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# Integrative Digital Platform Based on Collaborative Governance Model for Green Tourism Village in Bali

**Deddy Kurniawan Halim[1], Ersy Ervina[2], Dwi Novita Cahyaningtyas Permatasari[3*], Ni Nyoman Sri Astuti[4]**
* Corresponding Author

[1]MICE Dept., Politeknik Internasional Bali, Indonesia
[2]Applied Science School, Universitas Telkom, Bandung, Indonesia
[3]Digital Business Dept., Politeknik Internasional Bali, Indonesia
[4]Tourism Dept., Politeknik Negeri Bali, Indonesia

dk.halim@pib.ac.id, ersyervina@telkomuniversity.ac.id, dwi.novita@pib.ac.id, nyomansriastuti@pnb.ac.id
Tel : +62 878-8080-2569 , +62 821-2631-4606 , +62 812-4679-7769

**Abstract**
Green Tourism Village (DWH) has become the new locomotive of the tourism industry post-COVID-19. DWH incorporates a green economy by reducing environmental risks and resource exploitation. The increasing number of tourists to Bali contradicts the declining occupancy rate, showing the hotel's oversupply. A shifting trend from urban to rural tourism exists, but this invasion threatens environmental sustainability. This study aims to investigate the feasibility of collaborative governance involving pentahelix stakeholders. DeWiKu apps and SIDeWi*HuB digital platform are developed, 30 villages representing 9 cities/regencies in Bali are selected to be sample pools with variables measured; 1)N-GreenV, 2)Community Participation, 3)Perception on Sustainability.

Keywords: Green Tourism Village; Collaborative Governance; Digital Platform; N-GreenV

## 1.0 Introduction
COVID-19 has devastated the tourism industry and driven the change of tourism orientation from Urban to Rural Tourism. To support this shift, the Ministry of Tourism & Creative Economy has held the annual award ADWI (Anugerah Desa Wisata Indonesia) since 2021. The development of tourism villages in rural areas is vital, but if not careful, it can damage the natural environment. This changing paradigm has been emerging in 238 tourism villages in Bali during COVID-19.

Green Tourism Village (DWH) has become an issue due to this change and started to make rural tourism a locomotive for post-COVID-19 tourism as also stipulated in the 2020-2024 National Medium-Term Development Plan. DWH is a new generation of tourism village that incorporates a green economy concept, aiming to improve people's welfare and social justice by reducing risks and exploitation of limited resources. This concept assures the sustainability of DWH because the types of tourist attractions offered should not damage the environment but instead improve it.

This issue is significant to be explored in the context of Bali because the tourism paradox occurred long before the coming of COVID-19, where an increase number of domestic and foreign tourists coming to Bali, chosen as one of the favorite destinations, was not accompanied by an increase in hotel room occupancy rates. On the other hand, there was an oversupply state of hotel rooms

which reached 146,000 rooms as of September 2019 so the Provincial Government deemed it necessary to issue a moratorium policy on hotel construction throughout the island, although the authority did not have to be at the provincial level but could be at the district/city level (Suadnyana, 2019), especially due to the number of tourists at that time with 550,000/month or 4X the number of hotel rooms available. The Statistical Office of Bali noted that in the last decade, there has been an increased number of foreign tourists coming to Bali from 2010 to 2019 by 243.59%. The paradox question is if there was no pandemic, where would the growing number of foreign tourists go if they found that the hotel rooms were vacant? The hotel occupancy rate has decreased since 2017 and was only 59.29% in January 2020.

(Wiranatha, 2020) quotes The Indonesia Hotel & Restaurant Association of Bali stating that until June 2020, or within 3 months, since the pandemic was announced and Ngurah Rai airport was closed to foreign tourists, 289-star hotels were closed; 90 in Buleleng, 23 in Bangli, 6 in Tabanan, 11 in Jembrana, 14 in Karangasem, 87 in Badung, 19 in Gianyar, 33 in Denpasar, and 6 in Klungkung. However, Airbnb stated that Bali is the second most viable villa/homestay market in the world (Nilsen, 2018). It is this fact that encourages researchers to see homestays in rural areas as a potential solution to the problem of oversupply of hotel rooms and see them more comprehensively, strategically, and integratively in the context of managing tourism villages.

The research aims to create an e-administration based on multi-stakeholder governance for managing DWH, as well as a tool for formulating public policies regarding sustainable Tourism Village up to the marketing phase. This e-administration is expected to be able to map DWH and become a means of distributing economic welfare for Bali rural communities as the novelty of this research so that it can also be applied in other provinces across the country.

## 2.0 Literature Review

### 2.1 E-administration

E-Administration is an administrative transformation from written forms into digital to respond to incoming/outgoing information, to facilitate the disposition and follow-up of administrators in related sections/work units. This model places "stakeholders' rights" to obtain efficient public services to increase their satisfaction. Chadwick and May (2003), state that Information Communication Technology (ICT) enables the renewal of public organizations: faster and more efficient processes, digital access to government information, collected information/data banks, taxes, payment, etc. E-administration provides assistance to customers in various sectors, meets management demands, and strives to achieve customer satisfaction by obtaining higher and easier capabilities to manage various affairs (Mellivell, 2006). The orientation towards e-administration is an urgent need for society to work on self-development and solving management problems by avoiding the traditional, bureaucratic style to then orienting towards a flexible electronic style (Jackson, 2006).

However, there are many obstacles in implementing e-administration, such as; 1) Regulatory barriers where poor planning results in users not being able to adopt them (Seresht, 2009; Sendi, 2002), 2) Technical barriers such as hardware specifications, lack of experience among operators, poor infrastructure and fear of facing modern systems (Taybe & Al-Qasimi, 2013), 3) Financial barriers such as the cost of using communication and information facilities, weak financial resources and related institutional workers and high programming costs (Alomari, 2003; Almoghirah, 2010).

The most important requirements for implementing e-administration are developing a strategic plan and human resources as well as material resources. Jackson's study shows that this requirement needs training to achieve effective results such as cost savings, to expand e-administration work, and to manage traditional processes into electronic processes.

### 2.2 Collaborative Governance Body

Also called multistakeholder-based public policy, this refers to public policies that involve many stakeholders in the decision-making process such as government agencies, the private sector, civil groups, and communities. The involvement of various stakeholders is intended to ensure that policies are inclusive, transparent, and effective. Several studies show that the use of this model is necessary in the development of social capital-based tourism. Other studies focus on coordination between stakeholders in the development of tourism villages and the multi-stakeholder governance body model to strengthen institutional development at some villages in Indonesia, such as Kanie, Sidrap-South Sulawesi (Aulia, 2021), Batu, Malang-East Java (Kirana & Artisa, 2020), Sriharjo, Bantul-Central Java (Fitriana et al., 2022).

Multi-stakeholder partnerships (MSP) bring different actors such as civil society, governments, international bodies, media, academic or research institutions, and citizens to participate in the decision-making process (Momen, 2019). In the digital era today, MSP has become increasingly relevant and is believed to increase participation from different stakeholders in the decision-making process, share perspectives, and lead to better policy outcomes. The legitimacy of multi-stakeholder decision-making is closely tied to the expectation of higher-quality policy outcomes (Malcolm, 2008; Lisestraw, 2018)

Several terms relevant to MSP theory that can be applied in the context of public policy governance bodies in the digital era include: **Collaborative Governance** (Ansell & Gash, 2007), **Network Governance**, also known as Actor-Network Theory (ANT) (Jóhannesson & Bærenholdt, 2020), **Participatory Governance** (Quick & Bryson, 2016), **Co-creation** (Wellstead et al., 2022), **Open Governance** (Meijer et al., 2019), and **Policy Ecology** (Caldwell, 1963). This last theory emphasizes the importance of understanding the broad policy context to reach decisions that are sustainable and environmentally, on the needs and interests of stakeholders (Ludwig et al., 2001). In practice, MSP in the digital era can combine several of the theories above but all have in common in emphasizing the importance of participation between stakeholders to reach effective and fair results.

*2.3 Green Tourism Village*
This study is based on a dissertation in Tourism study at Udayana University (Halim, 2022) that emphasizes environmental aspects in tourism villages based on 3 variables as described as follows:

a. The need for Green Village (GreenV). The need for sustainability was initiated by Spreckley (1981) in a Social Audit, and then Elkington (1997) introduced the 3P (Planet, People, Profit) based on the Brundtland Commission Report (UNWCED, 1987) to explain the concept of sustainable development. (Weaver, 2007) offers a concept of a Strong Sustainable Tourism model which criticizes the conventional 3P model where the Environment must be put first, followed by the Social Economy.

b. Perception of Sustainability. This measures the understanding of the community o sustainability concept. Sudarto, (1988) measured public perceptions regarding the extent to of natural tourism can be utilized as a vehicle for a sustainable economy as well as a means of environmental preservation and community empowerment by proposing two perception indicators;1) environmental load, and 2) conservation efforts.

c. Community Participation. The Quebec Declaration proposed four stages of community participation, namely: 1) Planning, 2) Implementing, 3) Managing, and 4) Evaluating. (Priasukmana & Mulyadin, 2001) also used this participatory phased model for the development of Tourism Villages.

## 3.0  Methodology

The research is expected to provide a solution in the form of an integrative digital platform, from the assessment phase to marketing, and to answer the paradox of the increasing number of tourists coming to Bali that is not corresponding to the oversupply of hotel rooms in an urban area but invading to the rural area. The current trend of tourists is no longer mass tourism but quality tourism.

*3.1 Study Design*
The results are based on the information from N-GreenV inventories: 1) DWH mapping, and 2) analysis of DWH stakeholders on the three variables measured. To achieve the research objectives, an integrated system to manage and screen the quality of DWH is developed.

From a marketing perspective, a digital marketing platform (e-commerce) is also needed to guarantee the environmental quality of the tourism villages marketed. Therefore SIDeWi*HuB (Sistem Integrasi Desa Wisata Hijau di Bali or Green Tourism Village Integration System in Bali ) digital application is developed so that it is also ready for business with additional features of Online Booking, and Online Payment and tourists can make reservations and payments directly through the application. To improve human resource capabilities and skills related to the application, there will also be training for operators in targeted tourism villages.

*3.2 The Actors*
As shown in Figure 1, the study embodies the PENTAHELIX model with 5 stakeholders; Local Government, University, Private enterprise, Communities, and Tourists. The Bali Tourism Office as a regulator can monitor the DWH Governance and can ensure the quality that the tourism villages listed comply with environmental principles. The Universities will be enabled to utilize standards effectively through DWH assessments screening, as well as providing guidance for DWH with the help of Forkom Dewi Bali, a dedicated regional organization for tourism village development to comply with the requirements. The private enterprise will gain business potential by promoting platforms for other provinces. Tourism Village Communities as the most beneficiaries are being able to use SIDeWI-HuB to promote their tourism products and improve their welfare by providing data to be verified by the Tourism Office. Last, tourists get the convenience of making reservations effectively & efficiently ONLINE to enjoy quality tourism.
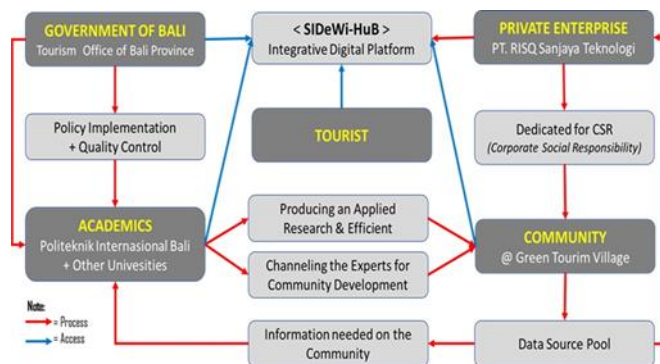


Fig.1: The PENTAHELIX collaborative governance model of SIDeWi*HuB

3.3 Mechanism
Figure 2 describes 3 stages in implementing the SIDeWi*HuB platform:

a. Online Assessment. The function of this stage is to filter villages to comply with DWH requirements. If it does not meet the standards, then the village will be assisted by Forkom Dewi Bali, by the recommendation from the Tourism Office, until it meets the DWH requirements.
b. Registration process. If the village meets the DWH requirements, then it enters the stage of collecting product data (homestays, green packages) to be broadcast ONLINE.
c. Commercial process. The process of branding/marketing. At this go-public stage, tourists can have reservations integrated & controlled by the operator, related villages, and the Tourism Office.
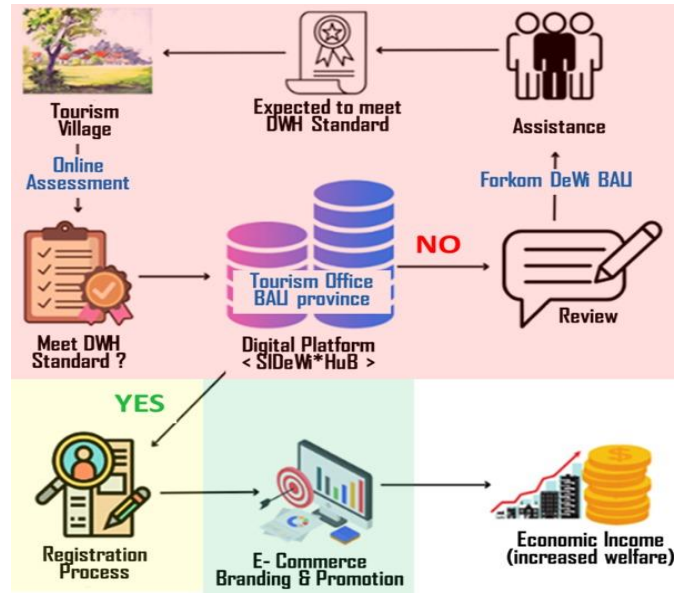


Fig.2: The Process Flow

Three variables were used to design standards for evaluating DWH; 1)The need for green tourism villages (N-GreenV); 2) Community Participation (CP); 3) Perception on Sustainable Tourism (PS). Each variable has indicators that are measured using a Likert scale with a weight of 1-5. To make it easier to measure the extent to which a tourist village is green (Kalpatru-3) greener (Kalpataru-4) or greenest (Kalpataru-5), a baseline reference for tourism villages was drawn by the previous research. Details of the measurement indicators for each variable can be seen in Table 1, as it provides baseline standards for a tourism village to be said green if it meets the minimum standards for each variable, namely N-GreenV min 81; community participation (CP) min 60; and perception of sustainability (PS) min 30.

Table 1. Reference for Green Tourism Village standard values

| Baseline Standard | Variable | Indicator | Total items | Min. | Max. | Questionnaire Standard | Normative Standard | Lowest Normative Standard |
|---|---|---|---|---|---|---|---|---|
| Kalpataru-3 (Green) | | Economic | 9 | 9 | 45 | 27 | 37,080 | 5,667 |
| N-GreenV: 81-106 | N-GreenV | Socio-Culture | 6 | 6 | 30 | 18 | 24,890 | 23,778 |
| CP: 60-70 | | Environment | 12 | 12 | 60 | 36 | 48,788 | 46,940 |
| PS: 30-33 | | Total | 27 | 27 | 135 | 81 | 110,758 | 106,385 |
| Kalpataru-4 (Greener) | | Planning | 5 | 5 | 25 | 15 | 17,678 | 11,867 |
| N-GreenV: 107-111 | Community | Managing | 5 | 5 | 25 | 15 | 18,210 | 13,033 |
| CP: 71-80 | Participation | Implementing | 5 | 5 | 25 | 15 | 17,740 | 14,409 |
| PS: 34-37 | (CP) | Evaluating | 5 | 5 | 25 | 15 | 16,603 | 9,546 |
| Kalpataru-5 (Greenest) | | Total | 20 | 20 | 100 | 60 | 70,231 | 48,855 |
| N-GreenV: > 111 | | Environmental Load | 5 | 5 | 25 | 15 | 17,625 | 15,960 |
| CP  : > 80 | Perception on Sustainability (PS) | Conservation Effort | 5 | 5 | 25 | 15 | 19,753 | 17,455 |
| PS  : > 37 | | Total | 10 | 10 | 50 | 30 | 37,378 | 33,415 |

*3.4 Population and Sample*

The samples were carried out by 10% of the 238 tourism villages registered at the Tourism Office, or 24, so 28 tourism villages were collected by employing online assessment that has been validated with the standard values of the 3 variables. Slovin Formula complied with the sampling requirement with a 10% Margin of Error and 95% level of Confidence, requiring a minimum of 96 samples, with several 126 respondents. The detailed targeted tourism village is shown in Table 2.

Table. 2 Samples Configuration

| Tourism Villages | Regency/City | Population | Percent (%) | Frequency |
|---|---|---|---|---|
| Panglipuran | Bangli | 1.028 | 4,4 | 6 |
| Undisan | | 2.400 | 1,5 | 2 |
| Sudaji | | 10.400 | 9,6 | 13 |
| Panji | Buleleng | 6.532 | 5,2 | 7 |
| Munduk | | 8.904 | 8,1 | 11 |
| Blimbingsari | | 1.022 | ,7 | 1 |
| Perancak | Jembrana | 3.974 | 1,5 | 2 |
| Medewi | | 5.541 | 3,0 | 4 |
| Bongkasa | | 6.257 | 8,1 | 11 |
| Munggu | Badung | 6.597 | ,7 | 1 |
| Penarungan | | 7.425 | 1,5 | 2 |
| Carangsari | | 6.011 | ,7 | 1 |
| Sanur Kauh | Denpasar | 9.082 | 4,4 | 6 |
| Serangan | | 3.988 | ,7 | 1 |
| Penatih | | 9.575 | 2,2 | 3 |
| Paksebali | Klungkung | 5.627 | 3,7 | 5 |
| Tihingan | | 3.895 | 9,6 | 13 |
| Bakas | | 2.435 | 4,4 | 6 |
| Bongan | Tabanan | 7.526 | 3,0 | 4 |
| Pinge | | 819 | 2,2 | 3 |
| Belumbang | | 2.144 | 1,5 | 2 |
| Nyambu | | 3.548 | 2,2 | 3 |
| Tenganan | Karangasem | 4.553 | 4,4 | 6 |
| Jasri | | 6.608 | 2,2 | 3 |
| Kerta | | 5.561 | 2,2 | 3 |
| Taro | Gianyar | 10.898 | 3,0 | 4 |
| Sayan | | 8.154 | ,7 | 1 |
| Mas | | 12.698 | 1,5 | 2 |
| Total | | | 93,3 | 126 |
| Missing System | | | 6,7 | 9 |
| Total | | | 100,0 | 135 |

## 4.0 Findings

As the data collected was 126 representing 28 tourism villages across Bali, all of the villages meet the criteria for DWH. The recapitulation of respondents based on demographics is divided into variables; a) position/role in the village, b) age, c) education, and d) occupation. The results are presented in Table 3.

Table 3. Recapitulation of Respondents' Demographic Varaibles

| Variable of Demografic | Description | Frequency | Percentage (%) |
|---|---|---|---|
| A. Position in Village | Village Official | 40 | 29,6 |
| | Tourism Village Manager | 26 | 19,3 |
| | Village Ogranization | 4 | 3 |
| | Villager | 23 | 17 |
| | Homestay Owner | 28 | 20,7 |
| | Tourist Attraction Owner | 14 | 10,4 |
| | **Total** | **135** | **100** |
| B. Age | 17 - 24 Yo | 11 | 8,1 |
| | 25 - 34 Yo | 41 | 30,4 |
| | 35 - 44 Yo | 21 | 15,6 |
| | 45 - 60 Yo | 57 | 42,2 |
| | > 60 Yo | 5 | 3,7 |
| | **Total** | **135** | **100** |
| C. Education Background | Elementary School | 4 | 3 |
| | Junio High School | 5 | 3,7 |
| | Senior High School | 57 | 42,2 |
| | Bachelor/Diploma | 61 | 45,2 |
| | Post Graduate (Master, | 6 | 4,4 |
| | Other | 2 | 1,5 |
| | **Total** | **135** | **100** |
| D. Occupation | Gov Employees | 8 | 5,9 |
| | Private Sector | 43 | 31,9 |
| | entrepreuner | 36 | 26,7 |
| | Housewife | 9 | 6,7 |
| | Farmer | 11 | 8,1 |
| | Craftman | 5 | 3,7 |
| | Unemployement | 1 | 7 |
| | Other | 22 | 16,3 |
| | **Total** | **135** | **100** |

Based on Table 3, positions/roles are dominated by village officials with 40 people (29.6%). Most of the respondents had an age range of 45-60 years with 57 people (42.2%), at the Bachelor/Diploma level with 61 people (45.2%), while the largest type of work was private employees with 43 people (31.9%). It can be said that the respondents involved have a mature level of education and thinking. The results of the Green Village measurement can be seen in Table 4 which shows that Belumbang is the village with the highest desire to make the village green (133.5) and has a high level of community participation (95.5). In the PS variable, Taro people have the best perception of sustainability (47.25) compared to others. Referring to Table 1, the average value of 135 respondents from 28 tourist villages with three variables of N-GreenV, CP, and PS is above the average standard with N-GreenV 120.6667 > 110.758; CP 80.1778 > 70.231; and PS = 40.4667 > 37.378. On average, 28 villages in Bali can be categorized in Kalpataru 5 (greenest) and this score is higher than 400 respondents in 9 tourist villages in the baseline study (Halim, 2022).

Table 4. Assessment of Tourism Villages on Green Tourism Village Variables

| No | Desa Wisata | n | N-GreenV | CP | PS |
|---|---|---|---|---|---|
| 1 | Panglipuran | 6 | 123,5000 | 92,3333 | 43,1667 |
| 2 | Undisan | 2 | 117,5000 | 82,0000 | 43,0000 |
| 3 | Sudaji | 13 | 118,1538 | 75,7692 | 36,4615 |
| 4 | Panji | 7 | 121,4286 | 87,5714 | 43,8571 |
| 5 | Munduk | 11 | 119,9091 | 74,0000 | 41,0000 |
| 6 | Blimbingsari | 1 | 135,0000 | 93,0000 | 44,0000 |
| 7 | Perancak | 2 | 121,5000 | 87,0000 | 45,5000 |
| 8 | Medewi | 4 | 125,7500 | 73,0000 | 38,5000 |
| 9 | Bongkasa | 11 | 121,5455 | 77,7273 | 41,3636 |
| 10 | Munggu | 1 | 117,0000 | 82,0000 | 38,0000 |
| 11 | Penarungan | 2 | 114,5000 | 81,0000 | 39,5000 |
| 12 | Carangsari | 1 | 122,0000 | 77,0000 | 37,0000 |
| 13 | Sanur Kauh | 6 | 114,8333 | 75,8333 | 36,1667 |
| 14 | Serangan | 1 | 118,0000 | 95,0000 | 49,0000 |
| 15 | Penatih | 3 | 115,6667 | 79,0000 | 38,6667 |
| 16 | Paksebali | 5 | 114,8000 | 79,2000 | 39,8000 |
| 17 | Tihingan | 13 | 120,5385 | 79,5385 | 43,4615 |
| 18 | Bakas | 6 | 111,8333 | 80,6667 | 39,0000 |
| 19 | Bongan | 4 | 123,7500 | 82,0000 | 40,2500 |
| 20 | Pinge | 3 | 124,0000 | 75,6667 | 39,3333 |
| 21 | Belumbang | 2 | 133,5000 | 95,5000 | 45,0000 |
| 22 | Nyambu | 3 | 120,0000 | 88,3333 | 43,3333 |
| 23 | Tenganan | 6 | 119,3333 | 71,6667 | 36,1667 |
| 24 | Jasri | 3 | 130,6667 | 89,3333 | 41,6667 |
| 25 | Kerta | 3 | 115,6667 | 78,0000 | 39,0000 |
| 26 | Taro | 4 | 130,5000 | 88,0000 | 47,2500 |
| 27 | Sayan | 1 | 101,0000 | 77,0000 | 34,0000 |
| 28 | Mas | 2 | 121,5000 | 73,0000 | 34,0000 |
| | Total | 126 | | | |

Descriptive analysis of green tourism village variables with demographic variables showed that respondents of the age group 45-60 years had the highest desire for their village to be green (121.75) with the highest level of community participation (83.93) and the most favorable perception on sustainability (41.1756). On the role/position, respondents from village organizations have the highest desire to be green (125.25). In terms of education, those with post-graduate levels are willing to make their village green (122.500) but their level of community participation (74.333) and perception of sustainability (39.667) are low. As for occupation, those who are housewives have the best community participation (85.777) and perception of sustainability (42,888). In detail, the results of demographic variables are presented in Table 5.

Table 5. Demographic Recapitulation of Green Tourism Village Variables

| No. | Demographic Variable | n | N-GreenV | PM | PK |
|---|---|---|---|---|---|
| A | AGE | | | | |
| 1 | 17-24 y.o. | 10 | 118,2000 | 80,7000 | 39,7000 |
| 2 | 25-34 y.o. | 38 | 120,0263 | 78,1316 | 40,1579 |
| 3 | 35-44 y.o. | 17 | 117,4706 | 72,2941 | 40,1765 |
| 4 | 45-60 y.o | 56 | 121,7500 | 83,8393 | 41,1786 |
| 5 | >60 y.o. | 5 | 121,6000 | 80,0000 | 38,4000 |
| B | STAKEHOLDERS TYPE | | | | |
| 1 | Community | 19 | 121,5263 | 80,0000 | 40,9474 |
| 2 | Tourism Village Manager | 26 | 121,3846 | 83,2308 | 41,0000 |
| 3 | Village Officer | 36 | 119,4444 | 77,3056 | 39,1389 |
| 4 | Village Organization | 4 | 125,2500 | 76,5000 | 41,2500 |
| 5 | Homestay Manager | 28 | 119,4643 | 81,9286 | 40,8571 |
| 6 | Tourism Attraction Manager | 13 | 119,6154 | 79,4615 | 41,6923 |
| C | EDUCATION | | | | |
| 1 | Primary | 4 | 122,2500 | 88,0000 | 44,0000 |
| 2 | Junior High | 5 | 112,8000 | 82,0000 | 39,8000 |
| 3 | Senior High | 52 | 120,1154 | 81,1923 | 41,1731 |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Graduate /Diploma (S1/D) | 57 | 121,5000 | 79,4912 | 40,0351 |
| 5 | Post Graduate Sarjana (S2/S3) | 6 | 122,5000 | 74,3333 | 39,6667 |
| 6 | Other | 2 | 115,0000 | 69,0000 | 34,0000 |
| D | OCCUPATION | | | | |
| 1 | Civil Servant | 7 | 119,8571 | 74,1429 | 40,1429 |
| 2 | Private Employee | 40 | 119,7500 | 79,8500 | 39,3500 |
| 3 | Entrepreneur | 33 | 120,2424 | 82,2424 | 41,3636 |
| 4 | Housewife | 9 | 118,4444 | 85,7778 | 42,8889 |
| 5 | Farmer | 11 | 119,0000 | 80,3636 | 41,5455 |
| 6 | Crafter | 5 | 119,0000 | 69,6000 | 37,0000 |
| 7 | Unemployed | 0 | | | |
| 8 | Other | 21 | 123,7619 | 79,4762 | 40,7619 |

In addition, the study tested the influence between variables (N-GreenV, CP, PS) with a regression test to strengthen that the variables have an influence on one another, which can be seen in Table 6 below.

### Table 6. Regression Test

**Model Summary b**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .514a | .265 | .253 | 1.008.779 |

a Predictors: (Constant), Total_PK, Total_PM
b Dependent Variable: Total_N_GreenV

**ANOVAa**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 4.833.226 | 2 | 2.416.613 | 23.747 | .000b |
| | Residual | 13.432.774 | 132 | 101.763 | | |
| | Total | 18.266.000 | 134 | | | |

a Dependent Variable: Total_N_GreenV
b Predictors: (Constant), Total_PK, Total_PM

**Coefficients a**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 76,418 | 6 | | 11,794 | ,000 |
| | Total_PM | ,235 | 0 | ,248 | 2,568 | ,011 |
| | Total_PK | ,628 | 0 | ,319 | 3,303 | ,001 |

a. Dependent Variable: Total_N_GreenV

**Residuals Statistics a**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 956.122 | 1.313.101 | 1.206.667 | 600.573 | 135 |
| Residual | -2.961.006 | 2.274.681 | .00000 | 1.001.222 | 135 |
| Std. Predicted | -4.172 | 1.772 | .000 | 1.000 | 135 |
| Std. Residual | -2.935 | 2.255 | .000 | .993 | 135 |

a Dependent Variable: Total_N_GreenV

The test results using SPSS 25 obtained a combined correlation coefficient (R=0.514; p<0.01) where CP together with PS positively correlated with the N-GreenV. The coefficient of determination (R²=0.265; p<0.01) shows that CP and PS both positively and significantly affect N-GreenV by 26.5% and both can predict the N-GreenV.

## 5.0 Discussion

The results showed that the measurement variables of Green Tourism Village standardization with the designed instrument can be a valid reference tool in measuring the feasibility of Green Tourism Village. The assessment test of 135 samples from 28 tourist villages in Bali proves that all tourist village samples are in the Kalpataru 5 category, meaning that the tourist village is very green or at the Greenest level. The results of regression and correlation tests prove that between the research variables consisting of Community Participation (CP) and perceptions of sustainability (PS), both can predict the need for a green village (N-GreenV) in the community positively and significantly. The measurement instrument of the three variables is used as a reference basis for the process of assessing the feasibility of green tourism villages, which, in the early stages of development, are implemented in homestays or tourist attractions owned by tourist villages. Homestay and tourist attraction actors who have met green standards can join the commercialization process through the SiDeWI*HuB digital platform.

This research provides a practical form and concrete example of implementing the coordination of collaborative governance between tourism village stakeholders that adopt the concept of PENTAHELIX. The role of academics in designing research models with the right measurements, government support through the tourism office, funding support from the Ministry of Research and Technology Higher Education (Kemeristek DIKTI), and the role of industry in platform development The formation of this network is in line with the opinions of experts (Howlett and Ramesh, 1995; Carlsson, 2000; Jawahar and McLaughlin, 2001; Pennen, 2005; Viney, 2006; Bertelli, 2006) on the role of actors in the formation of policy networks. Collaborative governance is a process and structure of public policy decision-making that involves various elements of the public through good management. This collaboration is certainly built on the trust, ethics, and integrity of all stakeholders.

This digital platform is expected to answer the challenges of sustainable tourism and is in line with government programs that encourage the realization of tourism villages in Indonesia on a massive scale while still paying attention to environmental sustainability and its principles. The management of DWH, in Bali should be able to become a pilot project as the management of DWH that are organized through good collaborative governance. On the social side, tourism villages are considered a successful strategy for community empowerment and can employ rural communities. On the economic side, DWH can improve welfare for rural communities in Bali.

## 6.0 Conclusion

This research aims to create a digital platform to connect multi-stakeholder governance for managing DWH, named SiDeWi*HuB, as well as a tool for formulating public policies for sustainable tourism villages up to the marketing phase. The results showed that all variables measuring green tourism villages, consisting of the need for a green village (Ngreen-V), community participation (CP), and perception of sustainable tourism (PS), proved to be valid and able to measure the extent to which the tourism village is said to be green. The results of research through surveys show 135 respondents from 28 tourist villages spread across Bali have met the standards of green villages in the Kalpataru 5 category, which can be interpreted as very green (greenest). This research has succeeded in adopting a collaborative stakeholder concept based on PENTAHELIX where policy actors interact with each other (academics, government, industry, village communities, and tourists) and contribute to developing a digital platform for green tourism villages starting from the green feasibility assessment stage, partner registration process (homestay, tourist attraction) to the commercialization process through a digital marketing platform. As a pilot project, SiDeWI*HuB become a marketing platform for green tourism villages for 30 tourist villages. For further platform development, SiDeWI*HuB is expected to be a forum for 238 tourist villages in Bali and even become an example in Indonesia in developing sustainable tourism villages.

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