

Modesta - Munduk Smart Village Tourism Model: An Ergo-Infocom Approach for Economic Recovery Acceleration from Covid-19 Pandemic

Lilik Sudiajeng¹, I Ketut Gde Juli Suarbawa¹, I Wayan Wiraga¹, M. Yusuf¹,
I Gst. Ngr. A. Dwijaya Saputra¹, Ni Wayan Sumetri¹, Sri Andriati Asri¹ and I Ketut Widnyana²
¹Politeknik Negeri Bali, Jln Kampus Bukit Jimbaran, Badung, Bali, Indonesia
²University of Mahasaraswati Denpasar, Jl. Kamboja, Denpasar, Bali, Indonesia

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Abstract: MODESTA is developed to accelerate economic recovery due to the COVID-19 pandemic and strengthen the resilience of the Munduk Tourism Village in dealing with all strategic issues in the future. To ensure the sustainability of MODESTA Munduk, education in the fields of entrepreneurship, information and communication technology is also carried out. The MODESTA leads the communities to be able to create an industrial 5.0 as the development of the industrial 4.0. The implementation of MODESTA is expected to improve the quality of human resources that are adaptive to the technology, strengthen the entrepreneurship ecosystem, improve the quality of services, and promote the main products for global market. Through the implementation of this concept, economic movement does not only depend on tourism, but all the village's potencies. Based on the result of FGDs and SWOT Analysis, it is recommended to strengthen and develop three main aspects which include: 1) Strengthening Human Resources through various education and training; 2) Development of conservation tourism and Second home Tourism; 3) Strengthening infrastructure based on the industrial era 4.0 including strengthening internet access, public transportation, road access to the creative economic centre and tourism destinations; and strengthening electric payment facilities (ATM, EDC, online payment, QRIS).

1 INTRODUCTION

Bali as the very well-known tourism destination in the world Bali is very vulnerable to issues related to the security, environment, natural disasters, and health. Bali has always experienced the worst impacts on these strategic issues. The covid-19 pandemic has significantly given critical impact on tourism and leads to economics crisis. This pandemic is more severe than the economic crisis caused by the 2004 Bali Bombings. UNDP Indonesia (2003) reported that a year after the bombings, international tourist arrivals remain well below past levels, but had been recovering to some 70-80 percent of normal levels. Average income declines of 43% across the island, which Buleleng regency was the lowest (39.6%). Overall, the estimated number of employment affected about 29% of workers by job losses in tourism sector between January and the end of April

2003. Thirty one percent of schools reported students dropping out of school rates varied significantly by district, with the highest levels in the poorest North-Eastern belt of Bali, with Buleleng (60%) and Karangasem (55%). Prambudi et all (2008) reported estimate short-run effect of a decline in tourism following the 2002 Bali bombings on the Indonesian economy of Indonesia's 26 provinces, GDP in Bali is worse affected by a negative shock to tourism exports followed by other popular tourist destinations, such as Jakarta and Yogyakarta. Jaspreet Singh (2020) did the review research about the impact of covid-19 pandemic on society and the result showed that this pandemic creates several other issues including social anxiety, panic states due to uncertainty, economic recessions and extreme mental stress. This condition is getting worse since many people have lost their livelihoods like most of the Balinese people who work in the tourism sector. Refers to the data

presented by the Central Statistics Agency for Bali Province (2021), during the covid-19 pandemic, international tourist arrivals remain worse two years after the WHO officially declare of covid-19 pandemic. International tourist arrivals from 2017 to 2020 tend to slightly increase about 6.54 in 2018 and 3.37% in 2019. It drastically decreased about 82.96% in 2020 and there were almost no international tourists during 2021. Estimates for the number of unemployed increased nearly 250% during covid-19 pandemic from 1.57% in 2019 to 5.63% in 2020, and remain high after two years at 5.37%. Average number of Poverty rates has also increased from 3.79% in 2019 to 4.53% in 2021 (19.53% increased), which Karangasem Regency is the highest (6.78%), followed by Buleleng regency (6.12%). This slumping economic condition is actually the cumulative impact of a change in lifestyle in the long term. In the past, agriculture is the main pillar to support sustainable economic in Bali. The community has a rice barn that is able to support their needs and welfare. In the last few decades, there has been a big change in lifestyle from an agrarian society to a tourism community. The agricultural land continues to decrease every year, the younger generation moves to the city to find a livelihood that they think is more suitable so that only the older generation is left to continue managing their diminishing agricultural land. Setiawan et al (2001) reported that only three districts in Bali (Jembrana, Tabanan, and Bangli Districts) are remain truly superior and prospective for the sustainability of their agricultural sector in the future because they can meet the needs of agricultural products in their own regions and can meet the demands of other regions, while the other six districts are mostly no prospective for agriculture sector. This condition turns out to be closely related to the resilience of the region to the tragedy of the COVID-19 pandemic. The three superior and prospective area of agriculture sector have a much higher economic resilience compared to non-prospective areas where the main economic pillar is supported by tourism. Central Statistics Agency for Bali Province (2021) reported that the worst economic impact due to the COVID-19 pandemic in 2020 was Badung Regency (-16.52%), followed by Denpasar (-9.42%) and Gianyar (8.38%), where all three are Bali's tourism golden triangle areas. The data confirms that the tourism sector is indeed more vulnerable to health issues (Kusnandar, 2021). In contrast, the agricultural sector has a stronger economic resilience. This is in accordance with the results of interviews with the village head and the community leaders in Munduk Tourism Village, which is one of the tourist villages

favoured by foreign tourists. At the beginning of the COVID-19 pandemic, many young village generations returned to villages and do the farming. As a result, although in other areas experiencing economic downturn, Munduk Village still survives, at least still able to meet the basic needs of daily life. This condition has a positive impact on changing people's mindsets that tourism is not able to guarantee the economic stability of the community, it is agriculture that is able to support them to survive during the pandemic.

Based on those data, Modesta - munduk smart village tourism model has been built through an ergo-infocom approach for economic recovery acceleration from covid-19 pandemic. The ergonomics SHIP approach (ergo-approach) was implemented during data collections through Focus Group Discussions and interviews with village heads and local community leaders, while the information and communication approach (infocom-approach) was implemented during the training and developing the MODESTA model.

Preliminary study showed that Munduk Village has great potential to be developed as a Smart Tourism Village, but the management and development system is still conventional and has not implemented the industrial 4.0 system optimally. This research was conducted with the specific aim of measuring the priority potential of Munduk Village, which includes human resources, natural potential, plantation and agricultural commodities, tourism potential, and governance systems. The results of these measurements will be used as the basis for conducting education to foster an entrepreneurship and understanding to utilize ergonomics-based information and communication technology, implemented the digital technology that still places the human aspect as the main consideration (Sudijeng et al, 2018). Furthermore, based on the potential and readiness of human resources, an Ergo-Infokom-based Smart Tourism Village (MODESTA) model will be designed based on the tourism smart village application that has been produced as an output from previous research. The priority issues raised in this study include: 1) What are the potential priorities of the Munduk Tourism Village that can be more empowered to accelerate economic recovery due to the COVID-19 pandemic; 2) How is the Smart Village MODESTA Munduk model based on Ergonomics-information - communication (ergo-infocom) approach that is easy in implementation and sustainable?

Smart City concept developed based on innovative developments integrating into various



Figure 1: Model of interaction within the framework of smart city.(Vishnivetskaya and Alexandrova, 2019).

spheres of urban life, driven by various urban city problems, especially urbanization problems, environmental degradation, and uneven population density (Vishnivetskaya and Alexandrova, 2019). Elements influence in the smart city development are interacting between each other and thus manifold increase the contribution of each one owing to synergy effect (Figure 1).

From Figure 1, it can be seen that the aspects must be met of a smart city are very complex. To develop a smart city, it is needed to strengthen various fields, including infrastructure, utilities, mobility, environment, government systems, business systems, education systems, life style, etc. Nevertheless, ICT is the key factor affecting the “smart city” development. IBM is one of the world’s IT companies that has played a major role in introducing and implementing the smart city concept around the world. The development of smart cities has been carried out by many countries, including in several regions in Indonesia, one of which is in Bandung, the capital city of West Java Province. However, there is still no standard about definition of smart city. The smart city according to IBM is an instrumented refers to the capability of capturing and integrating live real-world data through the use of sensors, meters, appliances, personal devices, and other similar sensors. A vision of smarter cities is how cities can lead the way into a prosperous and sustainable future. There are three main components in smart city: planning management, human resources, and infrastructure management (IBM Global Business Services, 2020). The Indonesian government through

the Ministry of Public Works and Public Housing has set three big cities as the role model of smart city in Indonesia, there are Bandung, Bogor, and Makasar. In general, there are some components has been set for smart cities in Indonesia: 1) Smart ICT Infrastructure; 2) Smart and open government; 3) empowerment community by strengthening internet literacy, citizen engagement, and digital industry; 4) and Technopolis city (Ministry of Public Works and Housing, 2015). Supangkat et al (2018) did assessment on the implementation of Garuda Smart City Framework for smart city readiness in Indonesia and the result shown the maturity level of some selected cities in Indonesia has reach the integrated level, but there are still components need attention to be developed for smarter city, the management and process of smart city development. After several strategic cities were developed as smart cities, as their derivatives, smart villages began to be developed as part of the smart city, included in Indonesia. In line with the development of smart villages, in several regions in Indonesia, many tourism villages were developed. In Bali, there are at least 294 tourist villages throughout the Island. This research tried to apply the concept of smart village in Munduk Tourism Village. Smart village (SV) is defined as a village where the community is able to use information technology to innovate, make efficiency, increase economic, social and environmental competitiveness which leads to improve the quality of life of the community (Sutriadi, 2018). This is in line with the concept of industry 4.0 which collaborates on cyber technology and automation technology

which is centered on the application of technology without human labor. Utilization of information technology has touched all aspects of life and penetrated to remote villages, especially in online communication and transactions. This condition is the basis for the government to empower the potential of the village by forming a Smart Village (SV). The development of tourist village follows the development of smart cities that have been successfully developed in various countries including Indonesia. Xiaojuan Zhang and Zhengang Zhang (2020) construct the framework of SV in China as performs in Figure 2. It describes the microstate of the smart village system with the strategic subsystem, the social subsystem, the economic subsystem, the resource and environment subsystem, and the information subsystem. Then, it also describes the structural hierarchy of the smart village system with the low to high complexity of the physical layer, the activity layer, and the strategic layer.

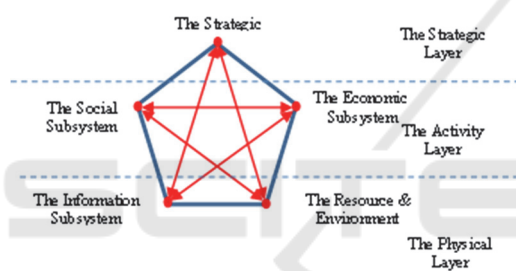


Figure 2: The theoretical framework of smart village system. (Xiaojuan Zhang and Zhengang Zhang, 2020)

Furthermore, by referring to the theory and adopting several references from related research results, this study tried to apply the smart village concept to Tourism Villages in Bali, especially in Munduk Village, Banjar District, Buleleng Regency, Bali Indonesia. Bali is a small beauty island that very well known as the best tourist destination. Bali has transformed from an agrarian area to a tourism area. Tourism become the main pillar of economic. Bali has transformed from an agricultural area to a tourism area.

It was recently discovered that tourism is very sensitive to strategic issues such as security, natural disasters, and health. The Covid-19 pandemic has provided valuable experience and clear evidence that tourism is very sensitive to health issues. During the COVID-19 pandemic, Bali tourism was almost paralyzed and the economic cycle almost stopped. The younger generation of rural people who urbanized to the city to work in various tourism businesses lost their livelihoods and eventually

returned to the village, returning to help their parents with farming activities. From here again, the community gained valuable experience that it turned out that agriculture was not too shaken by the COVID-19 pandemic. Through agriculture, people can still survive during the pandemic. People are starting to realize that tourism is not everything. Therefore, the development of tourism villages should be based on local potential, which is strengthened to become a tourism commodity while maintaining the potential and local wisdom. Regulation of the Minister of Tourism and Creative Economic, Republic of Indonesia. Number Pm.26/Um.001/Mkp/2010 defines a Tourism Village as a form of integration between attractions, accommodation and supporting facilities that are presented in the structure of community life, integrated with applicable procedures and traditions. Since then, the number of tourism village in Indonesia increased, especially in Bali. The Bali Central Statistics Agency (2020) reported that the number of tourist villages increased by 32% from 122 in 2014 to 162 in 2018, 1971 in 2019, and 178 in 2020 as describes in Figure 3.

As a control over the concept of developing a tourist village, Governor of Bali declared the Bali Province Regulations No. 5, Year 2020 defines the tourism village as a village which has the potential and uniqueness of a typical tourist destination, experience the uniqueness of life and tradition communities in rural areas with all their potential, included natural resources, culture, and spiritual. Bali province policy emphasized the uniqueness of the villages as the main aspect should be reserved by remaining adaptive to technological advances and following technological and information trends.

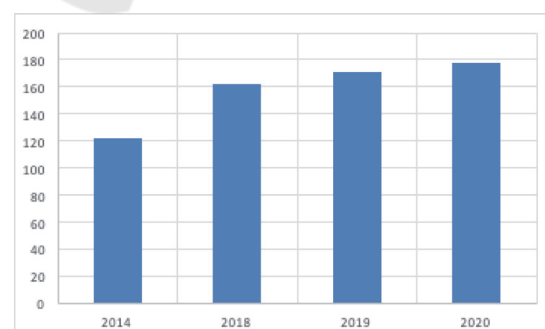


Figure 3: The increasing number of Tourism Village in Bali.

The use of Information and Communication Technology to develop Smart City (SC) or Smart Village (SV) has been widely practiced, including in

Indonesia. Indonesia has been developing SCs since 2017, growing steadily to more than 100 SCs, especially during the COVID-19 pandemic. The development of SC was naturally driven by the COVID-19 where all the world has suffered the impact of covid-19 pandemic, such as Yogyakarta, the best SV in Indonesia which has SC Project through the dimensions of Smart Government (SG) and Smart Economy (SE) (Ferza et al, 2022). From several examples of the implementation of the SC and SV concepts, it can be seen that one of the weaknesses of the development of information and communication technology is that it focuses more on technological developments and often ignores the human/user or ergonomic aspect. This research tries to strengthen the implementation of SC or SV through Ergo-infocom approach, which means the implementation of Information and Communication Technology through ergonomics approach that placed the human aspect in the first priority of considerations. Ergonomics approach is an approach method that is carried out by prioritizing the human aspect. The design of the model or system is carried out in a Systemic, Holistic, Interdisciplinary, and Participatory (Ergonomic SHIP Approach). Systemic, means that all sub-systems are as a whole. Solving problems from one sub-system must consider other sub-systems as a unit so that it does not cause new problems; Holistic, it means that the program must be designed in its entirety, even though the implementation is carried out in stages; Interdisciplinary, it means that program design must be analyzed from the point of view of various related sciences; and Participatory, it means that in the program process it is very important to involve various related elements, especially users (User oriented). The application of technology is analyzed from the economic, technical, ergonomic, environmentally friendly, and energy efficient aspects to produce an Appropriate Technology (TTG) that is easy, inexpensive, in accordance with the capabilities and limitations of the user (Sudijeng et al, 2017). Through this SHIP approach, all related strategic elements will have a part in the program, as well as a growing sense of responsibility to maintain its sustainability.

2 MATERIAL AND METHOD

The preliminary study was conducted through collecting data from various sources and direct interviews with the head of the Tourism Awareness Group Community and the head of the Bali tourism

village forum. The results show that Munduk village has been designated as a Bali tourism village and has the potential to be developed as a Smart Village (SV) through the application of MODESTA Munduk.

This research was carried out with an experimental descriptive design with the subjects of the Munduk Village community as MODESTA users.

- Descriptive method is used to describe the existing condition of Munduk Village as a result of a SWOT analysis, which is strengthened by the results of FGDs on the priority potential of the village. The results of education and workshops on entrepreneurial potential, as well as education to increase the understanding and competence of the community in the use of the Ergo-Infokom application, which is very necessary in this stage.
- The results of the SWOT analysis are used as the basic material in the FGD through an ergonomic SHIP approach. The FGD involved 30 people who will use the MODESTA, consisting of internal Munduk Village (50%), Buleleng Regency government elements (25%), and people outside Munduk Village (25%). Participants were divided into 3 groups where each group consisted of all elements of stakeholders, and was facilitated by a facilitator. Participants will be conditioned and motivated to be able to express their thoughts about strengths, weaknesses, opportunities and challenges in accelerating economic recovery which is currently being affected by the COVID-19 pandemic. The results of the FGD are a list of priority potentials that can be empowered for the development of agro-business with tourism packaging along with priority programs and action plans.
- Based on the results of the FGD, education and workshops were conducted on the potential of entrepreneurship; which did 30 people attend from Munduk Village. The results of this entrepreneurship education and workshop are a list of potential developments for Small Medium Enterprises (SME) in various fields. The output of this activity will be used as the basic data for designing the MODESTA application menu. This activity simultaneously educates and develops and motivates the community to be able to become entrepreneurs, especially in the field of agro-business with tourism packaging according to the potential of the Munduk Tourism Village.
- Ergo-Infokom education and workshops are conducted to improve the understanding and

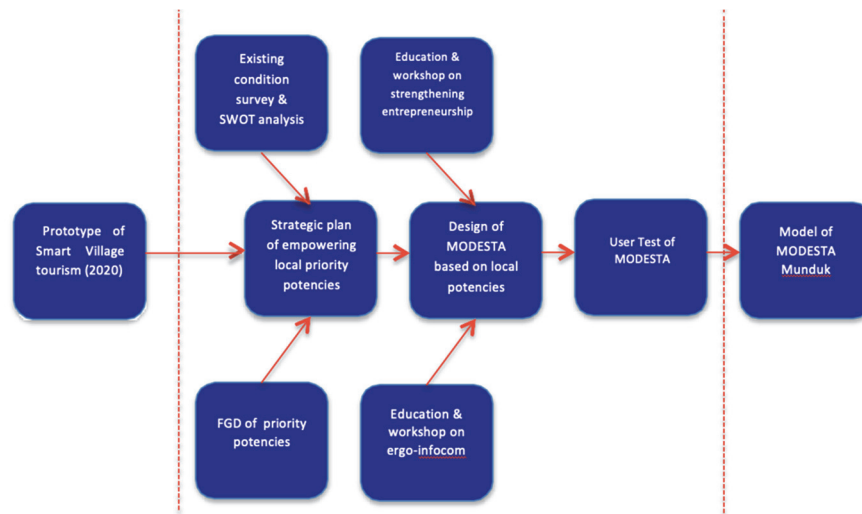


Figure 4: The Stage of Modeling Modesta Munduk.

- competence of the community in using the Ergo-Infokom application, which is needed for MODESTA validation through user-test. Through this activity, it is hoped that it will increase the community's ability to use digital applications effectively, which will provide great benefits for the community's economic development. The stages of modeling are described as presented in Figure 4.

belong to the people of the Munduk Tourism Village (Figure 5). Munduk has a green protected forest area of 1,056,100 ha which is still well maintained as a holly area. Meanwhile, the land use as a tourist destination are includes the Tanah Bara Waterfall, Melanting Waterfall, adventure tourism and Tamblingan Lake with the Amerta Jati forest (Figure 6). For the fulfilment of clean water sources for 2,035 families, the most came from 18 springs used by 800 families (39.31%), two PDAM units were used by 850 families (41.77%).

3 RESULT AND DISCUSSION

3.1 The Existing Potential of Munduk Tourism Village

3.1.1 Natural Resources

Currently, tourism is the main pillar that contributes up to 53% of Bali's economy and the highest contributor to foreign exchange for Indonesia. Various tourism commodities were developed including the development of Tourism Villages. Bali Statistics Bureau reports that the number of tourism villages increased by 32% from 122 in 2014 to 162 in 2018, 1971 in 2019, and 178 in 2020, one of which is the Munduk Tourism village, Banjar District, Buleleng Regency. Located in a mountainous area with cool air, at an altitude of 500-1,500 m above sea level, an average temperature of 26 oC, an average rainfall of 22.3 mm per year with 6 months of wet months, 50% more higher than the average wet month for Bali (4 months/year), and is a rainwater catchment area for Bali. The total land area is 1461.30 Ha with the largest land use for plantations (75%) all of which

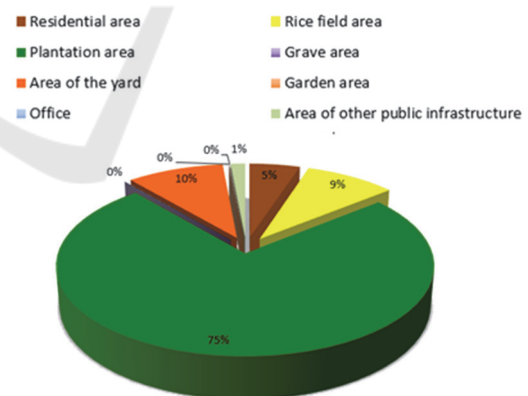


Figure 5: Land use of Munduk Tourism Village.

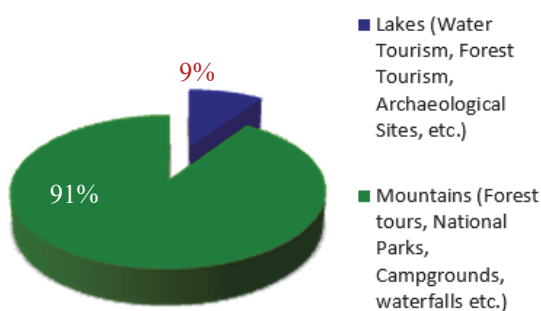


Figure 6: Tourism Potencies.

3.1.2 Potential of Plantation and Agricultural Product

The main livelihoods of the people of Munduk Tourism Village are farmers and farm laborers. In the past, coffee became the majority of the plantation product, but lately, clove takes the first place of the of the land used (47.9 %), followed by the coffee (21.9%), and paddy (2.74%). Additional agricultural products that have the potential to be processed as raw materials for culinary tourism and herbal product innovations are: coconut, chocolate, scallion, carrot, talas, ginger, turmeric, and honey bee. Those potencies of plantations and agriculture does not seem to attract the attention of the younger generation of villages because of the excitement of the tourism industry being developed and becoming a priority for development in almost all areas of the island of Bali. But since the covid-19 pandemic, when the younger generation lost their jobs in tourism and returned to the village to garden and farm, it was only realized that plantations and agriculture had a high resistance to the impact of the pandemic and made them able to survive to meet their daily needs. This awareness is the basic capital for strengthening so that rural communities start to innovate and foster an entrepreneurial spirit or creative economic towards a smart tourist village.

3.1.3 Livestock Potentials

The number of people who own livestock is 2152 people (31%) with the type of livestock and the largest population includes chickens (1,700 heads), dogs (1000 heads), goats (900 heads), cows (450 heads), cats (410 heads), pigs (150 heads), ducks (50 heads). These potencies of livestock together with the potencies of plantation and agriculture can be empowered as raw material for creative economy businesses both for agro and culinary tourism.

3.1.4 Potential of Human Resources (HR) and Livelihoods

Munduk Tourism Village consists of 2,035 families, 6,943 residents consisting of 3,551 men (51%); 3,392 women (49%). In terms of educational background, it is dominated by 3193 elementary school graduates (45.99%), 543 junior high school students (7.82%), 531 junior high school graduates (7.65%), diploma, bachelor, master, and doctoral graduates 331 (4.77%), who are in school 1,366 (19.67%), and the rest are early age (14.1%). The number of productive age (18-55 years) is 3,434 people (49.46%) with the type of livelihood is dominated by farmers of 2817 male and female (86%) and farm laborers of about 14%. The rest have diverse livelihoods but less than 1% each, including those who work in the tourism sector. What attracts attention is that none of the women are housewives, it means that all women of productive age in Munduk Tourism Village work and the majority are farmers or farm laborers. The people of Munduk Village have a very simple lifestyle, but that doesn't mean they don't follow technological advances. From the results of the FGD, which was attended by members of the Family Welfare Empowerment Organization (PKK), they were enthusiastic to be invited to go forward to develop an entrepreneurial ecosystem. Currently they are familiar with Android-based smart phones, but their use is only limited to social media interactions, not optimally utilized to conduct smart business activities. Therefore, intensive training and assistance is needed to start doing smart business activities based on social media.

3.1.5 Cultural Potential

Munduk Tourism Village has a sacred area including the holly water springs that is maintained as a cultural heritage and natural conservation efforts through religious and cultural approaches. One of the unique cultures of Munduk Tourism Village is "NYAKAN DIRURUNGE" which is a 2 years tradition in the form of a big ceremony involving the whole village. This is one of the strengths of the village that is able to build and maintain community unity and integrity, friendly, has high family ties, fosters mutual care, and open-minded. The most interesting of the spiritual and cultural way to preserve nature is by giving the predicate of the nature reserve area as a "holy place". With the status as a holy place, the community wholeheartedly wants to preserve the nature. As the result, 75% of land use is still for plantations and agriculture, and 91% of tourism destinations are in the

form of natural scenery such as mountains, hills, valleys, lakes, and waterfalls. This is the basic capital to develop conservation tourism by strengthening natural infrastructure that is environmentally friendly.

3.1.6 Institutional Potential

Munduk Tourism Village has relatively complete institutions which include the Village Service (Kelurahan); Adad Village, Munduk Accommodation Association, Coffee Farmer Group, Clove Farmer Group, Rice Farmer Group, Giri Suta Tour Guide Community, Tourism Transport Community, Munduk Tourist Information Center, and Munduk Clean, Healthy and Speedy Community (MBSM). Those institutios give good impression that Munduk village has a good governance and ready to

become a smart village. The existence of community organizations in various fields shows that the people of Munduk Village are forward-thinking and visionary. This makes it easier for efforts to make Munduk a smart Tourism Village by strengthening IT-based infrastructure.

3.2 SWOT Analysis Munduk Tourism Village

Based on the results of observations on existing conditions and the Focus Group Discussions which were attended by all elements of the Munduk Tourism Village institution, a SWOT analysis has been carried out as presented in Table 1 to Table 4.

Table 1: The strength of Munduk Tourism Village (S).

Strength (S)	Credit (%)	Value	Score
NATURAL RESOURCES Potential natural resources through indicators of fresh and clean air, beautiful, healthy, sustain as well as the potential of rainfall and recharge area	25%	4	1
POTENTIAL PLANTATIONS, AGRICULTURE, AND LIVESTOCK Land area dominated by plantations and agriculture with clove, coffee, rice, taro, and other additional crops	20%	4	0.8
POTENTIAL OF HUMAN RESOURCES High productive age population with the main livelihood as farmers or farm workers	20%	3	0.6
CULTURAL POTENTIAL Munduk has a unique culture "NYAKAN DIRURUNGE" and a 2-year tradition in the form of a large ceremony involving the whole village	15%	4	0.6
INSTITUTIONAL Munduk has a relatively complete institutional structure and elements, official system, customary village government system, professional and community institutions	20%	4	0.8
Total score (S)	100%		3.8

Table 2: The Weaknesses of Munduk Tourism Village (W).

Weakness (W)	Credit (%)	Value	Score
NATURAL RESOURCES Natural resource protection programs are still weak and unstructured	25%	1	1
POTENTIAL OF PLANTATIONS, AGRICULTURE, AND LIVESTOCK Inadequate management, branding and marketing systems	15%	1	0.15
POTENTIAL OF HUMAN RESOURCES Educational background, entrepreneurial ability and willingness, understanding and intelligent use of technology still need to be improved	15%	1	0.15
CULTURAL POTENTIAL Story telling about the history of Munduk village has not been done optimally	10%	1	0.1
INSTITUTIONAL Tourism Awareness Group Organizations do not yet have the power of legal aspects	15%	1	0.15
INFRASTRUCTURE Public facilities such as road access, public transportation, banking facilities, internet access are still inadequate	20%	1	0.2
Total score (W)	100%		1.75

Table 3: The Threat of Munduk Tourism Village (T).

Threat (T)	Credit (%)	Value	Score
Natural and health disasters	40%	1	0.4
The presence of investors who are less concerned about environmental preservation	30%	1	0.3
Awareness of tourists in protecting the environment is still low	15%	1	0.15
Tourist behavior who does not care about the environment (plasticwaste)	15%	1	0.15
Total score (T)	100%		1

Table 4: The Opprtunity of Munduk Tourism Village (O).

Opportunity (O)	Credit (%)	Value	Score
Attention and various government programs towards eco-friendly tourism	30%	4	1.2
Attention and government programs for small medium scaleindustry and creative economics	25%	4	1
Trends in back to nature, religious tourism, health and wellnesstourism	25%	4	1
Industry 4.0 era	20%	4	0.8
Total score (O)	100%		4

IFAS = (S-W)/2 = (3.8 - 1.75)/2 = 1,025
 EFAS = (O-T)/2 = (4 - 1) /2 = 1,50

The results of the analysis show that the Munduk Tourism Village is in quadrant 1, which is a very favorable situation. Munduk Tourism Village has opportunities and strengths so that it can take advantage of existing opportunities. The strategy that must be applied in this condition is to support an aggressive growth policy (growth-oriented strategy) (Figure 7).



Figure 7: Mapping the Result of SWOT Analysis.

3.3 Swot Analysis Munduk Tourism Village

Based on the results of potential studies, entrepreneurship education activities, branding and marketing and SWOT analysis, Munduk Tourism Village has the potential to be develop as a Smart Village, where the community is able to use

information technology to innovate and increase efficiency, improve economic, social and environmental competitiveness that leads to an increase in the quality of life of the community. The framework of MODESTA is presented in Figure 1. Based on the framework in Figure 1, then the MODESTA has been designed in the form of website that can be access at <https://mundukvillagemodesta.com>. The homepage of MODESTA as performed in Figure 8.

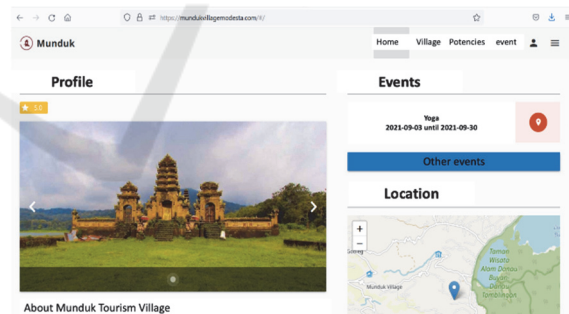


Figure 8: Homepage of MODESTA.

3.4 Discussion

The results of the study of the existing conditions and potential of the Munduk Tourism Village, which are strengthened by the results of the SWOT analysis, show that the Munduk Tourism Village has the potential to be developed as a smart Tourism Village for sustainable economic which has high resistance to the strategic issues related to security, health and natural disasters. The basic concept of smart village

is to collect community efforts and strength of people from various streams and integrate it with information technology to provide benefits to the rural community. According to Mahatma Gandhi's philosophy and thoughts smart village project provides, "Global means to the local needs." SMART village defines as Social, skilled and simple; Moral, methodical and modern; Aware, adaptive and adjusting; Responsive and ready; and Techno savvy and transparent (Somwanshi et al, 2016). The description initiated by Somwanshi et al is very suitable to be applied to the development of the Munduk tourist village. The Munduk Tourism Village community has strong social ties with a simple and open lifestyle, cares for others and the environment based on local wisdom Tri Hita Karana, responsive, ready to move forward and adapt to technological advances and developments. However, to develop smart village, it needs to train and coach people to be smart in all aspect, such as: Smart Farming (smart irrigation, smart live-stock tracking, smart dairy, smart agriculture waste management); Smart Social (Education, surveillance and security, governance, infotainment); Smart home and utilities (smart village home/hut, smart healthcare, smart energy, smart water and waste management) (Degada et al, 2021).

In the MODESTA design process, the Munduk Smart Village Tourism Model was also accompanied by the implementation of education, training and coaching related to strengthening the entrepreneurial ecosystem, knowledge related to communication and information technology, digital branding and marketing. This training and assistance is carried out so that the community is ready to operate, maintain and develop the MODESTA that has been designed so that its sustainability is maintained. It is similar with the research done by Suryani and Sudarso (2021) about how does community engage and learn to initiate a Smart Village development. It is stated that to build the smart village, it needs collaborative and collective education that strengthened and empowered community to learn together how to develop a smart village. From the user test, it shows that after joined the education, training, and coaching, the community especially the young generation succeeded in operating MODESTA smoothly, enriching content, and utilizing e-marketing features as a means to image the potential of Munduk Village as a special branding. In addition, beside the education, training, and coaching on how to run a smart business, training and coaching on the concept of green infrastructure is also carried out so that in

carrying out the business, there is still concern for environmental conservation.

Refers to the natural resources of Munduk Tourism Village and the characteristic of the people, it is suitable to develop Conservation Tourism and Second Home Tourism. Munduk Tourism Village has natural potential that is strengthened by the strong beliefs and culture of the community to maintain and preserve the environment as holly nature. This is a big capital to develop conservation tourism. Tourism activities are packaged by always coloring each stage of their activities with conservation behavior as outlined in the form of village policies. There are tourist destination areas that are purified so that psychologically they are able to control tourists to behave in conservation in the sense of enjoying nature tourism while participating in conservation activities, such as maintaining environmental cleanliness and reforestation through travel activities for coffee, cloves, rice and other agricultural crops. It is harmony with the concept of Second Home Tourism. It can be developed based on the potential of the village that is empowered, improved in quality so that it attracts tourists to make Munduk Village as a second home during long holidays. Tourists and villagers carry out daily activities together such as shopping, cooking, enjoying traditional meals with family while enjoying various tourism activities such as picking cloves and coffee, preparing and processing traditional foods with the modern packaging. Thus, tourists can stay longer, spend more money, and can move the wheels of the community's economy. In an integrated manner, the concept of conservation tourism and second home tourism is an implementation of the green tourism concept which has become a global commitment. The application of the concept of green tourism encourages and conditions tourists not only to visit and enjoy the beauty of tourist destinations, but also to actively contribute in maintaining the beauty and sustainability of the surrounding environment. The basic concept of implementing green tourism is to harmonize tourism and the surrounding natural environment, creating a comfortable atmosphere for tourists, investors, and local communities. Provide economic benefits, but also the maximum impact on environmental conservation. It can be involving the environmental responsibility, local economic vitality, cultural diversity, and experiential richness (Dodds and Joppe, 2001; Mac kiewicz and Konecka-Szydłowska, 2017). The application of the green tourism concept needs to be supported by a strong shared commitment to comprehensively apply the concepts of green

infrastructure, green management, green hospitality, and green marketing (Marcel Meler and Marija Ham, 2012; Monteiro et al, 2020). With this joint commitment, without realizing it, green behavior will grow from all stakeholders. This concept of green tourism is suitable to implemented in Bali, a small and beauty island which is very well known as tourism destination. The development of tourism in Bali.

4 CONCLUSIONS

Munduk Tourism Village has the potential to be developed as a smart Tourism Village for sustainable economic which has high resistance to the strategic issues related to security, health and natural disasters. The potential of Munduk Tourism Village that can be further empowered to accelerate economic recovery due to the COVID-19 pandemic include the natural resources, plantations and agriculture, livestock, human resources, and village institutions/organizations. With its strategic potential, it is suitable to develop the conservation tourism and second home tourism to promote the green tourism which encourages and conditions tourists not only to visit and enjoy the beauty of tourist destinations, but also actively contribute in maintaining the beauty and conserving the environment. As an effort to strengthen the village economic resilience, the MODESTA - Smart Munduk Tourism Village model has been designed based on the noble value of Tri Hita Karana (the harmony of the relationship between human to God, human to human, and human to environment). This new concept of MODESTA is as the development of the Industrial 4.0 concept which placed the human aspect as the first priority the lead to achieve better quality of life (Industrial 5.0 concept). To operate, maintain, and sustainable development of MODESTA, it is recommended to strengthen and develop three main aspects which include: 1) Strengthening Human Resources through various education and training; 2) Development of conservation tourism and Second Home Tourism; 3) Strengthening infrastructure based on the industrial era 4.0 including strengthening internet access, public transportation, road access to the creative economic centre and tourism destinations; and strengthening electric payment facilities (ATM, EDC, online payment, QRIS).

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