## PROCEEDINGS OF

## The2 . CO-Atehifecture Conference (EAC 2)



## (a) <br> Archifecture, Technology and Local Wisdom





# PROCEEDINGS 

## BOOK 1

THE $2^{\text {ND }}$ ECO-ARCHITECTURE CONFERENCE (EAC 2) "ARCHITECTURE, TECHNOLOGY AND LOCAL WISDOM"

# ARCHITECTURE DEPARTMENT <br> FACULTY OF ENGINEERING AND COMPUTER SCIENCE QUR'ANIC SCIENCE UNIVERSITY WONOSOBO, CENTRAL JAVA, INDONESIA 

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## PREFACE

All praise and gratitude to Allah SWT because of the grace and the gift, the gift of good health, fortune, intelligence, and others, even the gift of awareness and ability to be thankful to Aliah SWT, and by Allah SWT permission we can publish Proceedings of the International Conference "2nd ECO-Architecture Conference "with the theme" Architecture, Technology and Local Wisdom ".

International Conference "2nd ECO-Architecture Conference" organized by Institute for Research, Publishing and Community Services-Coaching Language and Faculty of Engineering and Computer Science, Quranic Science University Central Java in Wonosobo, also Indonesian Institute of Architects Central Java. International Conference "2nd ECO-Architecture Conference" is a conference to study of architectural buildings in the tropics. Other fields of the articles on the proceedings which will be presented at the conference are about the city, housing, building, daily life, technology and behavior.

Nowadays a lot of research were scattered in many Universities and Research Institutes, but many have not been disseminated and socialized optimally. For the purpose of this conference are:

1. As a means of researchers to present their research results, and for exchange information, problems in various areas of expertise, and for strengthen and develop academic cooperation of mutual benefit in sustainability.
2. As a recommendation to the central government, local government and internationally to provide benefits of research results in architecture, technology and local wisdom for the development of sustainable development.

The conference was attended by researchers from science of architecture, technology and local wisdom. This Proceedings contains 44 papers, particularly in the science of Architecture, Technology and Local Wisdom.

We say thank you for Rector of Quranic Science University, Drs. KH. Muchotob Hamzah, MM, the "keynote speakers" at this conference, Prof. Tri Harso Karyono from Tanri Abeng University in Jakarta, Indonesia, Prof. Fergus Nicol from London Metropolitan University, United Kingdom and Prof. Susan Roaf from Heriot Watt-University, Edinburg, United Kingdom, Dean of Faculty of Engineering and Computer Science, Wiji Lestarini, ST, MT, Head of Indonesian Institute of Architects Central Java, Ir. Satrio Nugroho, M.Si, IAI, who had given a speech and science at a this conference, also to the audience and invited guests of $2^{\text {nd }}$ EAC 2015 have attended this conference.

Finally, we say thank you for the committee of $2^{\text {nd }} E A C$ in 2015, the leaders of rectorate Quranic Sains University, the lecturers and employees Quranic Science University for providing facilities for the preparations, and others that we can not mention, but many provide help for the implementation of this conference and the realization of this proceedings.

Our hope is that the collection of articles in the proceedings can be a reference for academic experts, teachers, and the general public. We hope that Allah SWT be pleased with all our steps and struggle, and pleased to record it as acts of worship. Amin.

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# Location as the Factor of Rural Transformation 

## in Daerah Istimewa Yogyakarta

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#### Abstract

The process of transformation in rural areas is a contimuous process as a form of desire to grow. Some rural areas previously dominated by agricultural activities, there were transformed into a village with activities other than agriculture as a small craft industry, and rural tourism. This study aims to assess the transformation that occurred in the rural area of Yogyakarta Special Region, focusing on location as a factor in the transformation. Four rural areas were taken as a case study to firther refine the results of the study. Pentingsari and Gabugan represent two rural case of natural tourism transformation, and another two, Manding and Kasongan, for a case of industrial transformation. Qualitative empirical research study was applied to explore the transformation process. The implications of these findings for a new theoretical understanding of the location as a rural transformation factor are explored.


Keyword: rural tourism, rural industry, case study research

## I. INTRODUCTION

Based on the Rural Classification and Typology in Indonesia (Instruksi Mentri Dalam Negri No. 11, Tahun 1972), Indonesia has three level quality of rural development (Sumpeno, 2011). The lowest level is the traditional culture and local traditions village, it called Desa Tradisional. They are usually described by agriculture activity and the slowest development and sometimes in the lowest welfare also. The second level is the medium level of development village where a part of the people has shifted from the primary sector into secondary sector (non agriculture). It can be identified that on those groups the development going well and it is called Desa Swakarya. And the best level of development is called as self-sufficiency (Desa Swasembada) in social economic aspects which has developed the tertiary sector (mostly industry). Those three level reflect the different speed of development. But since "development" implies (Hornby, 1974) the meaning of being grow larger, so it is better to use the word of transformation (Departemen Pendidikan dan Kebudayaan, 1989; Moore, 1997) as it explains the process of change without any direction to be bigger nor lower. It emphasizes of the process rather than outcome.

To classify the level of rural transformation (Sumpeno, 2011), the physical indicators are assumed to be fix. while non physical indicators continue to change. The physical indicators consist of density, nature and accessibility of the villages with civilization. Non physical indicators are livelihood, production, customs, institutional, educational, governmental and facilities. Non physical factors imply the important of people power according to the level of transformation. But Tacoli, 2006, emphasizes the important of the rural-urban linkage including location, people, and
activities as transformation engine, including economic, social and cultural. How to explain different power of transformation even though they have the same potentials of place and people? Is there any other factor to understand this phenomenon? Or is there any meaning of location or people to be thought of?

Based on Ahimsa, 2013, Straus defines that transformation differs from change. Change is observed with the visual analytical basis (known as surface structure), whereas transformation is something inside or deep in unconsciousness mind which encourage change to be happened (known as deep structure). The unconsciousness mind may cause the different level of transformation. So this study aims to explore the factor of transformation from the side of unconsciousness mind. But to make the discussion clear, the study only focusing on location as the physical transformation of surface-structure. It supposes to be no change at all in location, because of its fix indicator character, but the study is willing to find the deep-structure of location in the rural transformation. So to prove that there is unconsciousness influencing the level of transformation, the location as fix indicator is the best factor to be studied.

## II. METHODOLOGY

## A. Case Study

The case study research is applied to explore the transformation phenomenon because 1) it aims to develop the transformation theory, 2) the case of transformation is a specific case from several rural development, 3) the case study research has the capacity to explain causal links, 4) and also possible to use the multiple source evidence.

Yogyakarta is the second highest of urbanization in Indonesia after Jakarta. Yogyakarta is the best representation in the process of transformation, from the royal city into a city with administration privileges. In addition, the city also has various nicknames such as the historic city, city of culture, tourism town and cityfeducation. This strengthening Yogyakarta as a city that has undergone some sort of transformation. Similarly, rural areas around Yogyakarta some of which are also experience the process of transformation. Four rural areas were taken as a case study to further refine the results of the study (Pudianti, Syahbana, \& Suprapti, Physical Transformation of Residential into Commercial Residential in Rural Tourism of Pentingsari, Sleman Yogyakarta, Indonesia, 2014). There are four rural area in Yogyakarta as case studies used in this research which are representing the high level of transformation (Pentingsari Village), the medium level of transformation (Kasongan Village) and low level of transformation (Gabugan Village), and one special case with the long history of transformation classified as high to medium level of transformation (Manding Village).

First, Pentingsari is a village in north of Yogyakarta, 20 km from Yogyakarta city and located on the slopes of Mount Merapi. It is in an isolated area with limited access to the village, but has an attractive natural of green village with the local cultural heritage. The second tourist village, Gabugan Village has a fairly open access and local culture that is strong enough. This tourist village is located approximately 16 km from the city of Yogyakarta and 4 km from the city of Sleman. Settlements scattered around the main access to paved roads, but the center of tourist activities that take place around the pavilion built in the north of the village is very cozy with rural atmosphere.


Figure 1. Location of Case Study

The third, Kasongan is the name of a village located in the lowlands, about 8 km to the southwest of the center of Yogyakarta, or approximately 15-20 minutes drive from the city center.Kasongan is the center of the pottery industry. This area is a residential area makers craft items such as kitchen furniture and also a wide variety of goods like are mostly using clay as raw material. And the last case is Manding. Manding is a leather craft village where is at a crossroads Parangtritis, about 15 km from the city center to the south toward Parangtritis. Access to the Manding is very easy because Parangtritis Street is a primary arterial road towards, and the main road of Manding is a main road to the city of Bantul.

## B. Previous Study Related to Rural Transformation

There are several study in rural transformation area but in a meaning of surface-structure change. For example (Park \& Kim, 2011), (Harcedy \& Deguchi, 2010) (Banski \& Wesolowska, 2010) and (Herawati, 2013), all of the author study on the change of physical aspect in a very specific case, but Park also looks into the deep-structure in their conclusion after analyze the background of the change. Among others the recent studies, (Pudianti, Syahbana \& Suprapti, 2014 and 2013), aim to conduct the transformation in a deep-structure based and other (Ombeni \& Deguchi, 2009) also focuses on deep-structure but in the case of urban area. The studies explore the first step of transformation which is identified the surface-structure of the transformation, and several have focused on the second step which is looking the relation between the surface-structure and the unconsciousness background encourage it. But all of them conduct it in the local case of the study. This study tries to analyze the deep-structure using four case of study to represent the different level of transformation and also to strengthen the result to be generalized.

## C. Methods

The case study research is a mix-method research. But to explore the unconsciousness side of transformation according to its location, the qualitative empirical should be applied. The first step is reviewing the value of location and the change of physical condition as the surface-structure
transformation. This approach is using the qualitative and qualitative method. Second step, changes in main activity of the villages and building functions are analyzed in the current situation caused by its transformation. The physical change is identified and explored to find the background of the change especially in relation to location factor. This third step is based on in-depth interview with the owner and key-informant person who lead the process of transformation.

The interview approach was developed to explore the argument of willing to transform their village as tourist destination (in Pentingsari and Gabugan) and craft center (in Kasongan and Manding). The informants of each community were identified on referral basis or as so called snowball sampling technique (Neuman, 1997). They are mainly a key person in community who know the community well and care about the future growth and development. The thematic categories were used to synthesize similar ideas and concepts. After categorization of the data, new thematic categories were added in cases where important data did not fit into these categories.

## III. FINDING AND DISCUSSION

## A. The First Approach: Physical Aspects

The physical aspects of the cases focusing on the measurement of its location. Location is the main aspect of village potential to transform. Since the location is the fix indicator it is important to analyze the stage of transformation in the place from time to time: The surface-structure of the place. The status of the village is based on its location as show in Table 1.

From the location measurement in table 1 , it is obvious that the location value from lowest to highest hierarchically is Pentingsari, Gabugan, Manding and Kasongan. It means that Pentingsari from the location factor itself Pentingsari has the less power of transformation. Because from the previous theory (Childe, 1950 and Tacoli, 2006) the environmental of the area and the rural-urban linkage will influence the transformation of the area. As the rural-urban relation nearer, the power of transformation tends to be bigger.

Table 1. The status of the village based on its location

| Map of the Village | The quality of village location | Diagrammatic of location |
| :---: | :---: | :---: |
|  | Pentingsari <br> - 20 km from the city of Yogyakarta <br> - located in isolated place (high difficulty) <br> - has only one main access but near from the main road |  |
| * House (non homestay) <br> e Homestay <br> \% Village's Gate | Gabugan <br> - 16 km from the city of Yogyakarta <br> - located in relatively open access (lessdifficulty) <br> - has four access but little bit far from the main access |  |
|  | Kasongan <br> - 7 Km from the city of Yogyakarta <br> - located in open access (no difficulty) <br> - has one main access but in a near distance and clear access |  |
|  | Manding <br> - 15 Km from the city of Yogyakarta <br> - located in open access (very less-difficulty) <br> - has one strategic main access of the region and very near from main access to Yogyakarta |  |

Source: researcher analysis, 2015
B. The Second Approach: Intangible aspect of rural transformation


Based on interviews with the key initiator of the Pentingsari is known that the initial idea originated from the challenged from other rural tourism village of Ledok Sambi nearby Pentingsari. And also because of its isolated location, the elders future goals were having a good relation with external world of the village. Becoming a rural tourism area, the isolation of their village is no longer obstacle to have a good relation with other people, the relation to have connection of future work, the relation of education in a big city, and the relation to develop their village. In fact they make relations with the tourists who come from different places, and government.

With the limitation of their village location, they became Taft and creative to change their village better than other.


Figure 3: GabuganVillage
The informant said that the ancestors of Gabugan came from Surakarta royal family. The prince from Surakarta had got married with the Gabugan women known as Nyai Ajeng, the forerunner of Gabugan. Her family have high status in Gabugan Village. It can be seen from their house which is symbolized by joglo house -the highest house form in Javanese culture. They also owned most of the land in the Gabugan village. Until now there has been the unique and simple concept of protecting the land tenure (Pudianti, Syahbana, Suprapti, 2013). There is collective action to preserve their homeland through the Javanese belief that land can never own by people. Only The Creator owns the land, people can only work on it and take the advantage from its product. The system to preserve is arranged by local informal agreement to provide land inheritance among the family member and is not allowed to sell it, except within family member by giving some compensation. They keep the tradition with their pride, that's why Gabugan is changing very slow.

Although Gabugan has high potential from its factor of location, the transformation is not as fast as other rural tourism.


Kasongan Village (figure 4) has different experience in anticipating their iocation. The informant said that Kasongan as pottery craft can develop fast because of the motivation of the people in Kasongan to improve their live. From the lowest level of life and without anything they have, until know they can live better. They belief that life is only stop by to drink, it means life is short time periods, so we have to work as hard as tomorrow they will die. This Javanese belief make them always strong to work hard.

The most unique experience is in Manding Village (figure 5). Manding ladder craft center initiated from small group of people who were the farmers rice cultivators they didn't own paddy field whereas other had many. Some other group similar to them is a non strategic landowner and small landowner. They all together successfully change their location used to be non strategic (blackstripes road $=$ the old access) became the main road until now with ladder craft showroom along the street. And the old street used to be the main road (the blue line) is no longer the main road, and even part of the street (blue-stripes road) is not used anymore. The owner of the showroom mostly is a second level of the family who got the non strategic land; the girl landowner, and the youngest or the lowest level of the community.


Figure 5: Manding Village
C. Third Approach: The relation of Surface and Deep Structure

Table 2: The Relation between Surface and Deep Structure

| Surface-structure |  | Deep Structure |
| :---: | :---: | :---: |
| Pentingsari - the lowest level of location | Success to transform the village to be a rural tourism | Good adaptation of isolated location to be the advantage of the isolation location Motivation to have relationship with external world |
| Gabugan - the medium level of location | Lower power to transform the village to be rural tourism | Hard adaptation of the royal mental culture to be the hospitality business <br> Motivation to preserve land from outsider |
| Manding - the high level of location | Medium power to transform the village to be the rural craft center | Good adaptation of non strategic location <br> Motivation to survive from the limitation |
| Kasongan - the highest level of location | Medium power to transform the village to be the pottery craft center | Medium adaptation of limitation resource <br> Motivation to be the best live in short time of life |

The relation between surface and deep structure on those cases shows that location factor is not the key factor in the power of transformation. The relation between location factor and the culture of the people have strong retation with the power of rural transformation.

## IV. CONCLUSION

This preliminary study has identified the importance of the relation between the surface structure and deep structure to explore the process of transformation. The relation is in unconsciousness of the people studied. Through collective unconsciousness of the people, the key aspect of the transformation could be identified. It seems that the power of survival generate the power of transformation. The approach explored the visual appearance in relation with the background or the concept deep in people's life. Study on the rural transformation should be continued focusing on other factor to look the process completely and comprehensively.

## REFERENCES

Ahimsa-Putra, H.S., 2013, Strukturalisme Levi-Strauss, mitos dan karya sastra, Penerbit kepel, Yogyakarta, 2013, pp.59-66.
Banski, J., \& Wesolowska, M. (2010). Transformations in housing construction in rural areas of Porlan's Lublin region-Influence on the spatial settlement structure and landscape aesthetics . Landscape and Urban Planning 94, 116-126.
Harcedy, A. N., \& Deguchi, a. (2010). Physical transformation of rural villages encompassed into Egyptian city borders. Journal of Asian Architecture and Building Engineering , 379-386.
Herawati A., Purwaningsih A., Pudianti A., Vitasurya VR.. (2014). "Rural tourism community empowerment based on local resources for improving community welfare: Case on Pentingsari village, Yogyakarta, Indonesia", Review of Integrative Business \& Economics Research (RIBER) Vol. 3 (2) 2014, pp.88-100.
Neuman, W Lawrence. (1997). Social Research Methods: Qualitative and Quantitative Approaches. Boston: Ally \& Bacon.
Moore B. (1997). The Australian Concise Oxford Dictionary. Oxford University Press.Melbourne.
Ombeni, S., \& Deguchi, A. (2009). Transformation of residential units into commercial spaces in the central business district of Dar es Salaam, Tanzania. Journal of Asian Architecture and Building Engineering, 159-166.
Park, C.-S., \& Kim, T.-Y. (2011). Formation and transformation of Japanese migrant fishing village colonies in Korea. Journal of Asian Architecture and Building Engineering , 289290.
Pudianti A, Syahbana JA., Suprapti A. (2014). Physical Transformation of Residential into Commercial Residential in Rural Tourism of Pentingsari, Sleman Yogyakarta, Indonesia. Proceeding on the $5^{\text {th }}$ International Conference of Rural Research and Planning Group (RRPG5). Malaysia. 26-28 August 2014.
Pudianti, A., Syahbana, J. A., \& Suprapti, A. (2013). Livable extended urban spaces through rural tourism sustainable concept, a case study of Yogyakarta. International Workshop on Livable Cities: Providing Livability at Affordability (IWLC 2013) (pp. 66-73). Penang, Malaysia: Centre for Research Initiative, Liberal Art and social Science University Sains Malaysia.
Sumpeno W.. (2011). Perencanaan desa terpadu, Read: reinforcement action and development, Banda Aceh, Indonesia, 2011, pp.6-11.
Tacoli C. (2006). "Why an interest in rural-urban linkages?" in The earth scan reader in ruralurban linkage. Earth scan London, C.Tacoli, Ed.. Earth scan London, 2006, Editor Introduction, pp.4-13.

