Model of sustainability of vernacular kampongs within Ngadha culture, Flores

M B Susetyarto
Architecture Department, Faculty of Civil Engineering and Planning, Universitas Trisakti, Jakarta, Indonesia

Corresponding Author: bambang.s@trisakti.ac.id

Abstract. In the indigenous people of Ngadha, Flores (8°52’40.45”South, 120°59’8.18”East), the phenomenon of sustainability could be seen in its very interesting architectural traces in the setting of local factors. The sustainability phenomenon had a high value in their life and it was clearly indicated in daily activities as well as farmers, weavers, or carpenters. The phenomenon was unique and has been successfully created as a model. The research has been done by qualitative method in inductive paradigm. The data collection and comprehensive analysis have done in the field by occasional discussions with some sources of Ngadha traditional experts, vernacular architecture researchers, sociologists, anthropologists, and others. The result was a model of sustainability of vernacular kampongs within Ngadha culture, namely Tuku nung’a ghera adha Ngadha. The concept of sustainability was a cultural event that synergizes the five factors supporting continuously sustainability until the optimum momentum of sustainability occurred in those synergistic conditions. The five factors were natural environment (one nua), indigenous community (mesu mora), vernacular architecture (săo bhaga ngadhu ture), economy (ngo ngani), and Ngadha culture (adha Ngadha). The significance and impact of the research were to provide input for the completeness of sustainability knowledge, especially the vernacular kampongs sustainability model.

Keywords: indigenous, Ngadha, vernacular architecture

1. Introduction
The sustainability of vernacular kampongs founded by indigenous peoples of Ngadha was the basic concept to maintain the aesthetic of vernacular architecture in Ngadha cultural environment. Vernacular architecture was defined as the architecture which has been created by people or community with utilizing traditional technologies [1]. The sustainability of Ngadha’s vernacular architecture by the Ngadha indigenous people was understood as the totality of cultural events. Cultural events were starting from the clan or tribal community in each kampong. They discussed their idea of doing traditional activities to build vernacular houses (utu bhou dia să’o), and/or vernacular kampongs. The process of development began when people cut the wood (oja/fai), took the stones (watu/tere), or got building materials derived from their fields (uma), or from the mountains (wolo). Then, brought the building materials came into the kampong, carved it, constructed it for the building structure, and gave the name of vernacular houses or vernacular buildings, until to the beginning event for using the houses and/or the buildings. All series of cultural events were acknowledged to be very beneficial for the sustainability of the Ngadha culture and traditional life of the community. The sustainability of Ngadha culture was not only performed on every customary ritual occasion, but also it was actualized in everyday life, both when they were working in the fields and when they were...
weaving cloths in vernacular houses. The sustainability was manifested creatively in traditional artwork. For example, in the contents of the poetry of the teachings to build a vernacular house, called ‘soka’, in the form of andec ‘ja’i,’ in the music of gong gendang ‘laba go’, on the ‘jara’ woven motif, on the ‘weti’ of the stair construction, and on the front wall of the building ‘one.’ The event involved the indigenous community since the older generations (ebu nusi) up to the young generations (ana woe), both female (ana fa’i) and male (ata saki), while maintaining the cohesion among tribes or clans in each kampong (woe). Therefore, the sustainability of vernacular kampons and the Ngadha culture were understood by indigenous people of Ngadha as a cultural event in the construction works, and/or of daily work activities as well as cultural activities, which were traditionally conducted by indigenous communities. They used local material resources in order to meet the needs of Ngadha indigenous communities in the present and the future.

2. Research Method
The research was done by qualitative architectural research methods [2] with the inductive paradigm [3]. The method was formulated by seven stages, i.e., First, researcher emphasized on understanding the Ngadha culture and the natural environment of the Ngadha region as natural settings. Second, researcher focused on vernacular architectural settings in each kampons of the Ngadha region. In this session, it was included on the architectural design, the graphical design in carving and/or woven motif products. Third, researcher did deep-interviews, discussed the meaning of architecture design, and others which connected to the vernacular kampons. Fourth, researcher did interpretation and made sense of the provisional findings. Fifth, researcher did comprehensive analysis in the fields by occasional discussions with some sources of Ngadha traditional experts, vernacular architecture researchers, sociologists, anthropologists, and others. Sixth, research formulated the findings, a model of the sustainability of vernacular kampons within Ngadha culture. Seventh, researcher verified and predicted the findings, and took into account to be a (new) theory of sustainability in the global knowledge. The important consideration was how using theory and making theory [4].

3. Results and Discussion
The vernacular architecture of the kampons in the Ngadha cultural area was originally a closed world of cultural blindness. The vernacular architecture aimed to meet their own needs for security, mutual protection and complementarities. All of those were implied in the traditional teachings of indigenous peoples in the cultural region of Ngadha, which had high authenticity. One of the traditional teachings was 'soka,' which was a chant poem to guide people in the process of building vernacular houses and vernacular buildings, to manifest aesthetic and meaningful architectural artifacts, to make architecture form by traditional dimension, to create a simple space [5], to express hierarchy, symbols and ornaments, according to the traditional values of Ngadha culture. However, after vernacular kampons opened their worlds of life for tourist visits and researchers from outside of Ngadha region, the tradition to build vernacular kampons in the cultural region of Ngadha experienced the transmission of knowledge and the cultural transition. This condition brought an impact on the physical embodiment of vernacular architecture and on the contemporary values in the traditional life of the vernacular kampons in the cultural region of Ngadha.

The basic concept of sustainability of vernacular kampons within Ngadha culture actually was found to be pluralistic, opened to correction, not reductionist, and did not pretend to reach an identity or label for a certain period. The basic concept was placed as a model of Ngadha cultural production system that was closely linked to the formation of national identity and culture, the paradigm of creative thinking, the ontological and epistemological of the vernacular architecture concepts, and the spirit of preservation and prediction of cultural sustainability in the future, in accordance with the situation and socio-political conditions of society in its period. Therefore, verification and prediction of the findings of the basic concepts of sustainability of vernacular kampons throughout the Ngadha culture region were conducted. The concept of sustainability was a cultural event that synergized with the five factors supporting continuously sustainability until the optimum momentum of sustainability occurred in those synergistic conditions. The five factors mentioned were firstly, natural environment (one nua) was in the surrounding vernacular kampons. It could create a good micro climate for the
healthy life. Second, the indigenous community (*mesu mora*), which was the inhabitants of vernacular kampong. Third, vernacular architecture (*sa’o bhaga ngadhu ture*), which were the living facilities. Fourth, economy (*ngo ngani*), which was an important factor to support their productivity and survival. Fifth, the Ngadha culture (*adha Ngadha*), which became the fundament of their spirit and their human behavior. As a result, the basic concepts of sustainability of vernacular kampongs within Ngadha culture can be applied to eight vernacular kampongs in the Ngadha region. Eight vernacular kampongs had the five factors of sustainability with might be different influences. In these context, it could be imagined how the configuration of five circles with the different sizes and different colors. Therefore, the size of sustainability for each vernacular kampong might be different and might be a lot of variant. However, the entire vernacular kampongs in the Ngadha region surely had the five factors which might be created as a certain configuration. The configuration might be occurred an intersection of the five circles, and that was the sustainability factor. Eight vernacular kampongs mentioned were the kampong of Tololela, the kampong of Bela, the kampong of Wogo, the kampong of Langa Gedha, the kampong of Bolozi, the kampong of Gurusina, the kampong of Nage, and the kampong of Bena. Eight vernacular kampongs located in the surrounding valley of the Inerie Mountain. The findings hopefully were an embryo of a (new) theory of architecture sustainability, which had the context of Ngadha cultural regionalism [6], [7], especially in terms of the basic concept of sustainability, which could be illustrated as shown below.

![The five factors of sustainability:](attachment:image.png)

**Figure 1.** The model of sustainability of vernacular kampongs.
4. Conclusion
The findings of the research were a model of sustainability of vernacular kampongs within Ngadha culture, namely Tuku Nungga Lo’a Ghera Adha Ngadha. Actually the model was there in each of the vernacular kampongs, but had different sizes and variants. The sustainability concepts was a cultural event that synergized the five factors supporting continuously sustainability until the optimum momentum of sustainability occurred in those synergistic conditions. The five factors were natural environment (one nua), indigenous community (mesu mora), vernacular architecture (sa'o bhaga ngadhu ture), economy (ngo ngani), and Ngadha culture (adha Ngadha). The significance and impact of the research to the architecture science were to provide input for the completeness of sustainability knowledge, especially the sustainability model of vernacular kampongs. The (new) sustainability knowledge should be donated to the global academic society.

Acknowledgments
Author expressed the gratitude, especially to my beloved wife and my mother, and to my colleagues at the Department of Architecture, surveyors and librarians, and to the financial support of Beasiswa Program Pasca Sarjana (BPPS) organization and Trisakti University, and to other friends may not be mentioned his/her name.

References
[1] Oliver, Paul, Built to Meet Needs, Cultural Issues in Vernacular Architecture, Elsevier Ltd, Oxford, 2006, p. 3-105 and 267-286.
[2] Groat, Linda and Wang, David, Architectural Research methods, John Wiley & Sons. Inc, New York, 2002.
[3] Creswell, John W., Researh Design, Pendekatan Kualitatif, Kuantitatif, dan Mixed, (translated by Fawaid, Achmad), Pustaka Pelajar, Yogyakarta, 2010.
[4] King, Peter. Using Theory or making Theory: Can there be Theories of Housing?, Routledge, Leicester, p. 41-52, 2009
[5] Edensor, Tim; Leslie, Deborah; Millington, Steve; and Rantisi, Norma m. (Eds.), Space of Vernacular Creativity, Rethinking the cultural and economy, Routledge, London and New York, p. 1-16 and 183-199, 2010.
[6] Heath, Kingston W. M., Vernacular Architecture and Regional Design: Cultural Process and Environmental Response, Elsevier Ltd, Oxford, p. 3-21, 2009.
[7] Hu, Richard Weixing, Building Asia Pasific Regional Architecture: The Challenge of Hybrid Regionalism, The Brookings Institution, Washington D.C., 2009.
[8] Arndt, Paul, Masyarakat Ngadha, Keluarga, Tatanan Sosial, Pekerjaan, dan Hukum Adat” (translated by Nama, Paul Sabon, editor: Lege, Lukas and Embu, Eman J.), Nusa Indah, Ende, Puslit Candraditya, Maumere, 2009.
[9] Fischer, Michael M.J., 2007. Culture and Cultural Analysis as Experimental Systems, Cultural Anthropology, Vol.22, Issue 1, p. 1-65, h p://www.anthrosource.net/.
[10] Nik, Ali Sarrafi. 2011. Sustainability in Vernacular Architecture-Outlooks on Iranian Tribes, Proceeding of 5 th Symposium on Advances in Science and Technology (SASTech), Mashhad, Iran.
[11] Nugraheni, Rini and Suprayitno, Iwan. 2009. Kampung Wogo dan Potensi Pengembangannya, Prosiding Seminar Regional Jelajah Arsitektur Negeri Seri-6 Nusa Tenggara Timur, Bajawa: Puslitbang Permukiman-Baand Litbang-Departemen Pekerjaan Umum.,
[12] Pangarsa, Galih W. 2008. Pelestarian Arsitektur Rakyat, Paradigma Partisipasi Sosial, Prosiding Seminar Regional Jelajah Arsitektur Negeri Seri-6 Nusa Tenggara Timur, Bajawa: Rapoport,
[13] Amos. 2009. Some Further Thoughts on Culture and Environment, Archnet-IJAR, Vol.2, issue 1, pp. 16-39, h p://www.Archnet-IJAR/ [March 2008].
[14] Susetyarto M.B., Budihardjo E., Pangarsa G.W., and Hardiman G. 2011. Living in Harmony with the Natural Environment in the Boat Culture; Critical Analysis of Vernacular Architecture in Flores, Proceedings of The 12th International Conference on Sustainable Environment and Architecture (SENVAR): Nusantara”(Local) Wisdom for The Better of Sustainable Architecture, p. A3-23 - A3-29, Malang, Indonesia.

[15] Susetyarto M.B., Budihardjo E., Pangarsa G.W., and Hardiman G., 2011. Sustainability of Vernacular Kamponds of Flores, A Valuable Lesson From The Ancestors for Future Architects. Sustainable Future for Human security” (SustaiN’2011), p. 64-65; C-037, Kyoto, Japan.