

Study of Spatial Use Control Management in Canggu Village, Badung Regency, Bali, Indonesia

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Abstract From an environmental perspective, implementation and awareness of environmental sustainability are translated into sustainable development policies. To become a sustainable development, the performance of development must consider environmental, social, and economic factors based on living resources that ensure the quality of life of present and future generations. The rapid development of the city will always be followed by population growth. It will lead to land-use change, especially in areas that have potential land values for development. The Regional Government's role in controlling the conversion of land functions is by determining the allocation of agricultural land for food crops. However, the community often responds to this directive as discriminatory treatment because of restrictions on the right to build on their land, which is different from other people's land in areas designated for settlement and tourism. There is an indication of a common form of space utilization control. Besides, the principle of justice is not created for the people who own land for agricultural purposes. In terms of utilization, land allocated for agriculture cannot build buildings that are not following their original function, but landowners' incentives are not optimal. Likewise, investors who make villas and restaurants on land designated for agriculture are not subject to appropriate disincentives. This phenomenon that occurs in Canggu Village reflects that the control of spatial use listed in the RTRW direction of Badung Regency does not yet have the principles of justice and the principles of sustainable development. Concerning the preceding, as an effort to overcome the phenomenon while preventing further similar phenomena from occurring and protecting the values of social justice in society, management of spatial use control is required, especially on land designated for food crop agriculture.

Keywords: *sustainable development, land-use change, management of spatial use control.*

I. INTRODUCTION

From an environmental perspective, implementation and awareness of ecological sustainability are translated into sustainable development policies. To become a sustainable development, the product's performance must consider environmental, social, and economic factors based on living resources and consider the long-term and short-term advantages or disadvantages of an alternative action that ensures the quality of life of present and future generations [3][14][42]. The International Union for Conservation of Nature and Natural Resources (IUCN) 1980 in the world conservation strategy [1][10][11][12], it defines to be a sustainable development that the implementation of development must consider environmental, social, and economic factors based on living resources that ensure the quality of life of current generations and generations future [2][4][5][19][22][23].

The rapid development of the city will always be followed by population growth. The multiplier effect of these developments is the increased need for food, the need for land for housing, and urban activities. This will trigger land-use change, especially in areas with land values that can be developed. Change of land use occurs most often in paddy fields, which later become built-up land. Apart from

playing a role as food producers, ecologically, rice fields play a vital role as urban green belts as the city's efforts to fulfill the composition of urban Green Open Space (RTH) [57][58]. The role and function of rice fields are significant for the sustainability of food security and urban ecological aspects. If the rice fields continue to decrease every year, it will threaten food security for urban residents [40][65].

The Regional Government's role in controlling the conversion of land functions is by determining the allocation of agricultural land for food crops. However, the community often responds to this directive as a discriminatory treatment due to restrictions on the right to build on their land, which is different from other people's land in areas designated for settlement and tourism [43][44][51]. Because of the pressure and desire of economic motives, the people who own land in the space allocated for food crops also want to get justice and get the maximum results from their land by selling, renting, or building on the land they own even though it is not following the spatial plan [35][61][63][64].

In a more microscope, the phenomenon of conversion of agricultural land functions is also rife in the Badung Regency area, one of which is Canggu Village. Based on the Bali Provincial Regulation No. 3 of 2020 concerning Amendments to the Regional Regulation No. 16 of 2009

concerning the RTRW of the Province of Bali in 2009-2029 [8][9][20][21] it states that the Canggu Village area is included in the delineation of the Canggu Regional Tourism Strategic Area (KSPD). In addition, Canggu Village is also included in the Sarbagita Urban Core Area with the function of the center for tourism activities as well as trade and services on an international, national and regional scale. With the direction from the Bali Province RTRW, the village of Canggu has the potential to develop tourism accommodation, which is quite large, which has an impact on spatial use conflicts [32][33][34]. The conversion of land functions from agricultural activities to tourism accommodation businesses is a problem that must get attention and real solutions to maintain sustainable development [6][7][13][18].

To realize the spatial pattern plan in Canggu Village, an excellent urban management instrument is needed starting from spatial planning, utilization, and control. This manifestation has been mandated in Perda number 26 of 2013 concerning RTRW of Badung Regency for 2013-2033 [8][9][24][25][26][27]. However, looking at the high incompatibility of existing land uses in Canggu Village with the RTRW designation plan for Badung Regency shows a common form of spatial use control. However, looking at the high number of inconsistencies in existing land use in Canggu Village with the RTRW designation plan for Badung Regency shows a common form of spatial use control. Besides, the principle of justice is not created for the people who own land for agricultural purposes. In terms of utilization, land allocated for agriculture cannot build buildings that are not following their original function, but landowners' incentives are not optimal [28][29][30][31]. Likewise, investors who make villas and restaurants on land designated for agriculture are not subject to appropriate disincentives.

This phenomenon that occurs in Canggu Village reflects that the control of spatial use listed in the RTRW direction of Badung Regency does not yet have the principles of justice and the principles of sustainable development. Concerning the preceding, as an effort to overcome the phenomenon while preventing further similar phenomena and to protect the values of social justice in society, management of spatial use control is needed, especially on land allocated for food crop agriculture, which in this case is focused on the scope of location in Canggu Village, North Kuta District, Badung Regency to create control over spatial use which is based on justice for all levels of society [8][9][48].

II. RESEARCH METHODS

This study included in the category of qualitative research with a case study approach. This research departs from theories related to space utilization control management. In classification, this case study research is curative. It is also called a Retrospective Case Study, a deviation from reasonableness that allows for follow-up on healing or improvement of a case (treatment). This is following the research plan's objectives: finding out the problems of controlling space utilization, then conducting analysis and formulate solutions to the issues faced. The data analysis technique used was the SWOT analysis technique with a qualitative approach to carry out a strategic analysis and control management analysis

techniques to create a control management formulation and modeling that the Regional Government will apply to become an instrument for controlling spatial use in Canggu Village.

III. RESULTS AND DISCUSSION

Based on the RTRW Badung Regency, Canggu Village is planned as a supporting residential area for Sarbagita urban areas [8][9]. So that urban settlements will be directed and developed in Batubulan Village. The data obtained from the primary survey were then processed by methods and techniques overlay geographic information systems (GIS). This will be presented with land use analysis, connectivity analysis, and building density analysis.

A. Population Growth and Spatial Use Patterns in Canggu Village

Canggu Village is a village located in North Kuta District, Badung Regency. Based on the Bali Provincial Regulation No. 3 of 2020 concerning Amendments to the Regional Regulation No. 16 of 2009 concerning the RTRW of the Province of Bali in 2009-2029, it states that the Canggu Village area is included in the delineation of the Canggu Regional Tourism Strategic Area (KSPD). So the village of Canggu has a high potential for land development. The total population in Canggu Village in 2020 is 7,035 people with a growth rate of 2.1 when viewed from the population development from 2016-2020 [8][9][15][17]. The population number and high population growth rate indicate that Canggu Village is an area that has excellent potential to be inhabited and the development of urban activities. For more details, see Table 1 and Diagram 1.

Table 1. Population Growth Rate of Canggu Village

No	Population (Year/%)					Growth (%)
	2016	2017	2018	2019	2020	
1	5.375	5.873	6.229	6.615	7.035	2,1

Source: North Kuta District in Figures, 2021

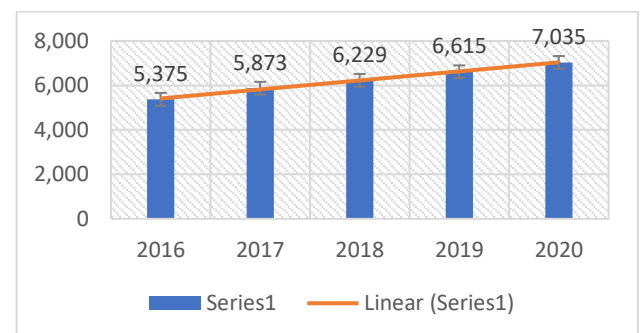


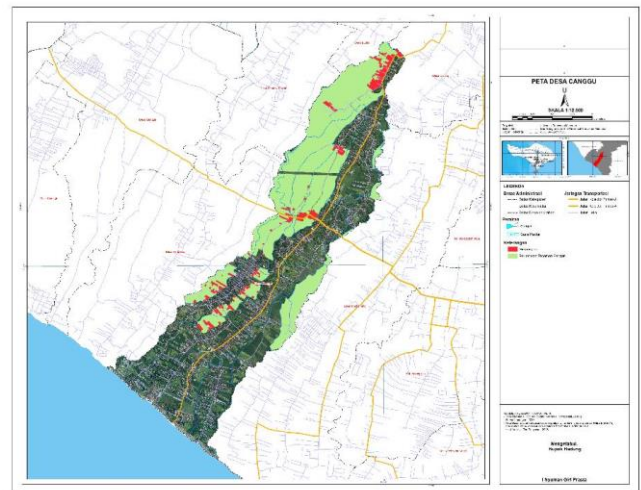
Diagram 1. Population Growth Rate of Canggu Village [9]

High space requirements will always follow the large population and population growth rate in Canggu Village. Therefore, the polar money plan will be directed to maintain the existing spatial composition. The spatial plan for the RTRW in Canggu Village is dominated by the Allocation of Settlements of 300.17 Ha and followed by the Allocation of Wetland Food Agriculture of 200.43 Ha. For more details, see Table 2 and Map 1 [8][9][16][52].

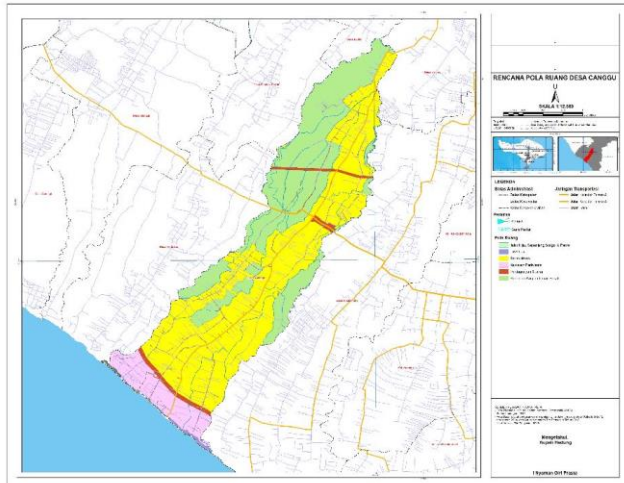
Table 2. Spatial Patterns of RTRW in Canggü Village

No	Space Pattern Plan	Area (Ha)
1	Green Paths Along the River & Coast	0,14
2	Tourism Area	44,31
3	Trade & Services	27,01
4	Settlement	300,17
5	Wetland Food Agriculture	200,43
6	TWA Ocean	2,38
7	(blank)	2,83
Total		577,26

Source: RTRW Badung Regency 2013-2033.



Map 2. Land Use Deviation in Canggü Village [9]



Map 1. The Spatial pattern of RTRW in Canggü Village [9]

B. Deviation of Land Use in Canggü Village

The high population will increase the need for food, land for housing, and urban activities. This will lead to land-use change, especially in areas that have potential land values for development. Change of land use occurs most often in paddy fields, which later become developed land. Based on the results of the land allocation overlay for Badung Regency RTRW in 2013-2033 with built-in land in 2021 in Canggü Village [8][9][49][50], it is obtained that the land use deviation in Canggü Village is 16.12 Ha. The land intersection is dominated by trade and services covering an area of 15.10 hectares and tourism accommodation surrounding an area of 0.87 hectares. For more details, see Table 3 and Map 2 [8][9][46][47].

Table 3. Deviation of Land Use in Canggü Village

No	Land Use	Area (Ha)
1	Trade and Services	15,10
2	Tourism Accommodation	0,87
3	Temple	0,14
Total		16,12

Source: Analysis Results, 2021

C. Space Utilization Control Management

Based on Law number 11 of 2020 concerning Job Creation, this spatial use control is carried out through: provisions for the suitability of spatial use activities, which consist of: (a) location permits, this stage is the process of checking the suitability of land use and utilization permits at the requested location; and (b) approval for spatial use; this stage is advanced to obtain the applicant's consent. The requested site is following the allocation contained in the spatial planning arrangement to be further granted the utilization permit requested [8][9][37][41][45][55].

Furthermore, the provision of incentives and disincentives consists of: (a) providing incentives, namely: incentives in the form of fiscal, form of incentives arranged in tax breaks, and levy relief for landowners who own land in the location of food crop agriculture [59][60][62]. Incentives in the form of non-fiscal in spatial planning can also be provided, in non-fiscal formats, such as compensation, cross-subsidies, rewards, space leases, stock exchange, infrastructure development, and procurement, ease of licensing procedures, and awards to the public or private sector; (b) giving disincentives, namely disincentives in the form of fiscal, disincentives imposed due to the implementation of activities that are not following the spatial plan. Its purpose is as a tool to prevent, limit growth, or reduce activities that are not in line with the spatial plan. Disincentives in the form of non-fiscal, disincentives in the form of non-fiscal, some of the drafted concepts, namely: limitation of infrastructure provision, imposition of compensation, special requirements in licensing, and penalties [53][54][56].

Moreover, the imposition of sanctions, the imposition of sanctions is not only given to spatial users who do not comply with the provisions of the space utilization permit but are also imposed on authorized government officials who issue permits for spatial use that are not following the spatial layout plan [36][38][39]. The imposition of sanctions can be divided into 2 (two), namely (a) administrative sanctions, administrative sanctions in the form of written warnings, temporary suspension of activities, temporary suspension of public services, closure of locations, revocation of permits, cancellation of permits, demolition of buildings, restoration of spatial functions and administrative fines; (b) criminal sanctions, in the form

of sanctions for the destruction of buildings and sanctions for confinement given to spatial planning violators.

IV. CONCLUSION

The control mechanism for spatial use, namely in the form of the suitability of space utilization activities, provision of incentives and disincentives, and the imposition of sanctions, namely: (1) The appropriateness of spatial use activities in the form of location permits and spatial use permits constitutes a check on land use and utilization permits that have been granted; (2) Providing incentives and disincentives in the form of providing incentives and disincentives in the form of fiscal and providing incentives and disincentives in the form of non-fiscal which aim to deliver the principle of justice for all levels of society; and (3) Imposition of sanctions in the form of administrative sanctions and criminal sanctions aimed at providing a deterrent effect on violators to create an orderly spatial structure.

REFERENCES

- [1] (IUCN) International Union for Conservation of Nature and Natural Resources 1980. *World conservation strategy: Living resource conservation for sustainable development*. Gland: IUCN.
- [2] Acwin Dwijendra, Ngakan Ketut, and Ngakan Putu Sueca. 2019. "The Determinant Factor of Home Transformation in Bali, Indonesia." *The Journal of Social Sciences Research*. <https://doi.org/10.32861/jssr.512.1855.1860>.
- [3] Adharani, Yulinda; Nurzaman, Adi. 2017. *Fungsi Perizinan Dalam Pengendalian Pemanfaatan Ruang di Kawasan Bandung Utara Dalam Kerangka Pembangunan Berkelanjutan*. Bandung: Universitas Padjadjaran.
- [4] Agus Kurniawan, N. K. Acwin Dwijendra, P Rumawan Salain, and I G N Anom Rajendra. 2019. "The Effect of Dutch Colonial Architecture on Palace in Bali, Indonesia." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/AIOR.1991.02.02.85>.
- [5] Agus Kurniawan, Putu Rumawan Salain, Ngakan Ketut Acwin Dwijendra, and I Gusti Ngurah Anom Rajendra. (2020). Revealing the Meaning Behind Mandala Of Agung Karangasem Palace, Bali Indonesia: Investigating Through Semiotics For Preservation Of Historic Value. *International Journal of Advanced Science and Technology*, 29(7), 1417 - 1427. Retrieved from <http://sercs.org/journals/index.php/IJAST/article/view/15555>
- [6] Ahmad, Muhajir. 2017. *Kebijakan Pengendalian Pemanfaatan Ruang Dalam Pelaksanaan Ketentuan Penataan Ruang di Kota Baubau Provinsi Sulawesi Tenggara*. Jakarta: Institut Pemerintahan Dalam Negeri Jakarta.
- [7] Akil, Arifuddin; Arifin, Mimi. 2020. *Penyuluhan Mekanisme Pengendalian Pemanfaatan Ruang Wilayah Kota di Kantor Kecamatan Biringkanaya Kota Makassar*. Makassar: Universitas Hasanuddin.
- [8] Anonim. 2009. Peraturan Daerah Provinsi Bali No 16 Tahun 2009 tentang RTRW Provinsi Bali Tahun 2009-2029.
- [9] Anonim. 2013. Peraturan Daerah Kabupaten Badung No 26 tahun 2013 Tentang Rencana Tata Ruang Wilayah Kabupaten Badung 2013-2033
- [10] Anonim. Undang-undang dasar 1945
- [11] Anonim. Undang-undang No 11 tahun 2020 tentang Cipta Kerja
- [12] Anonim. Undang-Undang No. 5 Tahun 1960 tentang Peraturan Dasar Pokok-pokok Agraria
- [13] Anonim. Undang-undang Nomor 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup.
- [14] Dwijendra, Acwin. 2013. "Quality of Affordable Housing Projects by Public and Private Developers in Indonesia: The Case of Sarbagita Metropolitan Bali." *Journal of Geography and Regional Planning*. <https://doi.org/10.5897/JGRP12.050>.
- [15] Dwijendra, Ngakan Ketut Acwin, and Made Vairagya Yogantari. 2019. "Visual Content by Consumer in Promoting Sustainable Culinary Business." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/AIOR.1991.02.03.102>.
- [16] Dwijendra, Ngakan Ketut Acwin, and Ngakan Made Anom Wiryasa. 2017. "Institutional Structure Models in Implementation of Spatial Planning." *Journal of Sustainable Development*. <https://doi.org/10.5539/JSD.V10N4P56>.
- [17] Dwijendra, Ngakan Ketut Acwin, Ida Bagus Raka Suardana, and Luh Kadek Budi Martini. 2017. "Implementation of Values on Family Company Succession in Bali Province, Indonesia." *Journal of Sustainable Development*. <https://doi.org/10.5539/JSD.V10N4P75>.
- [18] Dwijendra, Ngakan Ketut Acwin, Syamsul Alam Paturusi, and Widiastuti Widiastuti. 2017. "Cultural Value Transformation in Traditional Market Spatial Planning in City of Denpasar, Gianyar and Klungkung – Bali, Indonesia." *Journal of Sustainable Development*. <https://doi.org/10.5539/JSD.V10N4P97>.
- [19] Dwijendra, Ngakan Ketut Acwin. 2003. "Perumahan Dan Permukiman Tradisional Bali." *Jurnal Permukiman "Natah."*
- [20] Dwijendra, Ngakan Ketut Acwin. 2020. "How the Local Wisdom Influences the Sustainability of Spatial Development in Denpasar, Bali, Indonesia." *BHUMI: Jurnal Agraria Dan Pertanahan*. <https://doi.org/10.31292/jb.v5i3.389>.
- [21] Dwijendra, NKA. 2003. Bali Traditional Housing and Settlements. *Journal of Settlement Natah*, Vol. 1 No. February 1, 2003: 8 - 24.
- [22] Dwijendra, NKA. 2009. *Arsitektur Kebudayaan Bali Kuno*, Denpasar: Udayana University Press.
- [23] Frysa Wiriantari, Syamsul Alam Paturusi, Ngakan Ketut Acwin Dwijendra, Dewa Gede Agung Diasana Putra. (2020). The Value of Catuspatha As A Public Space For The Balinese Community In The Klungkung City, Bali Indonesia: The Struggle For Activities Between Politics, Economics And Socio-Culture. *PalArch's Journal of Archaeology of Egypt / Egyptology*, 17(7), 11581 - 11593. Retrieved from <https://archives.palarch.nl/index.php/jae/article/view/4541>.
- [24] Ngakan Ketut Acwin Dwijendra, I Dewa Gede Agung Diasana Putra, Syamsul Alam Paturusi, and Ni Putu Suda Nurjani. 2019. "Morphology of Backpacker Dormitory Inside Traditional Balinese House, Canggu Village, Bali, Indonesia." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/AIOR.1991.02.03.89>.
- [25] I Made Adhika and Ngakan Ketut Acwin Dwijendra. 2020. Selfie Photos Area and Its Implication to Water Availability and Social Culture in Wanagiri Village, Bali Indonesia, *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 4, 2020, DOI: 10.37200/IJPR/V24I4/PR201652.
- [26] I Made Agus Mahendra, Ngakan Ketut Acwin Dwijendra, I Dewa Gede Agung Diasana Putra, and Syamsul Alam Paturusi, 2019. "Elements of the Cultural Space as a Form Identity of Klungkung Urban Area, Bali, Indonesia." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/AIOR.1991.02.02.86>.
- [27] INyoman Widya Paramadhyaksa, Ngakan Ketut Acwin Dwijendra, Ni Ketut Pande Dewi Jayanti, I Kadek Merta Wijaya (2020). Orientation on Spatial Planning in Pinggan Village, Kintamani District, Bangli Regency, Bali, Indonesia. *Solid State Technology* Volume: 63 Issue: 6 Publication Year: 2020.
- [28] I Nyoman Wijaya, I Made Gede Anadhi, I Putu Gede Suyoga, Ngakan Ketut Acwin Dwijendra (2021). Padharman Dalem Temple: Tracing the Power of Java Kings in Architecture of Worship in the Current Bali, Indonesia. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 18(2).
- [29] I. M. Adhika, N. K. A. Dwijendra. Selfie Photos Area and Its Implication to Water Availability and Social Culture in Wanagiri Village, Bali Indonesia, *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 4, 2020, DOI: 10.37200/IJPR/V24I4/PR201652. Retrieved from <https://www.psychosocial.com/article/PR201652/13869>.
- [30] Ida Bagus Idedhyana, Ngakan Putu Sueca, Ngakan Ketut Acwin Dwijendra and Ida Bagus Wirawibawa. (2020). Architecture of Padmasana Tiga in Besakih Temple, Bali Indonesia: Interpreted from the Concept of Shiva Siddhanta. *International Journal of Advanced Science and Technology*, 29(11s), 13 - 26. Retrieved from <http://sercs.org/journals/index.php/IJAST/article/view/19917>.
- [31] Iriani, Yulia. 2013. *Legal Aspek Pengendalian Pemanfaatan Ruang di Kota Bandung*. Bandung: Badan Litbang Kementerian Pekerjaan Umum.
- [32] Kartika, I Made. 2011. *Pengendalian Pemanfaatan Ruang*. Mataram: Universitas Mahasaraswati Mataram.
- [33] Kato, Sadahisa, Kosuke Hishiyama, Anak Agung Ketut Darmadi, Ngakan Ketut Acwin Dwijendra, and Dewa Ngurah Suprpta. 2019. "Functional Analysis of Telajakan, Plants and Space in Northern Denpasar, Bali, Indonesia." *Open Journal of Ecology*. <https://doi.org/10.4236/oje.2019.92002>.
- [34] Kautsary, Jamilla; Shafira, Salma. 2019. *Kualitas Instrumen Pengendalian Pemanfaatan Ruang Berdasarkan Kelengkapan*

- [35] *Materi Ketentuan Umum Peraturan Zonasi Rencana Tata Ruang Wilayah di Kabupaten Kendal*. Semarang: Universitas Islam Sultan Agung Semarang.
- [36] M. V. Yogantari, N. K. A. Dwijendra, Visual Exploration Using Acrylic Paint on Used Fashion Items for Sustainable Use. In: *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 03, DOI: 10.37200/IJPR/V24I3/PR201902, 2020. Retrieved from <https://www.psychosocial.com/article/PR201902/17516>.
- [37] Made Agus Mahendra, Syamsul Alam Paturusi, Ngakan Ketut Acwin Dwijendra, DewaGede Agung Diasana Putra. (2020). The Meaning Of Local Culture Elements And Urban Elements As Forming The Identity Of The Klungkung Urban Area,Bali, Indonesia. *PalArch's Journal of Archaeology of Egypt / Egyptology*, 17(7), 11563 - 11580. Retrieved from <https://archives.palarch.nl/index.php/jae/article/view/4539>.
- [38] Made Vairagya Yogantari, and Ngakan Ketut Acwin Dwijendra. 2019. "Visual Content by Consumer in Promoting Sustainable Culinary Business." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/aior.1991.02.03.102>.
- [39] Martini, Luh Kadek Budi, Ida Bagus Raka Suardana, and Ngakan Ketut Acwin Dwijendra. 2017. "Implementation of Values on Family Company Succession in Bali Province, Indonesia." *Journal of Sustainable Development*. <https://doi.org/10.5539/jsd.v10n4p75>.
- [40] N. K. A. Dwijendra, Identity Struggle Perspective in Car-Shaped Shrine in Paluang Temple, Nusa Penida Bali, Indonesia, *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 4, DOI: 10.37200/IJPR/V24I4/PR201653, 2020. Retrieved from <https://www.psychosocial.com/article/PR201653/13871>.
- [41] N. P. S. Nurjani, N. K. A. Dwijendra, How Traditional Balinese Houses Can Adjust and Cater for International Tourist in the Cangu Area, Bali Indonesia? In: *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 03, DOI: 10.37200/IJPR/V24I3/PR201901, 2020. Retrieved from <https://www.psychosocial.com/article/PR201901/17512>.
- [42] Ngakan Ketut Acwin Dwijendra (2020). Meru as a Hindu Sacred Building Architecture with a High Roof and Resistant to Earthquakes in Bali, Indonesia. *Civil Engineering and Architecture*, Vol. 8 (3), pp. 350 - 358. DOI: 10.13189/cea.2020.080319. Retrieved from http://www.hrpub.org/journals/article_info.php?aid=9473.
- [43] Ngakan Ketut Acwin Dwijendra, Akhmad Anwar Dani, Dian Wardiana Sjucho, Elena N. Klochko, Yenni Patriani (2020), Political And Social Infrastructure Towards High Quality Tourism Sites. *European Journal of Molecular & Clinical Medicine*, 2020, Volume 7, Issue 11, Pages 1764-1773.
- [44] Ngakan Ketut Acwin Dwijendra, Frysa Wiriantari, Desak Made Sukma Widiyani, Anak Agung Ayu Sri Ratih Yulianasari, Arya Bagus Mahadwijati Wijaatmaja, Transformation of Catuspatha (Crossroad) In Bali Indonesia: Alteration Ideas From Empty Space To Aesthetic Element Of City, *Solid State Technology* Volume: 63 Issue: 6 Publication Year: 2020
- [45] Ngakan Ketut Acwin Dwijendra, Frysa Wiriantari, Desak Made Sukma Widiyani, Anak Agung Ayu Sri Ratih Yulianasari, Arya Bagus Mahadwijati Wijaatmaja. (2020). Transformation of Catuspatha in Bali Indonesia: Alteration Ideas from Empty Space to Aesthetic Element of City. *Rupkatha Journal on Interdisciplinary Studies in Humanities*. Volume 12, Number 6, 2020. DOI: 10.21659/rupkatha.v12n6.15.
- [46] Ngakan Ketut Acwin Dwijendra, I Dewa Gede Agung Diasana Putra (2020). Collaboration and Acculturation to Manage and Create Architectural Design of Giri Natha Temple, Timor Leste: The Architectural Harmony between Bali and Timor Leste. *Journal of Talent Development and Excellence (TDE)*, Vol. 12 No. 3s (2020) Page No: 3252–3267. Retrieved from <http://iratde.com/index.php/jtde/article/view/1352>.
- [47] Ngakan Ketut Acwin Dwijendra, I Made Adhika, I Dewa Gede Agung Diasana Putra I Gusti Putu Bagus Sastrawan Mananda , Ida Bagus Putu Adnyana. (2020). Design Model Innovations For Tourism Villages In Bangli, Bali Indonesia: Debate Between Environmental And Cultural Protection Versus Community Economic Development. *International Journal of Advanced Science and Technology*, 29(7), 1428 - 1443. Retrieved from <http://sersc.org/journals/index.php/IJAST/article/view/15556>
- [48] Ngakan Ketut Acwin Dwijendra, Laila Refiana Said, Totok Hendarto, Samuel PD Anantadajaya (2020). The green supply chain management practices effect in the context of Indonesian community empowerment and poverty reduction. *Journal of Talent Development and Excellence (TDE)*, Vol. 12 No. 4s (2020). Retrieved from <http://iratde.com/index.php/jtde/article/view/755>.
- [49] Ngakan Ketut Acwin Dwijendra. (2020). Expanding Oil & Gas Sector of Indonesia through Better Marketing Performance: Analyzing the Role of Online Engagement, Interactivity and Brand Attachment. *International Journal of Innovation, Creativity and Change*, Vol. 11, Issue 14, 2020.
- [50] Ngakan Ketut Acwin Dwijendra. (2020). From Tradition to Modernization in Morphological Process of Indigenous Settlement Patterns in Bali, Indonesia. *International Journal of Advanced Science and Technology*, 29(8s), 172 - 184. Retrieved from <http://sersc.org/journals/index.php/IJAST/article/view/10437>.
- [51] Ngakan Ketut Acwin Dwijendra. 2018. "Transformation Of Bale Daja Architecture In Housing Of Sading." *International Journal of Current Advanced Research*.
- [52] Ngakan Ketut Acwin Dwijendra. 2019. "Morphology of House Pattern in Tenganan Dauh Tukad Village, Karangasem Bali, Indonesia." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/aior.1991.02.01.60>.
- [53] Ngakan Ketut Acwin Dwijendra. 2019. "Vernacular Inculturation on the Architecture of the Church in Bali, Indonesia (Case Study: Pniel Blimbingsari Christian Church, Jembrana, Bali)." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/aior.1991.02.03.101>.
- [54] Ngakan Ketut Acwin Dwijendra. 2020. From Tradition to Modernization in Morphological Process of Indigenous Settlement Patterns in Bali, Indonesia. *International Journal of Advanced Science and Technology*, 29(8s), 172 - 184. Retrieved from <http://sersc.org/journals/index.php/IJAST/article/view/10437>.
- [55] Ngakan Ketut Acwin Dwijendra. I Putu Gede Suyoga (2020). Analyze of Symbolic Violence Practices in Balinese Vernacular Architecture, Bali Indonesia. *International Journal of Innovation, Creativity and Change*, Vol. 13, Issue 5, 18 June 2020. Retrieved from https://www.ijicc.net/images/vol_13/Iss_5/13543_Dwijendra_2020_E_R.pdf.
- [56] Ngakan Made Anom Wiryasa and Ngakan Ketut Acwin Dwijendra, Innovative Products of Artificial Natural Stone: Alternative Solutions For Building Material Needs And Environmental Protection, *Solid State Technology*, Volume: 63 Issue: 6, Publication Year: 2020.
- [57] Ni Luh Putu Dessy Dharmayanty, Ngakan Ketut Acwin Dwijendra, Ni Ketut Agusinta Dewi, Syamsul Alam Paturusi. 2019. "Development and Behaviour Response of the Balinese Inhabiting in Denpasar City and Badung Regency, Bali-Indonesia." *Journal of Social and Political Sciences*. <https://doi.org/10.31014/AIOR.1991.02.02.84>.
- [58] Ni Luh Putu Dessy Dharmayanty, Syamsul Alam Paturusi, Ngakan Ketut Acwin Dwijendra, Ni Ketut Agusinta Dewi, The Meaning of Vertical Housing for Balinese People, the Debate between Cultural Demands and the Need for Urban Housing in Bali, Indonesia. In: *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 7, DOI: 10.37200/IJPR/V24I3/PR201902, 2020. Retrieved from <https://www.psychosocial.com/article/PR280300/20770>.
- [59] Ni Putu Suda Nurjani, Ngakan Ketut Acwin Dwijendra. 2020. How Traditional Balinese Houses Can Adjust and Cater for International Tourist in the Cangu Area, Bali Indonesia? In: *International Journal of Psychosocial Rehabilitation*, Vol. 24, No. 03, DOI: 10.37200/IJPR/V24I3/PR201901.
- [60] Pambudi, Yonathan Suryo, Yulian Purnama, Ngakan Ketut Acwin Dwijendra, Siti Kholifah, Aspizain Caniogo. (2020). The Effect of Internal Factors on the Improvement of the Role of the Community and Quality of Waste Bank Management "Mekar Asri" in RT. 5 RW. XVI, Mojosoongo Sub-District, Surakarta City, Indonesia. In: *Test Engineering and Management*, Vol. 82, January-February 2020, pp. 14695-14703. Retrieved from <http://testmagazine.biz/index.php/testmagazine/article/view/3160>.
- [61] Paturusi, Syamsul Alam, Ngakan Ketut, Acwin Dwijendra, and Gede Windu Laskara. 2017. "Perubahan Arsitektur Traduisional Hunian Desa Bayung Gede, Bangli." *Samarta*.
- [62] Priyono, Bayi. 2016. Perizinan Sebagai Sarana Pengendalian Penataan Ruang Dalam Perspektif Pemanfaatan Ruang di Daerah Jawa Barat: Institut Pemerintahan Dalam Negeri.
- [63] Wa Ode Sifat, Herman Sjahruddin, Yana Fajriah, Ngakan Ketut Acwin Dwijendra, Adi Santoso. Innovative Work Behaviors in Pharmacies of Indonesia: Role of Employee Voice, Generational Diversity Management and Employee Engagement. SRP. 2020; 11(2): 725-734. DOI:10.31838/srp.2020.2.105. Retrieved from <http://sysrevpharm.org/?mno=118846>.
- [64] Widiastuti, Widiastuti, Syamsul Alam Paturusi, and Ngakan Ketut Acwin Dwijendra. 2017. "Cultural Value Transformation in

- [65] Traditional Market Spatial Planning in City of Denpasar, Gianyar and Klungkung – Bali, Indonesia.” *Journal of Sustainable Development*. <https://doi.org/10.5539/jsd.v10n4p97>.
- [66] Wiriantari, Frysa, Syamsul Alam Paturusi, Ngakan Ketut Acwin Dwijendra, and I Dewa Gede Agung Diasana Putra. 2020. “Catuspatha As A Landmark Of Semarapura City In Terms Of Physical And Socio-Cultural Aspects.” *International Journal of Engineering and Emerging Technology*. <https://doi.org/10.24843/ijeet.2020.v05.i01.p06>.
- [67] Wiryasa, Ngakan Made Anom, and Ngakan Ketut Acwin Dwijendra. 2017. “Institutional Structure Models in Implementation of Spatial Planning.” *Journal of Sustainable Development*. <https://doi.org/10.5539/jsd.v10n4p56>.