangi Village, Cianjur, West Java, Indonesia

Fatiya Ulfa Dwi Amelia and Johan Iskandar

— Hide abstract  PDF

Karangwangi people is one of indigenous people in West Java who has local knowledge about their nature thoroughly. They have local tradition about landscape ecosystem arrangement that based on *sakral* (sacred) norm. With this rule, local people will always try to preserve the sustainability of their natural environment. However, modernization, increasing population, decreasing forest, and increasing market economic penetration, causing this rule and structure of landscape in Karangwangi village has changed. Land conversion in Karangwangi was occur because of settlement and land investment by people outside the village. These behavior changes in tradition and landscape (structure, function and conversion) in Karangwangi may impact on their daily activities, and so do the changes in daily activities can change their behavior in tradition and landscape. This research was undertaken in the Village of Karangwangi, Sub-district of Cidaun, District of Cianjur, Province of West Java, Indonesia. This paper aims to identify how indigenous people in Karangwangi understand kinds of landscape and another conversion that was happen as a result of management. The method used in this paper is qualitative with ethno ecological approach. The resulted of the study show that local people in Karangwangi Village understand how chronological of landscape structure, function and conversion.

<https://doi.org/10.1088/1755-1315/91/1/012019>

OPEN ACCESS

Landscape Management of Public Open Space in Bogor Heritage City

F D Pusparini, Nurhayati and H S Arifin

— Hide abstract



PDF

Public open space landscape plays important role in Bogor Heritage City. Although these spaces can carry various kind of public activities and enhance environment quality, they are fragile to disturbance and changing due to city development. Therefore, as an effort to maintain public open space landscape in 8 zones within Heritage City of Bogor, management of public open space landscape is necessary. Syntesys of public open space landscape management had held by using Analytical Hierarchy Process (AHP). The AHP result showed public open space landscape in Palace and Botanical Garden of Bogor zone (20%) is in high priority to be maintained. The other zone are Situ Gede (16,9%), Plan Karsten (12,3%), European Settlement (12%), Suryakencana (11,2%), Batu Tulis (10,2%), Empang (9.2%) and West Development (8,2%). Ecological function (34,8%) becomes the most important function to be maintained (34.8%) then social culture (31.2%), economic (17%), and aesthetics (17%).

<https://doi.org/10.1088/1755-1315/91/1/012020>

OPEN ACCESS

Study on Ecological Design Concept of Buton Sultanate Cityscape Based on Local Culture

A Mansyur, A Gunawan and A Munandar

— Hide abstract



PDF

Buton Sultanate Cityscape was constituted of man-made landscape constructed in the era of Buton Sultanate in 1322. It is one of the Indonesian heritage networks proposed to be the world heritage city. The Sultanate cityscape should have the concept of traditional city and refer to the ecological principles. This research was conducted to analyze elements and spatial patterns of Sultanate cityscape based on the ecological principles (eco-design). Descriptive method was utilized in the research by conducting in-depth interviews with the local custom figures and experts of the local culture, literature reviews, and field observations. The main elements of Buton Sultanate Cityscape consisted of palaces, city square, mosque, cemeteries, and settlements, while the supporting elements located outside the city border include mountains, valleys, rivers, and forests. City square is located in the city center surrounded by the palace, cemetery, and mosque. The main pattern of city circulation pattern has formed a simple figure of human body. Ecological principles can be examined from the housing layout paralleled to the road, direction of most city gates facing the east and forests, and the city wall pattern which is closely related to the religious matter.

<https://doi.org/10.1088/1755-1315/91/1/012021>

OPEN ACCESS

Taneyan Lanjhang, Study of Home Garden Design Based Local Culture of Madura

R T Maningtyas and A Gunawan

— Hide abstract



PDF

This research aims to study the arrangement of landscape elements in Madura home garden and the underlying philosophy of the existence of these elements to formulate a concept of Madura home garden in accordance with the culture. Data about traditional culture, the character of the community, and the arrangement of the landscape around the home garden obtained through library research, field observation, and interviews of certain resource persons through purposive sampling techniques. The results showed that the Madura developed a pattern of home garden arrangement


called *taneyan lanjhang*. Each *taneyan lanjhang* at least consist of several elements, namely *langghar*, *roma*, *dapor*, *kandhang*, *taneyan*, and organic fences. The elements are placed in a certain position in the direction of east-west and north-south by the Madura concept of life *bappa-babbhu-guru-rato* (father-mother-teacher-queen). The concept proposed residential garden is a garden house that is functional and aesthetic. This concept *taneyan lanjhang* split into five space, which is a public space, private space, semi-public spaces, room service, and a buffer space. The concept of circulation in *taneyan lanjhang* made according to the axis pattern that directs entrance to the *langghar* (prayer room) as a focal point.

<https://doi.org/10.1088/1755-1315/91/1/012022>

OPEN ACCESS

Community Movement in Applying Mosquito Net on House Ventilations: An Initial Support for Green Architecture to Decrease Dengue Disease in Bandung Indonesia

F R Rinawan, I P P Dewi, G Z Haifa, K D Suharno, K Oktavinus and P S Lyn

— Hide abstract  PDF

Green architecture still has risk to dengue disease when trees cover house roofs' gutter. This study was aimed to continue a geographical information system (GIS) and remote sensing (RS) study on roofs factor association with dengue disease by initiating community movement in applying mosquito net on house ventilations to cut the disease transmission and mosquito breeding sites inside house. Our methods was an operational research in which improvement of interventions, policies and regulations towards dengue disease prevention is our intended endpoint. Several steps were conducted such as: (1) research problems formulation from GIS-RS analysis from previous phase research in Bandung city, (2) informal and formal approach to community leaders and primary healthcare centre (Puskesmas), (3) Video education and focus group discussion (FGD), (4) initial application of mosquito nets on house in communities; and (5) advocacy to Mayor of Bandung city (was on progress). Our study resulted several supports: one of sub-city leaders (Camat) in the city, village leaders (Lurah), and sub-village leaders (Ketua RW) of 5 villages (kelurahan), one kelurahan which mainly comprised formal settlements needed more efforts, which was experts on dengue disease from university to directly explain the mosquito nets application to its community. Informal leaders in all kelurahan's community suggested only mothers movement was not enough, thus, youths in community was mentioned to help the community movement on the mosquito nets application.

<https://doi.org/10.1088/1755-1315/91/1/012023>

OPEN ACCESS

Study Of Lampungnese Traditional Home Garden Design

R A Pratiwi and Gunawan

— Hide abstract  PDF

Lampung is one area in Indonesia which has a traditional culture that comes from two groups of descents, they are ulun Lampung Pepadun and ulun Lampung Saibatin. Lampungnese traditional culture has been well-known by Indonesian people for its traditional dances, traditional clothing, or traditional home architecture. However, Lampungnese traditional home garden recently may not yet been described. Information related to Lampungnese traditional home garden is still very limited

and it does not yet represented the culture based design concept. This research was directed to identify the elements of the home garden and map it into design concept of the Lampungnese traditional home garden based on information of Lampungnese traditional culture. The study was conducted by using descriptive approach through literature review, interviews and cultural exploration, as well as field observation. The study was able to identify the elements forming the Lampungnese traditional home garden, namely *gakhang hadap*, *walai*, outdoor kitchenette, firewood place, outdoor kitchen, livestock barns, as well as plants. Space layout of the home garden comprises front yard (*tengahbah/terambah/beruan*), side yard (*kebik/kakebik*), and backyard (*kudan/juyu/kebon*). Each element of the garden is located in the right place of the space layout.

<https://doi.org/10.1088/1755-1315/91/1/012024>

Landscape Design and Planning

OPEN ACCESS

Fitness Parks: A Comparative Study of the Components of Jakarta-Manila Parks and their Responsiveness to Support Physical Activities

Franklin S. Fontanoza Jr., Nappy L. Navarra and D. Engg

— Hide abstract  PDF

Fitness has become more popular due to the cultural phenomenon that being fit can enhance one's perception of beauty. The sprouting of various outlets for physical activity such as bodybuilding gyms that cater to weightlifting, outdoor group dance classes, sports camps and cause-oriented marathons can be noticed in numerous parts of the world. But slowly its concept, that being fit is a mere physical representation of beauty, is shifting into a more health-oriented consciousness. Annual reports have shown that coronary heart disease is still in the top rank of the death causes in the world. This information has led more people to protect their health through several lifestyle improvements, with regular exercise being one of these methods to achieve health goals. Its numerous benefits range from the lowering of blood pressure, heightened learning capacity to the improvement of mood. The health-rooted awareness of the need for physical activities to support one's daily requirement has spread worldwide and has now been recognized by a lot of people.



Parks are usually designed with amenities such as playgrounds, pathways and wide open spaces where people from all walks of life convene, interact with each other and do various physical activities. With this in mind, the capacity of parks to host such activities has to be studied to determine which components do people who engage in active healthy lifestyles find highly attractive and usable. An analysis of such could lead to effective space programming of our local neighborhood parks making it more perceptive to the physical needs of the people. Two major sports complexes from South East Asia have been used as case studies to assess the responsiveness of the locals to the amenities offered in each complex to address health goals. The comparison revealed that the Gelora Bung Karno Complex in Jakarta, Indonesia has more activity-oriented amenities and longer operating hours, making it more receptive to meet the physical activity requirement.

<https://doi.org/10.1088/1755-1315/91/1/012025>

OPEN ACCESS

Identifying Creative Urban Landscape Towards Creative Tourism in Bandung: *A Preliminary Study*

F Sinatra, Kurniasih and Indradjati

 Hide abstract  PDF

This article discusses about creative urban landscape towards creative tourism in Bandung. The objectives of this study are to identify and organize strategic plans to promote creative cluster and creative tourism. Three dimensions of creative space that are studied in this research are creative software landscape, creative hardware landscape, orgware. The results of this study suggests that creative spaces in Bandung need to reformulate creative clusters as some of the creative clusters have creative enclaves or sub creative clusters. There are eight main clusters and eighteen enclave clusters with each main and enclave clusters supported by creative software and hardware landscape. Both the creative software landscape and creative hardware landscape are designed to stem from the cluster theme to enhance tourists' experiences.

<https://doi.org/10.1088/1755-1315/91/1/012026>

OPEN ACCESS**Places of Faith: A Reflection on Landscape of Manila Cathedral Plaza de Roma and Istiqlal Mosque Sacred Grounds of Jakarta**

MM Pujalte and N Navarra

 Hide abstract  PDF

Crossing boundaries of faith from Manila to Jakarta, this study is to classify the open spaces in their sacred grounds according to its characteristics, elements, use of space and hierarchy of importance in landscape design approach. The reflection of their religious landscape in preserving the traditional, and exploring the non-traditional aspect of their landscape design in global setting is carried out thru a spatial analysis for Plaza de Roma of Manila Cathedral and the sacred grounds of Istiqlal Mosque. The design framework would tackle: concepts, planning approach, functional symbolic values, and aesthetics used. The data and information are all examined based on observation, historical background, analyses, and literature content in determining spatial functions. Finally, when results are completed, this will give a better understanding on the importance of open areas in Manila and Jakarta's sacred spaces; paving way for a better sense of comfort in spiritual contemplation. This will also help reveal the commonalities in spiritual practices between Islam and Christianity, and the role of landscape in their religion and faith.

<https://doi.org/10.1088/1755-1315/91/1/012027>

OPEN ACCESS**Landscape Character of Pongkor Mining Ecotourism Area**

A Kusumoarto, A Gunawan, Machfud and A Hikmat

 Hide abstract  PDF

Pongkor Mining Ecotourism Area has a diverse landscape character as a potential landscape resources for the development of ecotourism destination. This area is part of the Mount of Botol Resort, Halimun Salak National Park (HSNP). This area also has a fairly high biodiversity. This study aims to identify and analysis the category of landscape character in the Pongkor Mining Ecotourism Area for the development of ecotourism destination. This study used a descriptive approach through field surveys and interviews, was carried out through two steps : 1) identify the landscape character, and 2) analysis of the landscape character. The results showed that in areas set aside for ecotourism

destination in Pongkor Mining, landscape character category scattered forests, tailing ponds, river, plain, and the built environment. The Category of landscape character most dominant scattered in the area is forest, here is the river, plain, tailing ponds, the built environment, and plain. The landscape character in a natural environment most preferred for ecotourism activities. The landscape character that spread in the natural environment and the built environment is a potential that must be protected and modified such as elimination of incongruous element, accentuation of natural form, alteration of the natural form, intensification and enhanced visual quality intensively to be developed as a ecotourism destination area.

<https://doi.org/10.1088/1755-1315/91/1/012028>

OPEN ACCESS

Landscape Potential Analysis for Ecotourism Destination in the Resort Ii Salak Mountain, Halimun-Salak National Park

A Kusumoarto, A Gunawan and G R Nurazizah

— Hide abstract  PDF

The Resort II *Salak* Mountain has variety of landscape potential for created as ecotourism destination, especially the potential of the waterfall (*curug*) and sulphur crater (*Kawah Ratu*). The aim of this study was to identify and analyze the potential resources of the landscape to be created as ecotourism destination, Resort II *Salak* Mountain. This research was conducted through two phases: 1) identification of the attractions location that have potential resources for ecotourism destination, and 2) analysis of the level of potential resource of the landscape in each location using Analysis of Tourist Attraction Operational Destination (ATAOD). The study showed Resort II *Salak* Mountain has many ecotourism objects which have been used for ecotourism activities, such as hot spring baths, *Curug Cigamea*, *Curug Ngumpet*, *Curug Seribu*, *Curug Pangeran*, *Curug Muara*, *Curug Cihurang*, *Kawah Ratu*, camping ground, *Curug Kondang* and *Curug Alami*. The location of all waterfalls –*curug*, spread widely in the core zone for ecotourism. In the other hand, camping ground is located in the business zone, while *Kawah Ratu* is located in the natural forest, which is included in the buffer zone of Halimun-Salak National Park (HSNP). The result showed that the ecotourism objects with the highest potential value are *Kawah Ratu*, *Curug Seribu*, *Curug Muara*, *Curug Kondang* and *Curug Ngumpet*.

<https://doi.org/10.1088/1755-1315/91/1/012029>

OPEN ACCESS

Promoting Productive Urban Green Open Space Towards Food Security: *Case Study Taman Sari, Bandung*

M. Ridwan, Fran Sinatra and Petrus Natalivan

— Hide abstract  PDF

The common trend of urban population has been growing significantly in Indonesia for decades, are affected by urban green space conversion. Generally, this area is utilized for urban infrastructures and residences. Furthermore, urban area has grown uncontrollably that could enhance the phenomenon of urban sprawl. The conversion of green urban area and agricultural area will significantly decrease urban food security and quality of urban environment. This problem becomes a serious issue for urban sustainability. Bandung is a city with dense population where there are

many poor inhabitants. Families living in poverty are subjected to food insecurity caused by the rise of food prices. Based on the urgency of urban food security and urban environment quality the local government has to achieve comprehensive solutions. This research aims to formulate the policy of productive green open space towards food security for poor people in Bandung. This research not only examines the role played by productive green open space to supply food for the urban poor but also how to govern urban areas sustainably and ensure food security. This research uses descriptive explanatory methodology that describes and explains how to generate policy and strategic planning for edible landscape to promote urban food security. Taman Sari is the location of this research, this area is a populous area that has amount of poor people and has a quite worse quality of urban environment. This study shows that urban green open space has the potential to be utilized as an urban farming land, which poor inhabitants could be main actors to manage urban agriculture to provide their food. Meanwhile, local government could contribute to subsidize the financial of urban farming activities.

<https://doi.org/10.1088/1755-1315/91/1/012030>

OPEN ACCESS

Landscape Characteristics of Oriental Honey Buzzards Wintering in Western Part of Flores Island Based on Satellite-Tracking Data

Syartinilia, G H Al Farisi and H Higuchi

— Hide abstract  PDF

Oriental Honey Buzzards (OHBs, *Pernis ptilorhynchus*) are migratory raptor that has been satellite-tracked since 2003. Some islands in Indonesia which are used for wintering habitat are Flores and Borneo. However, both islands have different characteristics of climate and land cover. The objectives of this research were to analyze the landscape characteristic of the OHBs wintering habitat in western Flores, and to subsequently compare landscape characteristic of the OHBs wintering habitat in Borneo. Landscape habitat characteristics were analyzed using Principal Component Analysis (PCA) combined with GIS and then compared to the previous study in Borneo Island. The result showed that the first of six principal components explained 79.14% and 77.59% of the observed variation in landscape characteristics of both core and edge habitats, subsequently. Habitat selection by OHBs at wintering site was influenced by the availability of thermal wind and food. Savannah was identified as the main landscape characteristic that was different between wintering habitat in Flores and Borneo. Savannah is well-known as a habitat for many species of amphibians, reptiles, and small mammals so that it can be a hunting area that provide alternative feed for OHBs.

<https://doi.org/10.1088/1755-1315/91/1/012031>

OPEN ACCESS

Ecological Design of Fernery based on Bioregion Classification System in Ecopark Cibinong Science Center Botanic Gardens, Indonesia

S Nafar and A Gunawan

— Hide abstract  PDF

Indonesia as mega biodiversity country has a wide variety of ferns. However, the natural habitats of ferns are currently degrading, particularly in lowlands due to the increasing level of urban-sprawl and industrial zones development. Therefore, Ecology Park (Ecopark) Cibinong Science Center-

Botanic Gardens as an ex-situ conservation area is expected to be the best location to conserve the lowland ferns. The purpose of this study is to design a fernery through an ecological landscape design process. The main concept is The Journey of Fern, this concept aiming on providing users experiences in fernery by associating conservational, educational, and recreational aspects. Ecological landscape design as general is applied by the principal of reduce, reuse, and recycle (3R). Bioregion classification system is applied by grouping the plants based on the characteristics of light, water, soil, air, and temperature. The design concept is inspired by the morphology of fern and its growth patterns which is transformed into organic and geometric forms. The result of this study is a design of fernery which consist of welcome area, recreation area, service area, and conservation education area as the main area that providing 66 species of ferns.

<https://doi.org/10.1088/1755-1315/91/1/012032>

OPEN ACCESS

Riparian landscape management in the midstream of Ciliwung River as supporting Water Sensitive Cities program with priority of productive landscape

T U Z Noviandi, R L Kaswanto and H S Arifin

— Hide abstract  PDF

Nowadays, Ciliwung River is facing problem of the settlement occupation in its riparian zones. This phenomenon caused ecological damage in riparian, so it can aggravate the disaster of annual flooding in Jakarta. As an effort to control this catastrophe, riparian landscape management of Ciliwung River is needed. Based on its topography, Ciliwung River is divided into three segments, there are the upstream, the midstream, and the downstream. Data shows that riparian in the midstream is the largest area, it covers more than 60% of the total riparian area. This segment is very important to be managed in order to reduce runoff towards the downstream. The method used was comparing many standards to get the ideal riparian width in the midstream, which is 50 m for urban areas and 100 m for outside the urban areas. Next method was analyzing spatially to get riparian landscape characteristic of Ciliwung River. The result showed that 37.11% of riparian zones in the midstream had occupied by settlement. Analysis of riparian function and utilization had held by using Analytical Hierarchy Process. Priority of riparian function in the midstream of Ciliwung River is production. This can be realized with the plan of community garden or inland fisheries. Riparian landscape management in the midstream aims to support the food consumption diversification, and maximize the function of water catchment and water retention in order to support the program of Water Sensitive Cities.

<https://doi.org/10.1088/1755-1315/91/1/012033>

OPEN ACCESS

The Concept of Historical Landscape Design at Watugong Archaeological Site Area in Malang City

I Setyabudi, R Alfian and W R Hastutiningtyas

— Hide abstract  PDF

Malang city has the high historical value. It showed by many archaeological situses found, such as: The Dutch Colonial Building until kingdom era on classical history period. Generally, it could be seen at urban affairs like government building even the ancient house. But the last kingdom archaeological site only found at the village. The oldest archaeological site in Malang city was found

on Kanjuruhan Kingdom, which is concentrated in Tlogomas. The Watu Gong Hamlet that was located in Tlogomas Political District had an archaeological site. It was a big stone in which the stone looked like a traditional music instrument, it was called Gong. As the archaeological site in megalithicum, before the Hindu and Budha came in from India, that stone was predicted as the foundation structure of the big building. The Watu Gong Hamlet was located in Tlogomas archeological site area, also Merjosari and Karang Besuki. Three of them are the archeological sites for Kanjuruhan Kingdom at eighth century, until Kahuripan Kingdom around the eleventh century, as the heir of the Ancient Mataram Kingdom. The urban government has a program to improve the village required to their region potential and it was possible to revitalize the Tlogomas village, so that the historical character can be seen well. The modernity of a hamlet has impact on the local identity blurred. In which, they did not think about economic only and it can be minimized, also the hamlet will be a characterized tourism object. The revitalization purposed to continuing the past, then it's connected to present. It's performed as corridor garden planning. The landscape development appropriated to promote about the characters of Kacapiring flower, Rose, Jasmine and Puring. They are the special plants from Kanjuruhan Kingdom, beside the other furniture street model. This research was descriptive explorative and discussed about the concept with architecture design approach, started from data collecting, precedent study, programming until the developing concept of the historical landscape. The historical landscape concept for Tlogomas at present is recommended to Watu Gong as the village tourism object.

<https://doi.org/10.1088/1755-1315/91/1/012034>

OPEN ACCESS

Landscape Design Process of Lakewood Nava Park BSD City Based on Smart Growth Concept

M Z Islami and R L Kaswanto

— Hide abstract  PDF

A comfortable and green housing area in a city is a must for the people live in a city. The rapid development in a city caused greater need for land. This problem happens simultaneously with environmental problem globally such as growing number of people, pollution, excessive exploitation of resource, and decreasing in ethic of land uses. The design of Lakewood Nava Park BSD City prioritizes on pedestrian and walkable environment to apprehend those problems. Lakewood Nava Park is a landscape design project conducted by landscape consultant company, Sheils Flynn Asia. The concept of Smart Growth used as a recommendation for Lakewood Nava Park design. Smart Growth is a city planning and transportation theory which expand a city into a walkable city. The method used on this research is a comparison between landscape design process and Booth theory, also analyze ten principle concept of Smart Growth at the project. Generally, the comparison between design process and Booth theory resulted a slight difference in term and separate phase. The analysis result from Smart Growth concept is around 70% has been applied, and the rest 30% applied after the design has been built. By using Smart Growth principle, the purpose of Lakewood Nava Park design can be applied well.

<https://doi.org/10.1088/1755-1315/91/1/012035>

OPEN ACCESS

Redesign of Denggung Park as Sleman Urban Park based on Local Wisdom in Yogyakarta

I Sanjaya and IS Fatimah

— Hide abstract



PDF

Sleman Regency is one of the administrative area in Special Region of Yogyakarta Province which has increased the pace of infrastructure development activities that undertaken by the central government affects another surrounding area. The pace of infrastructure development impacts such problems in Sleman Regency such as, increasingly limited public spaces and changes in understanding the value of local wisdom. Sleman Regency has a park located in central government which is Danggung Park. This park has low visitors and less of aesthetic value which require re-design to improve the quality as public space for cultural identity space. The base concept of Urban Park adopted the philosophy that connects to four components in Javanese mythology. The four components in Javanese mythology symbolize the journey of human life in the Javanese cosmological theory, there are Mount Merapi, Keraton, Krapyak Stage, and South seas. The design concept inspired from pattern of Yogyakarta traditional clothing namely, Batik Kawung which describe of Philosophy "Four of Brotherhood and Five of Central itself" by means synergize four items creating world nature and human as life catalyzer. This study uses descriptive and spatial analysis method. The result of this research is expected to be a design recommendation for Sleman Regency governance in the urban park development.

<https://doi.org/10.1088/1755-1315/91/1/012036>

OPEN ACCESS

Green Campus Study by using 10 UNEP's Green University Toolkit Criteria in IPB Dramaga Campus

Saraswati Sisriany and Indung Sitti Fatimah

— Hide abstract



PDF

Campus landscape is an important part of campus life, because it is regarded as a physical manifestation of the value of a college. Green campus is a concept to build sustainable living practices that are environmentally friendly in educational institutions around the world, including in IPB Dramaga Campus. The main objective of this study is to identified and analyze IPB Dramaga Campus sustainability used green campus criteria from UNEP (United Nations Environment Programme). The methods stages are data collection, analysis and assessment, and recommendation as the synthesis. All the data analyzed with gap analysis, then it assess with Likert Scale scoring. The results showed that green level of IPB Dramaga Campus is classified as Moderate, with total score 32. The result from each criterias are, Energy, Carbon and Climate Change is Moderate; Water is Not Good; Waste is Moderate; Biodiversity and Ecosystem Services is Very Good; Planning Design & Development is Good; Procurement is Moderate; Green Office is Very Not Good; Green Lab is Moderate; Green IT is Good; and Transport is Good. The Green Level of IPB Dramaga Campus will reach Very Good if these recommendation of strategies applied. The strategies are Green Office, Green Campus Audit, Green Champion, Green Financial Strategies, Water Treatment, Green Lab dan Off Campus Transportation.

<https://doi.org/10.1088/1755-1315/91/1/012037>

OPEN ACCESS

International tourist preference of Lodok Rice Field natural elements, the cultural rice field from Manggarai – Indonesia

Ray March Syahadat, Priambudi Trie Putra, Nuraini, Balqis Nailufar and Desy Fatmala Makhmud

[— Hide abstract](#) [PDF](#)

Lodok Rice Field or usually known as spiderweb rice field is a system of land division. It cultural rice field only found on Manggarai, Province of East Nusa Tenggara, Indonesia. The landscape of Lodok Rice Field was aesthetic and it has big potential for tourism development. The aim of this study was to know the perception of natural elements of Lodok Rice Field landscape that could influence international tourist to visited Lodok Rice Field. If we know the elements that could influenced the international tourist, we could used the landscape image for tourism media promotion. The methods of this study used scenic beauty estimation (SBE) by 85 respondents from 34 countries and Kruskal Wallis H test. The countries grouped by five continents (Asia, America, Europe, Africa, and Oceania). The result showed that the Asian respondents liked the elements of sky, mountain, and the rice field. Then, the other respondent from another continent liked the elements of sunshine, mountain, and the rice field. Although the Asian had different perception about landscape elements of rice field's good view, it's not differ significantly by Kruskal Wallis H test.

<https://doi.org/10.1088/1755-1315/91/1/012038>

JOURNAL LINKS

[Journal home](#)

[Information for organizers](#)

[Information for authors](#)

[Search for published proceedings](#)

[Contact us](#)

[Reprint services from Curran Associates](#)

PAPER • OPEN ACCESS

The Concept of Historical Landscape Design at Watugong Archaeological Site Area in Malang City

To cite this article: I Setyabudi *et al* 2017 *IOP Conf. Ser.: Earth Environ. Sci.* **91** 012034

View the [article online](#) for updates and enhancements.

Related content

- [Distribution of green open space in Malang City based on multispectral data](#)
A W Hasyim and F P Hernawan
- [Pedestrian visual recommendation in Kertanegara – Semeru corridor in Malang City](#)
V B Cosalia
- [School bus's level of service in Malang City](#)
S Hariyani

The Concept of Historical Landscape Design at Watugong Archaeological Site Area in Malang City

I Setyabudi¹, R Alfian², W R Hastutiningtyas³

¹Lecturer of Architectural Design, Tribhuwana Tungga Dewi University, Malang, Indonesia

²Lecturer of Architectural Planning, Tribhuwana Tungga Dewi University, Malang, Indonesia

³Junior Lecturer, Tribhuwana Tungga Dewi University, Malang, Indonesia

E-mail: isetyabudi.st@gmail.com

Abstract. Malang city has the high historical value. It showed by many archaeological sites found, such as: The Dutch Colonial Building until kingdom era on classical history period. Generally, it could be seen at urban affairs like government building even the ancient house. But the last kingdom archaeological site only found at the village. The oldest archaeological site in Malang city was found on Kanjuruhan Kingdom, which is concentrated in Tlogomas. The Watu Gong Hamlet that was located in Tlogomas Political District had an archaeological site. It was a big stone in which the stone looked like a traditional music instrument, it was called Gong. As the archaeological site in megalithic, before the Hindu and Budha came in from India, that stone was predicted as the foundation structure of the big building. The Watu Gong Hamlet was located in Tlogomas archaeological site area, also Merjosari and Karang Besuki. Three of them are the archaeological sites for Kanjuruhan Kingdom at eighth century, until Kahuripan Kingdom around the eleventh century, as the heir of the Ancient Mataram Kingdom. The urban government has a program to improve the village required to their region potential and it was possible to revitalize the Tlogomas village, so that the historical character can be seen well. The modernity of a hamlet has impact on the local identity blurred. In which, they did not think about economic only and it can be minimized, also the hamlet will be a characterized tourism object. The revitalization purposed to continuing the past, then it's connected to present. It's performed as corridor garden planning. The landscape development appropriated to promote about the characters of Kacaping flower, Rose, Jasmine and Puring. They are the special plants from Kanjuruhan Kingdom, beside the other furniture street model. This research was descriptive explorative and discussed about the concept with architecture design approach, started from data collecting, precedent study, programming until the developing concept of the historical landscape. The historical landscape concept for Tlogomas at present is recommended to Watu Gong as the village tourism object.

1. Introduction

Historical sites in architecture context provides evidence there is a settlement that has been developed culture and its values beneficial to society lessons for decades afterward. Long time before the Dutch colonial period are still largely intact, many historical relics that exponentially degraded. The basic difference of this problem is technology. Relics of the colonial era has a younger age and they are created in the needs of the user's physical (tangible), while the kingdom era are already old and had a philosophical function, generally places of worship (intangible), and material from wood or stone.



Many relics of history that has been razed to the ground which should be protected by law cultural heritage.

Great nation was born because of their history, culture and civilization. The culture and civilization is marked by the presence of the site. Malang is inseparable from the history although the city is growing rapidly in the Dutch colonial era, starting from Kanjuruhan kingdom history. There are many sites spread across the city and district of Malang that is still preserved. No exception to the existing site in Tlogomas.

RW 03 (citizen association 03) in Tlogomas, there Kanjuruhan kingdom heritage sites in the 7th century in the form of stone resembling the shape of a gong. Originally the stone relics of a foundational structure base with a sacred building where the brahmins meditate, study and train their inner power. The stone looks a music instrument has about 80 cm diameter, 40 cm height and a protrusion with 15 cm diameter and 20 cm high. This stone was known as a foundation of wooden structures perforated at the bottom, so if an earthquake occurs only vibration without damaging the structures thereon. The number of 13 pieces and stones collected at the pavilion site. The foundation structure supported a very large building on it by stone pedestals, serves as a religious and government place. In addition to the stone, the stone also found that perforated for dispensing medicine and gathering food and a place to get cleaned up. There is also a red-brick thick under the courtyard houses, with a lengthened position pattern forming ground floor.

Tlogomas was originally a part of the Kanjuruhan kingdom, the area covers Dinoyo, Merjosari and Tlogomas. Watugong hamlet is a region located in Tlogomas since 1987 and entered Dau subdistrict, Malang district, but at Dutch period, Watugong include in section Dau Malang district in accordance with the Staatblad No. 19 of 1819. Tlogomas name was found after 1930, originally place on there were Ngelo, Karuman, Guyangan, Pelandungan/Kelandungan, Merjoyo, Merjosari, Dinoyo and Ketawanggede, so they need to call in one name. Tlogomas formed when people often find objects of gold (emas/mas: in bahasa) near the water source (telaga/tlogo: in bahasa). (Source: Tlogomas village profile).

According to interviews with village elders Mr. Bambang, the research team so Malang in 1984 estimated that a relic of megalithic sites Watugong that when cultured cobblestone community as a means of worship prior to the entry of Hindu-Buddhist religion of India. Watugong sites located among a row of neighborhood Dinoyo archaeological sites, Tlogomas, Merjosari and Karang Besuki. The fourth area is a legacy of the Kanjuruhan Kingdom at 8th century until Kahuripan at 11th century as the heir of the Ancient Mataram kingdom who moved to East Java. The distance between Candi Badut and Karang Besuki temple with Watugong site not far away, there are also Dinoyo inscriptions which tells purposes of the king for granting brahmin with a big house. It can be concluded that the Watugong area is an existing hostel building sacred pastors to glorify resi Agastya.

From the brief history described Watugong, so it region is very important in Malang city development. As for now Watugong condition is more advanced, but not all segments of society understand the importance of history then someday their potential condition will be degraded. Based on the cooperation with city government and villages, the village will be developed which indicate the existence of their identity which manifested in village planning based on local wisdom. Their local potential in the form of historical sites make public RW 03 as the hometown of the matter of history and be an icon of 'past in present' in a tourist village planning. Main criteria for the development of the region, among others refers to: improvement of environmental quality, public service, service to the tourists who visit, the preservation of Watugong heritage sites, the development of talent and creativity of the citizens to realize RW.03 Tlogomas as ' Watugong Tourism Village ' and became new destinations in Malang, and turning the wheels of the economy.

The planning is not only related to the architectural form of the building (hardscape) but also the landscape (softscape) which refers to the history. Plant as the local nature of the Kanjuruhan kingdom are kacapiring (*Gardenia* sp), rose, jasmine and purong (*Cordia* sp.) planned as 'dresscode' of Watugong region. Urgency of these activities is to increase public awareness through history and provide a venue to accommodate community activities. Village tourism can serve as a means of

education, culinary, and outbound, so main problem in this article is 'how is design concept of landscape history of Watugong archaeological site?' In order to create friendly environmental for rural tourism.

2. Methodology

The method of analysis in this research use descriptive-qualitative with explorative approach and architectural design method according Hakim [1] and Setyabudi [2] theory the context of landscape architecture. Hakim and Setyabudi, explains that the method of designing the architecture starts from the determination of the project, the object of study, inventory footprint, programing, concept, pre-design, and design development. In this article only discussed the results of the research that comes from the results of programing to design development. The tools used for data analysis using computer graphics software that SketchUp, AutoCAD, and Lumion.

Data is divided into primary and secondary data. The primary data of the physical data location (photo, measuring results and sketches), data from interviews with officers and supervising field space, and location mapping. The data obtained from field observations with camera tools, stationery, recorder and GPS. The usefulness of data for qualitative analysis in the form of the potential and constraints of the site, analysis functions and needs, as well as analysis of the object. Secondary data from literature on the potential and constraints Watugong village derived from the data Tlogomas village. The location selected in the village Watugong because it has the potential of local wisdom undeveloped and can be projected to the village for future travel. Here the object of study is presented in the map (googlemaps search: 7 ° 56'20.0 "S 112 ° 35'51.1" E) and photos.

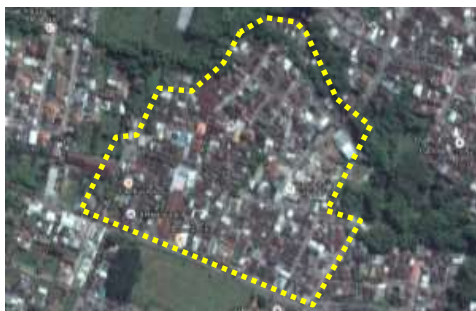


Figure 1. Watugong Kampong in Tlogomas,
7°56'20.0"S 112°35'51.1"E



Figure 2. Watugong archaeological site (it
called pendopo) contains stones like traditional
music instrument (gamelan/gong)

3. Result and Analysis

Tlogomas as the entrance area of Malang from the west direction (Kediri and Jombang), so it has a strategic role in the development of the city. As a buffer zone, Tlogomas grew rapidly into an area that is heterogeneous. Since the 90s Tlogomas with a definite step move towards a positive development since the establishment of several universities that are in the region of Tlogomas. The area is more developed and grown into urban communities after Malang Government move to the center bus stops and public transportation from Dinoyo to Landungsari where administratively included in the Tlogomas.

Geographically, Tlogomas has an area of 167.59 km², located of 444 m height above sea level, with 24°C max. temperature and of 18°C min. temperature. The maximum rainfall ever minimum 2,71 mm and 2,31 mm that has ever happened. People diversity who settled in region Tlogomas raises the potential of different with the other region. Tlogomas has 13,450 resident which prural conditions with many kind of excellent products. Tlogomas also has quantity of 9 RW(s) (citizen association) and 49 RT (s) (neighborhood association). Total amount resident by sex is 8002 men and 5,448 women.

Results ground inventories and interviews with community leaders indicate that the planned location located along the main road corridors (Kanjuruhan street) and the alley leading to the site, so

the focus of this research is the landscape planning of road corridors by considering the history of both hardscape and softscape elements. Here is a photo existing conditions as explanatory.



Figure 3. Existing condition at Kampong Watugong toward archaeological site area

Preliminary studies conducted in-depth interviews to community leaders and discussion on local communities to determine the factors that influence the development strategy of the Watugong tourist village, mentioned in SWOT analyzed:

- a. Strength, (1) Potential easy road access, (2) There are watersheds and water sources, (3) There is a heritage site of the Kanjuruhan Kingdom, (4) Production of handicrafts of local communities such as stoves, processing of plastic waste, and local culinary, (5) Availability of a gate that contain elements of history, (6) the surrounding area of education, (7) *guyub* (friendly) society and mutual cooperation, (8) the implementation of cultural activities, (9) the number of vacant land that can be used as a neighborhood park, (10) the attention of local residents against the historical heritage, (11) the high enthusiasm of the public to make the tourist village history.
- b. Weakness, (1) Conditions pavilion grand (Pendopo Agung) less aesthetic, (2) the absence of identity of the region as an area that has historical value, (3) Not available cicerone (signage) towards the site Watugong, (4) A watershed yet managed properly
- c. Opportunity, (1) The role of Government in synergy with the development of the tourist village history (*Kampung Tematik* Project), (2) The number of visitors from outside the city to an area of the site, (3) Close to educational facilities, (4) to be a lab or media research for institutions education, (5) Being a place of training on arts and culture, (6) Development of traditional culinary travel
- d. Threats, (1) Transfer of land use, (2) The modernization current, (3) Nature of apathy towards the values of history and culture, (4) Decreased activities is cultural, (5) The density of residential areas, (6) Low the government's concern towards historic areas

3.1. Plan of Activities, Functions and Space Needs

Based on observations in planning location, there are some of results could be descriptively explained. 'Welcome area' located on two sites : the bridge area and Merjosari. The bridge area located in the north tend to be only passable by small vehicles because of a lot of the alley leading to the village, another case with a gate from the direction Merjosari (south) which has a wider space and connection with Joyogrand, Villa Bukit Tidar or Graha Dewata housing, so the circulation get in better direction from the south direction. Circulation is also heading towards the parking of vehicles. At some point in the township existing actually be eco-settlement in which there are many open spaces and planted with shading trees (mango), ornamental plants (hanjuang, labu kendi, rose, jasmine and gardenia), although some houses there immediately adjacent by road due to the limitations of the land owner. The location of settlements toward the site (pendopo) is not far away, and can be reached by foot. The total distance

between the north and south entrance about 2 km. Another potential reason for this area is an owner of water source whose size is not too large, large discharge when the dry season. During this time only source of water used for bathing by some locals. Access to water sources is quite difficult, because it passes through rocks and slippery. The produced water to the river tends not clear anymore.

Pendopo area has an important point of the zone, which is a place to store historical objects, access is still limited. In addition, not commercialized, there is no zone that holds educational functions like a library. The public generally have access to the site after permission from a manager, when there is an event or cleaning the historical objects, called *ruwatan*. Another aspect from historical field, rural communities are also active in making local handicrafts such as stoves and plastic waste recycling, which products will be inviting tourists. People love to work together and cooperate in environmental hygiene, cultural activities and build the park. According to Mr. Aryadi as headman, this potential aspect can be developed in future village environmentally planning. As for the testimony of citizens who expect to their village planning for the tourism history area. It can improves the welfare of the community, strengthen the identity and towards a better life. By opening up the concept of the village as a tourist history area , local communities inviting domestic and international travelers to visit Watugong site.

As a village which refers to the concept of eco-tourism, the principles include:

- a. The principle of conservation
- b. The principle of community participation
- c. The Economic principles
- d. The principle of education

Step designing resumed on user activity plan as follows design user, the user consisting of villagers and tourists arrivals who have different needs. Travelers can be adults aged or children with visiting hours are 8:00 to 17:00. Circulation to welcome area with a path from the entrance to the south, which is where the road more accessible by vehicle. Main entrance from the north only accepts pedestrians and bicycles. The parking area is located on an open area which is quite wide and holds about 30 cars. Along the driveway, Watugong identity has been shown with various ornaments, carvings, street name signage, sculpture, and various types of vegetation as a shading, steering, and aesthetic elements. To reach the site, visitors can walk next to the side of the road which offered traditional hawker (street food) and souvenirs. Each of the entrance, there is a gate with unique ornaments Kanjuruhan kingdom. Pendopo, this building accommodates educational function by adding a library area, storefront Watugong and other historic objects. Visitors are also directed toward the source of the water and headed into the water next to river.

The space function is found based on the needs which contain functions and activities. They are classified based on a hierarchy of interests that consists of welcome area, a buffer area, a conservation zone and core zone. 'Welcome area' consists of the construction of the gate with the charge history, their welcome relief, sculpture about Watugong and the addition of local vegetation. Buffer area consists of settlements, but has a special function to provide souvenirs, the development of local crafts, traditional culinary region, the addition of local vegetation and fence design each house with loads of history. The core zone, consisting of the restoration of the great pavilion, designed area of the village with historical ornaments, designing wall reliefs that discount the value of education and history. Planning the core zone, namely the restoration of the pavilion site, the design area of the village with historical ornaments. Conservation Area consists of the revitalization of the watersheds, reforestation area of the river, and the provision of arranging for fishing.

3.2. Basic Concept

The rationale thought for this Watugong landscape planning is the 'Conservation of History' which many elements like Kanjuruhan Kingdom form and ornament on site locations. This step illustrating the past in the present, but they appear in new materials and functions. Design applies to the lane road to the site and along the path of settlements, by adding a gate, post information, information boards, signage, sculpture, garden open spaces and selection of plants throughout the settlement.

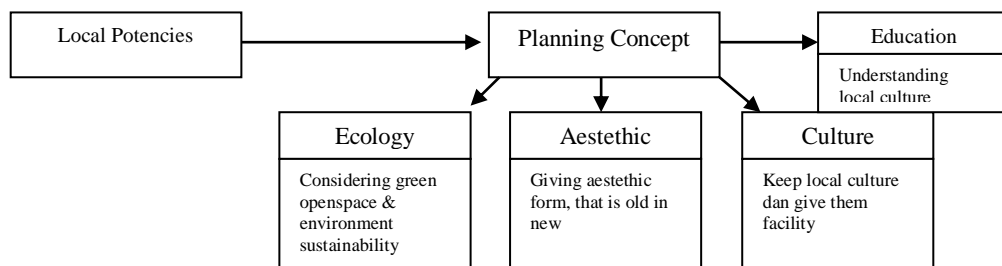


Figure 4. concept diagram

A. Mass Planning Concept

Mass structuring on Watugong tourist area is divided into four zones: the welcome area, a buffer area, conservation area, and the main zone. This structuring effect on the bearing elements of aesthetics at the site that is the gate, monument, post information, information boards and signage.

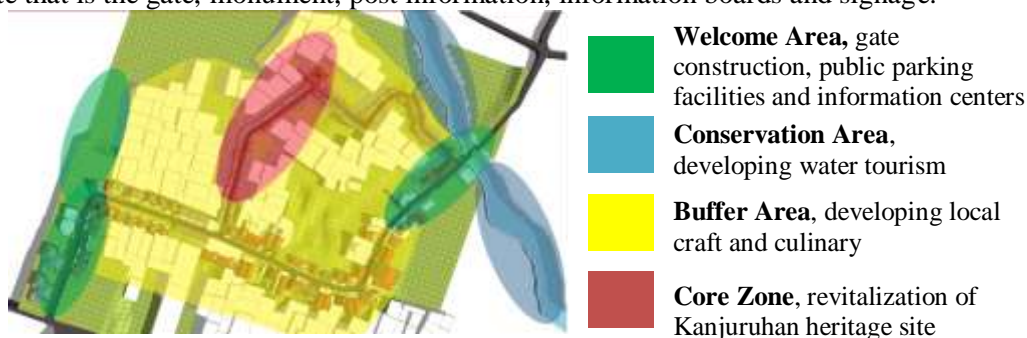


Figure 5. site zoning



Figure 6. important location in site

B. Form Concept

Form follow the concept of history on the site, by using unique Kanjuruhan kingdom ornaments with jasmine buds characteristic or Kalamakara, the same form of the Candi Jago, Singosari and Candi Jago. Gong and the motives leaves the higher the conical worship Hyang Mring Waseso.



Figure 7. Form concept

C. Vegetation Concept

The concept of vegetation is achieved by the use of a typical plant Kanjuruhan kingdom like rose, jasmine, croton, gardenias, hanjuang, frangipani, and banyan. The arrangement of vegetation have been based functions such as ornamental plants placed in the garden or yard while the shade is located on a side street. Unisex uniform plant as a hallmark of the township is selected hanjuang.

As for the results obtained from the study of the concept of structuring the landscape of history in Kampung Watugong include (1) the concept of ecotourism is used for the design-based conservation, community participation, economic, and education, (2) The form is used to follow the concept of the history of the site, namely the Kingdom Kanjuruhan with characteristic of the buds of jasmine and shape Kalamakara, (3) Element outer designed limited to the arrangement of the fence, gate, posts information, information boards, signage, sculpture and parks, (4) Design of landscape history based on user requirements such as walking and enjoying the atmosphere around, see colorful flowers typical of Kanjuruhan, understanding the formation sculpture, monument and can be learned in the area of the site, (5) spatial zones are distinguished on 4 main welcome area, a buffer area, conservation area and the core zone. Structuring element adapted to function tread. The following illustration concept.

4. Conclusion

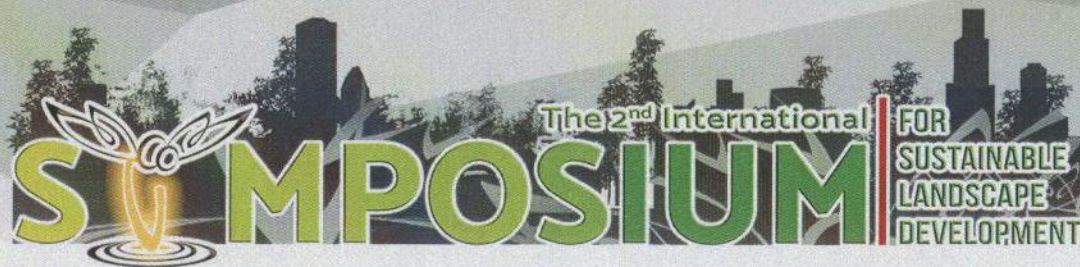
This study found the concept of landscape history is based on the potential regional or local wisdom by presenting an attractive view in village. Visitors are expected to enjoy the facilities presented in designs such as education zone, archaeological sites, and souvenirs and culinary. Landscape design in question is to determine patterns of structuring softscape and hardscape that support pedestrian as a space to walk towards the site. Ecotourism criteria also included the historical and cultural conservation, community participation, community economic development planning and improvement, and education.

Acknowledgement

Worship and praise to Allah SWT. who has given smoothness on this research activity. Neither the gratitude we say to the dean of the faculty of agriculture and whole Landscape Architecture lecturer in Tribhuwana Tungadewi University especially Rizki Alfian who gave me help to look data from Tlogomas, also Wahidyanti who gave support to me, then Malang government, Tlogomas district office and their staff, because this article never exist without their program support, also along whole friends who participate in helping the completion of this study.

Reference

- [1] I Setyabudi 2016 *Elemen dan Proses Desain Arsitektur Lanskap Taman Rumah Tinggal* (Book Style) Malang CV. Dream Litera Buana
- [2] R Hakim 2012 *Komponen Perancangan Arsitektur Lansekap : Prinsip-Unsur dan Aplikasi Desain* (Book Style) Jakarta PT. Bumi Aksara



CERTIFICATE

OF APPRECIATION

THIS CERTIFICATE IS PROUDLY PRESENTED TO

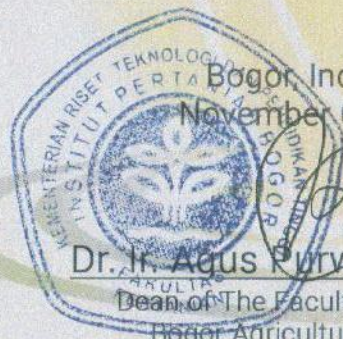
Irawan Setyabudi

AS PRESENTER

THE 2ND INTERNATIONAL SYMPOSIUM FOR SUSTAINABLE LANDSCAPE DEVELOPMENT

09TH - 10TH NOVEMBER 2016

Department of Landscape Architecture, Faculty of Agriculture
Bogor Agricultural University (IPB)



Bogor, Indonesia

November 09th 2016

Dr. Ir. Agus Purwito, M.Sc.Agr.

Dean of The Faculty of Agriculture
Bogor Agricultural University





Yayasan Bina Patria Nusantara Malang

UNIVERSITAS TRIBHUWANA TUNGGADEWI MALANG

FAKULTAS PERTANIAN

Jl. Telaga Warna, Tlogomas, Malang 65144 - Indonesia, Telp. 0341 - 565500, Fax. 0341 - 565522

Program Studi : Agribisnis, Agroteknologi, Arsitektur Lansekap, Teknologi Industri Pertanian, Peternakan

SURAT TUGAS

Nomor : 470 /TB- FP/KP-220/XI/2016

Yang bertanda tangan di bawah ini:

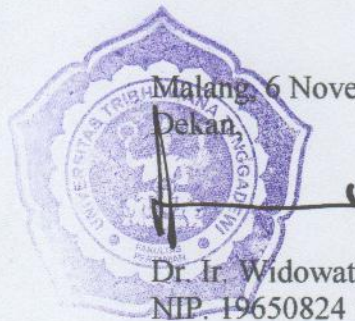
Nama : **Dr. Ir. Widowati, MP**
NIP : 19650824 199302 2 001
Jabatan : Dekan Fakultas Pertanian

Memberikan tugas kepada:

Nama : **Irawan Setyabudi, ST., MT**
NIDN : 0730058603
Jabatan : Dosen Program Studi Arsitektur Lanskap

Sebagai Pemakalah dalam Simposium The 2nd International Symposium for Sustainable Landscape Development dengan judul "The Concept of Historical Landscape Design at Watugong Archaeological Site Area in Malang City" yang diselenggarakan oleh Arsitektur Lanskap, Insitut Pertanian Bogor di Institut Pertanian Bogor, Bogor pada tanggal 9 - 10 November 2016.

Demikian surat tugas ini dibuat, untuk dapat dipertanggungjawabkan sebagaimana mestinya.



Malang, 6 November 2016

Dekan,

Dr. Ir. Widowati, MP

NIP. 19650824 199302 2 001



Yayasan Bina Patria Nusantara Malang

UNIVERSITAS TRIBHUWANA TUNGGADEWI MALANG

FAKULTAS PERTANIAN

Jl. Telaga Warna, Tlogomas, Malang 65144 - Indonesia, Telp. 0341 - 565500, Fax. 0341 - 565522

Program Studi : Agribisnis, Agroteknologi, Arsitektur Lanskap, Teknologi Industri Pertanian, Peternakan

SURAT PERINTAH PERJALANAN DINAS

Nomor : 4570 /TB.FP/TU-420/XI/2016

1.	Pejabat yang berwenang memberi perintah	Dekan Fakultas Pertanian
2.	Nama yang diperintahkan	Irawan Setyabudi, ST., MT
3.	Jabatan	Dosen Arsitektur Lanskap
4.	Maksud Perjalanan Dinas	Sebagai Pemakalah dalam Simposium The 2nd International Symposium for Sustainable Landscape Development
5.	Tempat Tujuan	Institut Pertanian Bogor, Bogor
6.	Lamanya Tugas : Hari / Tanggal berangkat Hari / Tanggal kembali	2 (dua) hari. Senin, 9 November 2016 Selasa, 10 November 2016
7.	Pengikut	-
9.	Pembebanan Biaya	-
10.	Keterangan Lain Dianggap Penting	-

Telah Datang

Dikeluarkan : Di Malang

Pada tanggal : 6 November 2016

Dekan

Dr. Ir. Widowati, MP

NIP. 19650824 199302 2 001