# THESIS OF THE DOCTORAL (Ph.D.) DISSERTATION

## ECO-AGROPRENEURSHIP IN EASTERN INDONESIAN COASTAL AREA

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## Table of Content

## 1. INTRODUCTION

Indonesia is a country with a huge coastal area and abundant natural gifts. Indonesia consists of 17,504 islands with a total land area of 1.9 million $km^2$, which 27 percent (0.54 million $km^2$) is freshwater. Coastlines around 81,000 kilometres and seawater area are 7.9 million $km^2$. The area (1.3 percent of the earth's land area), has biodiversity includes 11 percent of the world's plant species, 10 percent of mammalian species, and 16 percent of bird species. It is the second largest of biological diversity after Brazil. Indonesia has 109.96 million hectares of forest area, classified as the richest in biodiversity in the world. The land suitable and available for agriculture is 100.8 million hectares, but only 68.8 million hectares utilized. Marine fish is around 6.26 million tons per year, with an allowable catch of 5.01 million tons per year. The potential for energy and mineral resources is also huge, makes Indonesia beautiful fantastic blessed with abundant natural wealth (Kindangen et al., 2019; Tumiwa & Nagy, 2021)

The enormous economy makes Indonesia become a member of the G20 countries. According to World Bank data (2021), Indonesia is the 16th highest-ranking country in terms of GDP. This situation is the reasons the United States Trade Representative (USTR) at the World Trade Organization (WTO), since mid-February 2020, eliminated Indonesia as a developing country (United States Trade Reresentative, 2020). However, Indonesia is still far behind developed countries based on several parameter measurements. Indonesia's human development index, such as poverty rate, infant mortality, adult literacy, life expectancy, and education, is still low (Tuegeh et al., 2021; Tumiwa et al., 2020). In agriculture, most Indonesian farmers still use conventional methods, which differ from developed countries that use high technology such as industry 4.0 (Tumiwa et al., 2022). In addition, the World Bank recorded Indonesia's Gross National Income (GNI) in 2020 at 3,213 USD, far below the minimum limit of 12,000 USD as a developed country (World Bank, 2021)

To address the problems above, the Indonesian Government makes every effort to maintain economic growth by joining ASEAN Economic Community (AEC). AEC is an effort to create free competition and trade among developing countries in Southeast Asia that will bring threats and opportunities (Paruntu & Tumiwa, 2016; Tumiwa & Paruntu, 2017). Another bilateral agreement by the Indonesian Government to maintain economic growth is cooperation with other countries such as Hungary (Ministry of Foreign Affairs of The Republic of Indonesia, 2021). The collaboration between Indonesia and Hungary includes a clean water project that has been implemented in 36 locations in 12 provinces in Indonesia;

a scholarship program provided by the Hungarian Government for 100 Indonesian students; simplifying the visa process for Indonesian citizens; collaboration in sports by facilitating the training of Indonesian soccer players in Hungary; building hospitals that focus on cancer therapy and oncology; developing military hospitals; and joint investment for infrastructure such as high-way management payment in Indonesia. Indonesia also exports products to Hungary such as office/printing machines, coffee, cocoa, and rubber, with total trade reaching 120.97 million USD. This collaboration is essential because of Hungary's strategic location to connect Central and Eastern Europe, making Hungary a vital market and entry point for Indonesian products in Europe. Vice versa, Indonesia also has the advantage and potential to become the entrance for western countries in the ASEAN market (Tumiwa et al., 2020).

The above trade matters bring thread and opportunities that require a factor of production to drive economic growth. According to Klein (1988), entrepreneurship is a factor of production. This concept is stems from the phrase by Samuelson (1948) as an evil of monopoly. Entrepreneurship closely related to small start-up business (Parker, 2005; Storey & Greene, 2010). Small business is a significant determinant of economic growth as a backbone contribution to national GDP and employment (Chonsawat & Sopadang, 2020; Gallis, 2010; Karadag, 2016; Tumiwa & Nagy, 2021). Job creation through small business often directly benefits the poor and vulnerable, especially women and youth, directly reducing poverty, increasing income, and positively impacting household investment in education and health (Kindangen et al., 2019; Oyelana & Adu, 2015). One of the essential characteristics of a small business is its adaptation agility, which directly impacts local communities, especially during the Indonesian economic crisis in 1998 (Berry et al., 2001; Sadli, 2015) and the financial crisis in 2008 (Sangsubhan & Basri, 2012). Small businesses, better known as micro, small, and medium enterprises (MSMEs), are also the key to inclusive development design (Van Tulder & Da Rosa, 2014) by bringing large businesses into the local community to reach economic equality at all levels of society. MSMEs are essential in supporting broader socio-economic goals, including achieving the Sustainable Development Goals (SDGs) as a top priority (Abers et al., 2017; Gupta & Vegelin, 2016).

Currently, besides international trade, MSMEs face a global pandemic of COVID-19 that significantly impacts the national economy (Alraja et al., 2022; Fachrunnisa et al., 2020; Muhyiddin, M., & Nugroho, 2021; Suryahadi et al., 2020), especially the tourism sector in the coastal area (Hidayatullah et al., 2020; Kuckertz et al., 2020). The Government's initial efforts to stop the spread of COVID-19 even put more pressure on MSMEs (Djalante et al.,

2020; Fachrunnisa et al., 2020; Purnama & Susanna, 2020) by obstructing distribution channels, decreasing production, decreasing the number of tourists, and layoffs, resulting in an economic growth downturn (Hidayatullah et al., 2020; Pratama et al., 2021; Tumiwa et al., 2022). At the same time, the Russia and Ukraine conflict, which in this dissertation is shortened to R-YouC (read: Are-You-See), created shortages in all sectors in every country, including Indonesia (Junaedi, 2022a, 2022b). Thus, with these current situations, MSMEs must improve their performance to respond to various challenges.

The COVID-19 pandemics and R-YouC have adversely hit the economy, such as scarcity of energy, raw materials, and the availability of labor, especially in MSMEs in coastal areas (Alraja et al., 2022; Pratama et al., 2021; Ssenyonga, 2021; Widjanarko et al., 2021). However, on the other hand, the pandemic situation and R-YouC created new positive habits for the people, such as being more patient and obedient in dealing with these situations and more consciously actively protecting their safety, health, and hygiene of themself, family, and other people (Badura-Brzoza et al., 2022; Guiliani et al., 2021; L. Lu et al., 2021; Yamada et al., 2021). This situation triggers MSMEs to pay more attention to environmentally friendly business activities and provides the foundation to probe the relationship in detail in this specific situation, especially for the community (Alraja et al., 2022). The past literature has examined individual green practices or a combination of two practices, yet a holistic model is absent and limited to the literature concept (Fitriasari, 2020; Goenka et al., 2021; Liu et al., 2020; Parra & Guerrero, 2020)

For this reason, MSMEs are required to improve their performance. Factors that affect the MSMEs performance are the role of the external business and factors related to the internal business or known as internal and external factors (Fernández-Olmos & Ramírez-Alesón, 2017; Hove & Tarisai, 2013; Madai et al., 2019; Strielkowski, 2012; Tumiwa et al., 2020). The performance model of MSMEs based on internal and external factors is the response to the free trade challenges, whereas cannot explain the situation of the Covid-19 pandemic and R-YouC. In addition, MSMEs are businesses that have unique characteristics, that make one business different from others (Parnell et al., 2015; Pedersen & Sudzina, 2012). For this reason, internal and external environmental analysis needs to be mapped based on the type of MSMEs characteristics. Moreover, this conventional research on the MSMEs' performance has not discussed the impact of business on the environment and social community.

Previous studies discussed that improving the MSMEs performance was inversely proportional to the environmental impact, especially for manufacturing industry (Nugroho

et al., 2017; Omri, 2018). Some people think that small industries do not have the potential to cause damage to the environment (Battisti & Perry, 2011). Therefore, the responsibility to protect the environment is often neglected. Most of the pollution in urban areas results from the spread of industry including small and medium enterprises (Azhari et al., 2021; Chaniago, 2021; Corazza, 2018; Panero et al., 2018). The development of entrepreneurial activities is currently oriented to profit generation and often disregards ethics in producing or distributing products. For example, COVID-19 originated from the destruction of the wild animal's environmental habitats in Wuhan, which further mutated and transmitted to humans (Jones et al., 2008; O'Callaghan-Gordo & Antó, 2020; Rahman et al., 2020).

Many studies suggest that MSMEs must become pioneers in environmental conservation and becoming agents of change and pioneers in saving the future through concrete actions (Li et al., 2020; Liakh & Spigarelli, 2020; Raharjo, 2019; Sari & Hasnelly, 2012; Weng et al., 2015). Because although it is small, MSMEs significantly impact the environment. MSMEs need to carry out all their business activities not only profit-oriented but also always ethical when treating the people involved as well as in environmental aspects (Choongo et al., 2019; Corazza, 2018). MSMEs are expected to be able to conduct environmentally friendly business processes. Therefore, MSMEs need a concept that can bridge the concept of performance with the concept of eco-innovation, not only profit-oriented but also ethically/morally or socially and ecologically responsible, known as the triple bottom line (3Ps) (Elkington, 1998).

Several previous studies have shown several dimensions factors such as internal and external factors that impact MSME performance. Previous evaluations such as the education level, credit availability, human capital, marketing aspect, production aspect, government support assistance, customer, supplier, competitors and financial capital influencing the MSMEs Performance and related to the business growth (Tumiwa et al., 2020). MSMEs should have a clearly defined strategy to have a sustainable basis for creating and maintaining a competitive advantage in the market (Nabradi, 2010; Urbancová et al., 2020). The strategy can be divided into internal and external environments (David & David, 2017). Based on the SLR analysis, it was found that during the crisis, internal and external factors were insufficient to improve business performance, especially if it is related to the issue of business performance by carrying out the concept of sustainability. Previous researchers argued that other factors must mediate internal and external strategy models on business performance (Fernández-Olmos & Ramírez-Alesón, 2017; Gimenez et al., 2012; Pedersen & Sudzina, 2012). Previous research argues that the mediating variable is the concept of

eco-innovation. However, the concept of eco-innovation, which includes environmental and social considerations, has a prolonged debate, with the most critical issue being that it cannot provide a return on profit for businesses, particularly small businesses in rural areas in developing countries (Ball & Kittler, 2019; Palmås & Lindberg, 2013). This insignificant effect should be tested with the quantitative approach. Therefore, this dissertation proposes a mediating variable of eco-agropreneurship to mediate between internal and external factors on business performance that measured by sustainability concept in agribusiness sector. Based on the SLR analysis, eco-agropreneurship is defined into several aggregate dimensions: internal and external factors, performance (financial and non-financial), ecopreneur and eco-innovation, recycling and re-use material, and agropreneur and eco-innovation.

The business performance measurement is based on sustainability concept that consist of economic, social, and environment (Affolderbach & Krueger, 2017; Dixon & Clifford, 2007). Social factor is essential on MSMEs since majority of this businesses type operate in rural areas where the social community is the competitive strength of local businesses that are not posed by other businesses in different area. Another factor that mediates internal and external factors is environmental preservation by ecopreneur and eco-innovation concept. The problem with the long debate of eco-innovation concept is profit return where entrepreneurship spirit and orientation are sometimes missing on the eco-innovation concept. Therefore, the entrepreneurial spirit must be shown with social and environmental consideration.

Furthermore, it is also necessary to prove whether, as a mediator, eco-agropreneurship can increase the determination on business performance. The measured performance is not limited to environmental or green performance, as previous studies failed to apply to increase income for small businesses in rural areas. However, these internal and external factors must be tested for their statistical value on MSMEs' performance. Thus, to fill the research gap, this dissertation formulates several hypothesis as follows:

$H_1$ : Internal and external factor have positive effects on eco-agropreneurship.

$H_{1.1}$ : External factor has positive effects on internal factor.

$H_{1.2}$ : Internal factor has positive effects on eco-agropreneurship.

$H_{1.3}$ : External factor has positive effects on eco-agropreneurship.

$H_2$ : Eco-agropreneurship has positive effects on MSMEs performance.

In the COVID-19 and R-YouC, local resources are crucial for business performance, whose use must be based on an understanding of local knowledge (Adriani & Supriatna, 2019;

Kissiya & Biczó, 2022; Nasser et al., 2021). The development of coastal areas regarding Indonesia's enormous fishery resources is no less important. MSMEs need to utilize these coastal resources as core competencies (Diartho, 2017; Paruntu & Tumiwa, 2016; Widjanarko et al., 2021). Thus, the concept of eco-innovation must be combined with agropreneur, defined as eco-agropreneurship. The important thing is the local knowledge or traditional knowledge is one of the essential entrepreneurs' skills in rural areas. No previous research has discussed how local wisdom or traditional knowledge affects the adoption of ecopreneurs. The failure to implement eco-innovation in rural areas may be due to the lack of synergy between the spirit of environmentally friendly entrepreneurship and local wisdom. This variable needs to be measured separately to understand how far local wisdom can affect eco-agropreneurship. In addition, this variable is separated from eco-agropreneurship because the measurement through this variable must adjust and consist of the local wisdom situation in the research area.

Furthermore, this dissertation proposes the concept of local knowledge or wisdom to answer the debate that MSMEs in rural areas is difficult to implement the concept of eco-innovation. Local wisdom manifested in local geography knowledge, unique expertise in managing natural resources (ex., fishermen, mountain climbing experts, etc.), knowledge of the needs of local communities, etc., are part of the internal business factors owned by employees, managers, or mostly owners of MSMEs. Based on the previous research, local wisdom is included in social factors that belong to the external factor, yet, it is also a strength that is included internal factors. Based on preliminary research, this dissertation considers local knowledge as a separate factor that could be a solution to the research gap regarding the MSMEs issue in environmental preservation and business performance. Therefore, the following are several hypothesis formulations:

Business performance needs to be measured based on the three important elements of sustainability (3Ps). Based on the SLR analysis, this sustainability element is induced in the internal and external factors, eco-agropreneurship, and MSMEs performance. In carrying out the sustainability issue, some argue that the global crisis due to covid and R-YouC can put the issue of sustainability at risk. Some literature analysis shows that sustainability concept on SME performance through complicated advance model might not suitable on MSMEs (Torugsa et al., 2012). Other research about social responsibility and found that it influences on non-financial outcomes such as image and reputation (López-Pérez et al., 2017a; 2017b). On the other hand, some experts consider that during COVID-19, entrepreneurs are encouraged to do social services as a form of helping others. In addition,

the impact of the economic turmoil caused by COVID-19 and the R-YouC has made entrepreneurs more aware of maintaining health, complying with safety protocols, and trying to be more creative and innovative in finding information regarding market needs or cheap credit opportunities, especially in during a pandemic (Amankwah & Sesen, 2021; Bacq & Lumpkin, 2021; Belitski et al., 2022; Liñán & Jaén, 2022; Ruiz-Rosa et al., 2020; W. Wang et al., 2021). For this reason, this dissertation will also use previous research to measure the impact of the economic awareness by COVID-19 and the R-YouC. Therefore, the internal and external factors model through the concept of eco-agropreneurship with global crisis awareness, if proven later, can affect the MSMEs performance. Therefore, the following are the hypotheses built:

$H_3$ : Coastal area and economic awareness have positive effects on eco-agropreneurship.

$H_{3.1}$ : Coastal area has positive effects on eco-agropreneurship.

$H_{3.2}$ : Economics awareness has positive effects on eco-agropreneurship.

This dissertation also analyze the direct influence of coastal area variables and economic awareness on business performance to determine how much the eco-agropreneurship variable can mediate between these variables. The hypotheses are as follows:

$H_4$ : Coastal area economic awareness have positive effects on MSMEs performance.

$H_{4.1}$ : Coastal area has positive effects on business performance.

$H_{4.2}$ : Economic awareness has positive effects on business performance.

Since the direct effect is essential, this dissertation tests the direct effect of internal and external factors on business performance. If it proved that the direct effect has a significant effect, it means that eco-agropreneurship as a mediating role is unimportant. Thus, this dissertation formulated an additional hypothesis as follows:

$H_5$ : Internal and external factors have direct significant effect on business performance

$H_{5.1}$ : Internal factor has positive effects on business performance.

$H_{5.2}$ : External factor has positive effects on business performance.

## 2. MATERIAL AND METHOD

This research is divided into several phases. The first phase is elementary research. This first stage is research work done previously on a smaller scope of the research object. From several research work results, it is found that there are research gaps to be developed. These initial stages lead to the next stage, the theoretical review.

Based on the initial stages, this dissertation determines a structural model of the relationship between latent variables based on substantive theory. For this reason, a literature analysis is needed. The theoretical is stems from searching for articles in high-rank journal databases such as Scopus and WoS. After getting all the definitions and measurements of variables based on previous research, a research questionnaire and indicators of variable measurement were compiled in the form of questions. This dissertation follows the research steps concerning data collection to avoid general common method bias (CMB) (Chin et al., 2012; Jakobsen & Jensen, 2015) and social desirability bias (SDB) (Grimm, 2010; Krumpal, 2013). To measure the validity and reliability of the data, first, the questionnaire will be discussed in Focus Group Discussion (FGD) with the previous researchers that already have experience in collecting data in eastern – Indonesia (Chioncel et al., 2003; Suyono et al., 1981; Toner, 2009). This FDG consists of several research experts and local regional leaders to determine whether the question is sensitive or to discuss any technical issue to get the respondents' best response and avoid social desirability bias. This research will use stratified purposive random sampling method with number of sample is 300 MSMEs represent from 10 cities and regions and to meet with the observed variable.

The next stage after the data collection is statistical analysis testing. After the outlier has been removed, the data is analyzed using descriptive analysis techniques to describe the distribution of research variables and respondents, which is gender, age, education, length of business, type of business, number of employees, and religion. Since the explanatory indicators of the aggregate dimension of eco-agropreneurship based on the SLR are numerous, they will be reduced using factoring analysis.

The next step is PLS-SEM analysis using the SmartPLS program, where the results of designing the inner and outer models are estimated based on the Path, Loading, and Weight coefficients. The parameter estimation method in the PLS method is the ordinary least square method. Evaluation of the goodness of fit model is divided into the outer and inner models. Based on the data analysis results, this dissertation compares the results of the findings with previous research to make implications and references for further research.

The following is the research variables and measurements.

**Table 1. Research Variable and Measurement**

| Latent Variable | Manifest Variable | Items |
|---|---|---|
| **Eco-agropreneurship (EAP)** (See Attachment) | **Ecopreneurship and Innovation** | |
| | Environmental protection | |
| | • Adopt changes towards pollution prevention | EAP1 |
| | • Ecopreneurship orientation, | EAP2 |
| | • Containment of waste | EAP3 |
| | • Use the raw material less polluted | EAP4 |
| | Energy Consumption | |
| | • control level of energy efficiency | EAP5 |
| | • minimize production impact | EAP6 |
| | • control the water consumption | EAP7 |
| | • control emissions | EAP8 |
| | Eco-innovation | |
| | • Innovative processes to reduce harm to the environment | EAP9 |
| | • Using latest information technology | EAP10 |
| | • Business environmental ethics | EAP11 |
| | Social Entrepreneurship | |
| | • Making a social contribution, than the conventional solely money-driven approach | EAP12 |
| | • Applying good ethics, following responsible labor and procurement practices, and respecting human rights | EAP13 |
| | • Regularly participate (or will participate) in volunteer activities or community programs | EAP14 |
| | • Generating social and environmental gains for others in society | EAP15 |
| | • Job creation is your priorities for local society | EAP16 |
| | **Recycling and Re-use** | |
| | Waste Management | |
| | • Carry out recycling and material reuse actions on an ongoing basis | EAP17 |
| | • Re-use agriculture waste | EAP18 |
| | • Raw material waste management | EAP19 |
| | • Biogas management | EAP20 |
| | Machine re-condition | |
| | • Renew machine production | EAP21 |
| | • Maintenance machine production | EAP22 |
| | **Agropreneur and eco-innovation** | |
| | Environmental investment new agriculture technology | |
| | • Invest in environmental science and agriculture technology | EAP23 |
| | • Green technology empowerment | EAP24 |
| | • Adopt new ecofriendly agriculture technology | EAP25 |
| | Consumer concern | |
| | • improves business image | EAP26 |
| | • Improvement in product quality | EAP27 |
| | • Product National Standard | EAP28 |
| | Regulation concern | |
| | • Response of economic pressure | EAP29 |

| Latent Variable | Manifest Variable | Items |
|---|---|---|
| | • Environmental Certifications are very important to adopt ecologic strategies | EAP30 |
| | • Aware of Government Sustainable program | EAP31 |
| | Management Aspect | |
| | • Creative Management | EAP32 |
| | • Innovative Management | EAP33 |
| **MSMEs Performance (BP)** (Bahri et al., 2017; Eniola & Entebang, 2015; Fernández-Olmos & Ramírez-Alesón, 2017; Fithriyana & Fahmy, 2022; Kalkhouran et al., 2015; Karadag, 2016; Ruslianti & Mulyaningrum, 2020; Tumiwa et al., 2020; Tumiwa & Nagy, 2021) | **Financial Dimension** | |
| | Perception on increasing in sales revenue | BP1 |
| | Perception on ability to generate profit (profitability) | BP2 |
| | **Non-financial Dimension** | |
| | Perception on increase in market share | BP3 |
| | Perception on increase in employee/self working quality | BP4 |
| | Perception on increase in environmental protection | BP5 |
| **Internal Factor (IF)** (Fernández-Olmos & Ramírez-Alesón, 2017; Gursoy & Swanger, 2007; Gutsalenko et al., 2020; Menguc et al., 2010; Murni et al., 2019; Pedersen & Sudzina, 2012; Piwowar-Sulej et al., 2021; Strielkowski, 2012; Tumiwa et al., 2020) | Aspect of Human Resources | |
| | • Education and Experience | IF1 |
| | • Working hours | IF2 |
| | Financial Capital Source | IF3 |
| | Competitive pricing strategy | IF4 |
| | Perception about marketing management | IF5 |
| | Sufficient production capacity | IF6 |
| | Strategic location | IF7 |
| **External Factor (EF)** (Fernández-Olmos & Ramírez-Alesón, 2017; Han & Wang, 2015; Menguc et al., 2010; Piwowar-Sulej et al., 2021; Sari & Hasnelly, 2012; Tumiwa et al., 2020; Udiyana et al., 2018) | Supporting facility by Government | EF1 |
| | Government policy | EF2 |
| | Customer satisfaction | EF3 |
| | Learning strategy and information from competitors | EF4 |
| | Good supplier | EF5 |
| **Coastal Area Knowledge (CA)** (Akhter & Sultana, 2018; Kurniawati et al., 2020; Touwe, 2020; Winarno et al., 2019) | Local knowledge | CA1 |
| | Ability of local skill | CA2 |
| | Information local resources | CA3 |
| | Local group solidarity | CA4 |
| **Economics Awareness (EA)** (Adwani, 2022; Alam et al., 2022; Guiliani et al., 2021; L. Lu et al., 2021; Y. Lu et al., 2020; Purnomo et al., 2021) | Care about own health | EA1 |
| | Keep trying to work more creatively and innovatively | EA2 |
| | Awareness to help others | EA3 |
| | Comply with safety control measurement by government | EA4 |
| | Information regarding current market needs | EA5 |
| | Information regarding of loan and credits | EA6 |

## 3. RESEARCH FINDINGS AND THEIR EVALUATION

### 3.1. Systematic Literature Review

This method is used to prevent the author's subjective assessment based on the authors' previous research work experience, which can make the results of this dissertation biased. This dissertation uses Meta-Synthesis as a systematic review of qualitative methods with a Meta-ethnographic approach. There are several keywords and search syntax to bridge the main keywords combination. Each database has its search syntax characteristics. In general, the search syntax used was as follows:

**Table 2. Filtering Process**

| Filtering Criteria | Scopus | | WoS | |
|---|---|---|---|---|
| | Agropreneur | Ecopreneur | Agropreneur | Ecopreneur |
| **Keywords Search** (Title, Abstract, Keyword) **Include:** Agropreneur (Agriculture, entrepreneurship) and Ecopreneur **Exclude**: Others term | 967 | 94 | 6,140 | 313 |
| **Subject Area and Categories** **Include**: Economics, Business, Management, and Accounting **Exclude**: others categories | 627 | 62 | 1,213 | 39 |
| **Document type** **Include**: Article **Exclude**: Book chapter, conference paper, and book | 481 | 41 | 723 | 26 |
| **Total** | 1,271 Articles | | | |

**Sources:** Data Articles Process, 2022

Table 5 above describes the dimensions of eco-agropeneurship measurement that can be adapted to the research object. The table above also provides input and direction in explaining the eco-agropreneurhsip variable and how to measure it.

The research of Ecopreneurship stems from ‘ecology movement’ research by Quinn (1971) published by Harvard Business Review. Another pioneer of the environmental research related to the business is purposed by Elkington & Burke (1989). However, according to the Scopus and WoS databases, the first archive of the term Ecopreneur with eco-innovation was first discussed by Pastakia (1998). He classified the Ecopreneur into two main groups, which are social and commercial. However, these groups belong to the larger family

business. In 2002, Thiers proposed studying market strategy related to policymaking in specific geographical locations (Thiers, 2002)

The end of the MDGs in 2015, followed by the Sustainable Development Goals (SDGs) is a new challenge for all parties to carry out development in principle to meet the current requirements without harming the future generations' necessities (Cabot et al., 2019). In line with sustainable development, the use of natural resources must consider the balance of profit, social, and ecology (Affolderbach & Krueger, 2017; Mikhno et al., 2021; Vlasov et al., 2021). The limitations of natural resources need to be addressed by taking into account ecological sustainability (Kushwaha & Sharma, 2017; Panackal et al., 2016). Furthermore, this movement initiated a change of mindset from the traditional model-based towards the green business or green start-up (Ball & Kittler, 2019; Fitria & Yuliana, 2018; Isaak, 2002; Kirkwood & Walton, 2010b; Kushwaha & Sharma, 2017; Oncioiu et al., 2015; Rodgers, 2010; Šebestová & Sroka, 2020; Vatansever & Arun, 2016). This sustainability approach must be applied to various business lines, including eco-friendly farming-based agricultural businesses. Isaak (2002) argues that eco-entrepreneur is essential for humans and the next generation no matter where we are located globally, and it should start from the beginning of forming the business or at the start-up business level. In the same year, Schaper (2002) found the schemes for SMEs to provide start-up and growth capital for green enterprises. In the following year, the issue of green start-up business caught the attention of the financial sector, such as green venture capital (green VC) (Isaak, 2002; Randjelovic et al., 2003).

### 3.2. Factoring Analysis

Based on the results of the SLR analysis, 33 factors measure the eco-agropreneurship variable. Aggregate performance and driver dimensions are other latent variables. The main assumptions required to conduct the factor reduction test are the Bartlett test and the Kaiser Meyer Olkin (KMO) test (Kaiser & Rice, 1974; Masood & Sonntag, 2020). The following are the results of the Bartlett test and the Kaiser Meyer Olkin (KMO) test:

**Table 3. KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .956 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 13239.784 |
| | df | 528 |
| | Sig. | .000 |

To ensure that a variable belongs to which factor group, it can be determined by looking at the largest correlation between the variable and the formed factor. The newly formed factor can be seen in table 11 below.

**New Factor Component**

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **F1** | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 15 | 16 | 17 | 18 | 19 | 22 | 23 | 25 | 26 | 28 | 29 |
| **F2** | 1 | 2 | 6 | 12 | 13 | 20 | 21 | 30 | 31 | 32 | 33 | | | | | | | |
| **F3** | 9 | 14 | 24 | 27 | | | | | | | | | | | | | | |

### 3.3. Descriptive Analysis

#### 3.3.1. Characteristic Respondent

This dissertation uses primary data where the data taken is the respondents' responses regarding the variables examined. Thus it needs further analysis of the characteristics of the respondents' descriptions. This descriptive analysis is divided into several parts described in several subsections. Based on the data analysis by SPSS, the respondent description table as follows:

**Table 4. Respondent Characteristic**

| | Frequency | (%) | | Frequency | (%) |
|---|---|---|---|---|---|
| **Gender** | | | Plantation business | 63 | 20.2 |
| Male | 199 | 63.8 | Processing business | 215 | 68.9 |
| Female | 113 | 36.2 | Other business | 27 | 8.7 |
| **Age** | | | **Number of employees** | | |
| < 30 years | 7 | 2.2 | < 5 workers | 169 | 54.2 |
| 30 - 35 years | 5 | 1.6 | 5 – 10 workers | 105 | 33.7 |
| 36 - 40 years | 67 | 21.5 | 11 – 15 workers | 21 | 6.7 |
| 41 - 45 years | 190 | 60.9 | 16 – 20 workers | 17 | 5.4 |
| 46 - 50 years | 29 | 9.3 | > 20 workers | 0 | 0 |
| > 50 years | 14 | 4.5 | **Religion** | | |
| **Education** | | | Muslim | 80 | 25.6 |
| Primary School | 20 | 6.4 | Christian | 131 | 42.0 |
| Junior High School | 60 | 19.2 | Catholic | 58 | 18.6 |
| Senior High School | 205 | 65.7 | Buddhist | 20 | 6.4 |
| Bachelor | 13 | 4.2 | Hindu | 23 | 7.4 |
| Master and Doctor | 14 | 4.5 | **Income** (In Million IDR/year) | | |
| **Business Age** | | | < 50 | 18 | 5.8 |
| < 5 years | 8 | 2.6 | 50 - 100 | 174 | 55.8 |
| 5 – 10 years | 70 | 22.4 | 100 - 150 | 59 | 18.9 |
| 11 – 15 years | 199 | 63.8 | 150 - 200 | 12 | 3.8 |
| 16 – 20 years | 27 | 8.7 | 200 - 250 | 12 | 3.8 |
| > 20 years | 8 | 2.6 | > 250 | 37 | 11.9 |
| **Business Type** | | | | | |
| Marine aquaculture business | 7 | 2.2 | | | |

### 3.4. Structural Equation Modeling

**Goodness of Fit of the Model**

This dissertation suggests a more explicit calculation of GoF by using the $R^2$ Root Formula (SQRT) as follows:

$$GoF = \sqrt{\overline{com} \times \overline{R^2}}$$

The robustness of this research formula is the combination of the outer model calculation of AVE by communality and inner model $R^2$. The following is the result of the GoF calculation based on the $R^2$ root formula (SQRT):

**Table 5. GoF $R^2$ Root Formula**

| | $R^2$ | Communality |
|---|---|---|
| **BP** | 0.801 | 0.803 |
| **EAP** | 0.462 | 0.634 |
| **IF** | 0.305 | 0.743 |
| Sum. | 1.568 | 2.18 |
| Av. | 0.52266667 | 0.72666667 |
| **GoF** | | 0.61628276 |

Based on the table GoF above, the GoF value shows 0.616 means that the model is categorized as a large model prediction. This result shows that the measurement model (outer model) and the structural model (inner model) are feasible or valid.

**Table 6. Statistical Summary**

| | Hypothesis | | | Path Coefficient | T-Value | P-Values (sig.) | Decision | $F^2$ | $q^2$ |
|---|---|---|---|---|---|---|---|---|---|
| $H_1$: | EF | → | IF | 0.552 | 11.786 | 0.000 | Accepted | 0.439 | |
| | IF | → | EAP | 0.219 | 3.401 | 0.001 | Accepted | 0.050 | 0.003 |
| | EF | → | EAP | 0.289 | 3.95 | 0.000 | Accepted | 0.060 | 0.003 |
| $H_2$: | EAP | → | BP | 0.206 | 4.74 | 0.000 | Accepted | 0.155 | 0.075 |
| $H_3$: | CA | → | EAP | 0.175 | 2.394 | 0.017 | Accepted | 0.034 | 1.010 |
| | EA | → | EAP | 0.133 | 2.034 | 0.042 | Accepted | 0.014 | 0.007 |
| $H_4$: | CA | → | BP | 0.770 | 17.171 | 0.000 | Accepted | 2.170 | |
| | EA | → | BP | 0.065 | 1.696 | 0.091 | Rejected | 0.009 | |
| $H_5$: | IF | → | BP | -0.031 | 0.651 | 0.515 | Rejected | 0.003 | |
| | EF | → | BP | -0.066 | 1.418 | 0.157 | Rejected | 0.008 | |
| $R^2$ | Coefficient Determination | | | | 0.801 | | | | |
| $Q^2$ | Predictive Relevance | | | | 0.694 | | | | |
| GoF | Global fit PLS path model | | | | 0.616 | | | | |

The following figure is the research model.

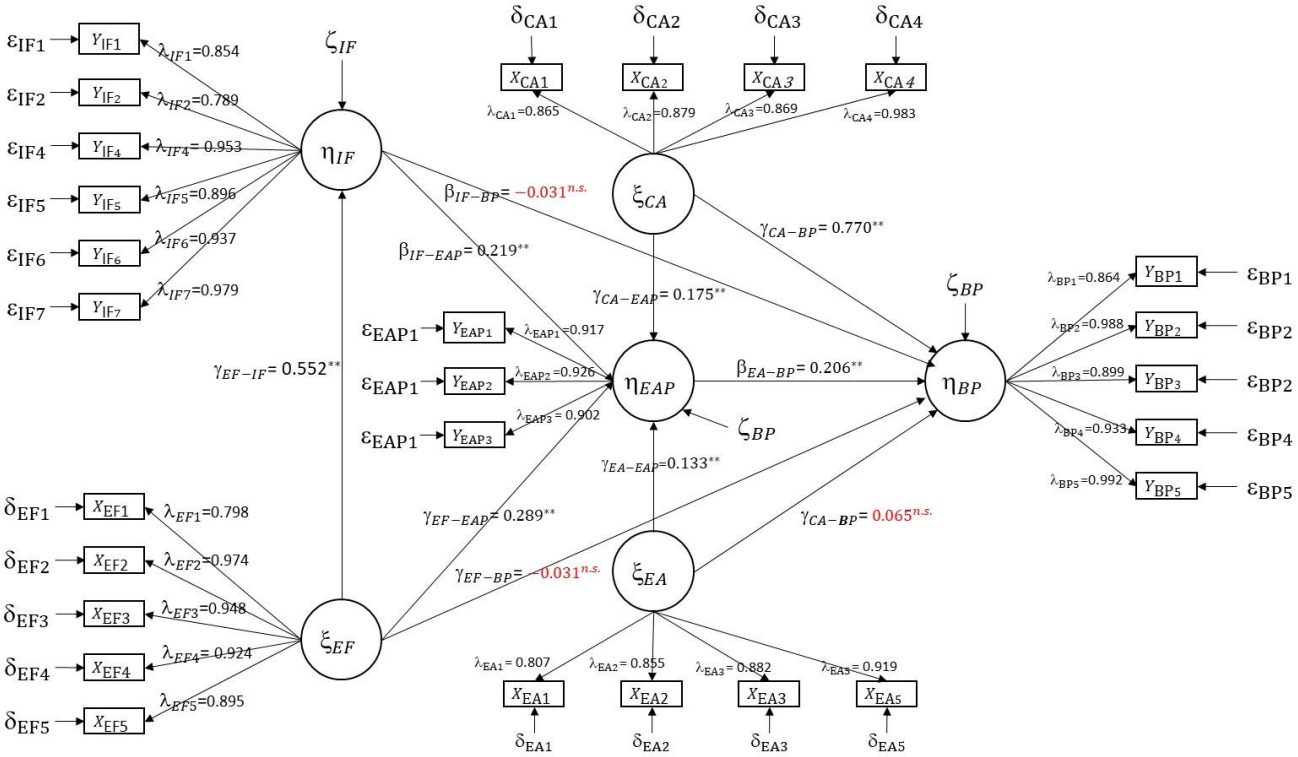


**Figure 1. Structural Measurement Model Evaluation (Outer Model)**

Source: Modification of SmartPLS output, 2023

Figure 14 shows that all research indicators meet the requirements for SEM analysis because of the high value of individual reflective measures. Individual reflexive measures are high if they correlate more than 0.70 with the measured construct. PLS is developed for recursive modeling, as mentioned in the Methods section. In the principle of reflective measurement, the mediation/intervention model is conceptually similar to the recursive model analysis. The only difference is the importance of the mediation effect. As a result, there is a relationship between latent variables known as the causal chain system, which takes the form of an equation. Combined the structural model equations provided in the methods section into this dissertation model then the mathematical equation derived from Figure 14 as follows:

Equations for Structural Models:

$$\eta_{IF} = \gamma\xi_{EF} + \zeta_{IF}$$

$$\eta_{EAP} = \beta_{IF-EAP}\,\eta_{IF} + \gamma_{EF-EAP}\,\xi_{EF} + \gamma_{CA-EAP}\,\xi_{CA} + \gamma_{EA-EAP}\,\xi_{EA} + \zeta_{EAP}$$

$$\eta_{BP} = \beta_{EAP-BP}\,\eta_{EAP} + \gamma_{CA-BP}\,\xi_{CA} + \gamma_{EA-BP}\,\xi_{EA} + \zeta_{BP}$$

Equations for exogenous variables:

| External Factor | Coastal Area | Economics Awarness |
|---|---|---|
| $X_{EF1} = \lambda_{EF1} + \delta_{EF1}$ | $X_{CA1} = \lambda_{CA1} + \delta_{CA1}$ | $X_{EA1} = \lambda_{EA1} + \delta_{EA1}$ |
| $X_{EF2} = \lambda_{EF2} + \delta_{EF2}$ | $X_{CA2} = \lambda_{CA2} + \delta_{CA2}$ | $X_{EA2} = \lambda_{EA2} + \delta_{EA2}$ |
| $X_{EF3} = \lambda_{EF3} + \delta_{EF3}$ | $X_{CA3} = \lambda_{CA3} + \delta_{CA3}$ | $X_{EA3} = \lambda_{EA3} + \delta_{EA3}$ |
| $X_{EF4} = \lambda_{EF4} + \delta_{EF4}$ | $X_{CA4} = \lambda_{CA4} + \delta_{CA4}$ | $X_{EA5} = \lambda_{EA5} + \delta_{EA5}$ |
| $X_{EF5} = \lambda_{EF5} + \delta_{EF5}$ | | |

Equations for exogenous variables:

| Internal Factor | Eco-agropreneurship | Business Performance |
|---|---|---|
| $Y_{IF1} = \lambda_{IF1} + \varepsilon_{IF1}$ | $Y_{EAP1} = \lambda_{EAP1} + \varepsilon_{EAP1}$ | $Y_{BP1} = \lambda_{BP1} + \varepsilon_{BP1}$ |
| $Y_{IF2} = \lambda_{IF2} + \varepsilon_{IF2}$ | $Y_{EAP2} = \lambda_{EAP2} + \varepsilon_{EAP2}$ | $Y_{BP2} = \lambda_{BP2} + \varepsilon_{BP2}$ |
| $Y_{IF4} = \lambda_{IF4} + \varepsilon_{IF4}$ | $Y_{EAP3} = \lambda_{EAP3} + \varepsilon_{EAP3}$ | $Y_{BP3} = \lambda_{BP3} + \varepsilon_{BP3}$ |
| $Y_{IF5} = \lambda_{IF5} + \varepsilon_{IF5}$ | | $Y_{BP4} = \lambda_{BP4} + \varepsilon_{BP4}$ |
| $Y_{IF6} = \lambda_{IF6} + \varepsilon_{IF6}$ | | $Y_{BP5} = \lambda_{BP5} + \varepsilon_{BP5}$ |
| $Y_{IF7} = \lambda_{IF7} + \varepsilon_{IF7}$ | | |

Therefore, as proposed by Wold (1963), also repeated in Chin (1998), then developed by Henseler (Henseler et al., 2009), until the recent book by Hair et al. (2021), the Evaluation of PLS Path Model Results can be asses by the outer and inner models.

Research Model

Based on the results of the bootstrapping analysis, it can be concluded that the influence of internal factors on the eco-agropreneurhsip of 21.9% has a statistically significant value. The values of $F^2$ and $q^2$ also support the value of this significant effect. This result means that the eco-agropreneurship variable depends on the internal factors of MSMEs. The reflective measurement of the latent internal factor variable is based on the human resource aspect, which is mostly influenced by working hours (Kindangen et al., 2019). Based on the research team's experience, working hours such as consistency of business opening hours, length of business opening days, and commitment to working hours are considered a factor affecting eco-agropreneurship. Competitive pricing strategy is the dominant factor as a reflective variable latent internal factor by highest mean value (Gunarathne & Lee, 2021; Schaltegger, 2002). However, in this dissertation, the direct influence of internal factors on

business performance is not significant. The indirect effect through the eco-agropreneurship variable of 4.5 proved significant. This study's results align with the research conducted by Strydom et al. (2021) that stated that internal factor are the main important element of entrepreneurial of eco-agropreneur intentions (Gunawan et al., 2021; Masjud, 2020; Piwowar-Sulej et al., 2021; Schaper, 2002).

Based on the results of this dissertation data analysis, it supports hypothesis 2 that external factors significantly influence eco-agropreneurship 28.9%. That is, the better the external environmental factors, the better the eco-agropreneurship. The results of this study support previous studies (Ben Amara et al., 2020; Piwowar-Sulej et al., 2021; Smallbone & Welter, 2001; Udiyana et al., 2018). In this dissertation, the dominant indicator is measured based on the highest mean value, not weight, because the outer model is based on reflective measurements. Thus, this statistical significance result is in line with the descriptive analysis of variables where infrastructure support from the government has the largest mean value. It assumed that infrastructure support from the government, such as the availability of roads, market access, and waste management, will increase the perception of MSME's eco-agropreneurship in coastal areas (Doh & Kim, 2014; Lamoureux et al., 2019; Smallbone & Welter, 2001). Another statistical significance is the value of $F^2$, which means that the external factor has a relationship of determination to EAP, and although it is small, this relationship cannot be ignored. The results of external factor significance on eco-agropreneurship can be proven by the value of $q^2$, that if the external factor variable is removed from the model, there will be an effect on the calculation model. This dissertation result cause by the Indonesian Government support during the economic crisis. Apart from supporting tangible infrastructure, the Government continues to support entrepreneurship through expanding access to finance (Pu et al., 2021; Razumovskaia et al., 2020; S. S. Wang et al., 2021). One of the concrete steps that have been taken is to embrace entrepreneurs from the academic community of universities, such as access to affordable financing, especially for students (Amalia & von Korflesch, 2021; Hermanto & Suryanto, 2017).

The influence of external factors on internal factors is proven significant. This conclusion is based on the data analysis results showing the influence of external variables on internal variables of 55.2% with a significance value or p-value less than 0.05. These results mean that this dissertation accepts hypothesis 3, that there is a significant influence between external and internal variables. This result supported the previous result by Menguc et al. (2010) found that external factors affected internal factors. The influence of external factors is confirmed by the statistical meaning of the value of $f^2$, which shows a large effect on

internal factors. The results of this dissertation also mean that the external environmental factors of SMEs, such as government assistance and the influence of consumers, competitors, and suppliers, have been appropriately utilized by the owners/managers of MSMEs in managing and running the business (Carey, 2015; Pedersen & Sudzina, 2012; Tumiwa et al., 2020). These results can be used as a benchmark that good external environmental factors will have a positive effect on internal environmental factors in developing MSMEs, and the results will also have an impact on increasing the eco-agropreneurship variable and subsequently on business performance. This result shows a relationship between external and internal environmental factors that are interconnected and influence each other (Blanco-González et al., 2021; Dess & Robinson, 1984; Prashar, 2019; Udiyana et al., 2018), which positive external environmental factors will affect internal environmental factors and result in good business performance through the concept of eco-agripreneurship. This dissertation found that the dimensions of government assistance and policy are factors of the external environment variables in this study to influence the internal environment. This result can be seen from the descriptive statistics, which show the average dimensions in the high mean value category. Thus, it can be concluded that the dimensions of the legal framework and government regulations that support MSMEs are excellent.

The direct and total effect of the coastal area variable on the performance of MSMEs has a positive effect. This result is in line with previous research that coastal areas in rural areas have good natural resources to meet the needs of local communities (Hermawan, 2018; Marean, 2014; Sui et al., 2020). The living needs of local communities are still primary and secondary, making their fulfillment simple. Although meeting the needs of local communities is not complex, the innovation factor is essential, especially innovation that is environmentally friendly and pays attention to social aspects (Bott et al., 2020; Cahaya, 2015). Although the indirect effect of the coastal area on performance has no statistical significance, the total effect of the coastal area variable on the performance of MSMEs is significantly positive (compared with the effect of the latent variable EA). This result is in line with the findings of (Brundin & Gustafsson, 2013; Palmås & Lindberg, 2013), which prove that too much eco-innovation in rural agriculture would have no effect on business performance or profit compared then the livelihoods-based initiative. The livelihoods–based initiative in this dissertation is described in other latent variables, such as coastal area variables, which are proven to have a significant direct effect. Thus, it can be concluded that the value of local wisdom in using natural resources is one of the assets that can be used as

a regional characteristic or a particular place and needs to be preserved as a value that must be owned as an eco-agropreneur.

The direct effect of the current economic situation awareness variable has a significant effect of 13.3 % on the eco-agropeneurship variable. Based on the data analysis results, this dissertation accepts hypothesis 5, where the direct influence of the latent variable economics situation awareness has a positive and significant influence on eco-agropreneurhsip. This significant relationship is supported by entrepreneurs who must be determined to survive to meet their family needs and help others in difficult times. With this determination, entrepreneurs think more about being able to innovate and be creative in selling their products (Hansen et al., 2012; Schumpeter & Clemence, 2017). The condition of the community's movement was reduced during the LSSR periods and increased online transactions used by entrepreneurs to change conventional business processes into digital or online sales through e-commerce and social media. The difficult economic conditions make people pull their brains to get income for daily meals and survive (Akpan et al., 2020; Fitriasari, 2020; Rodrigues et al., 2021). With awareness of the current economic situation, entrepreneurs adapt their business to innovative products; for example, those who previously sold bags and clothes then changed their products to selling cloth masks. Other industries that can survive in coastal area during the COVID-19 pandemic are those related to fulfilling basic needs, including clean water, agriculture, animal husbandry, plantations, fisheries, automotive/workshop, and banking.

Slightly different from the pattern of relationships between CA, EAP, and BP variables, the variable economic condition awareness (EA) does not have a direct, statistically significant effect on eco-agropreneurship and MSMEs performance. However, the reflective indicators of this variable are mostly positive things caused by awareness of the current economic situation. The statistical results of $F^2$ less then 0.02 support this conclusion. This statistical meaning means that even though it has a significant effect, it turns out that the relationship between the variables of current economic situation awareness on eco-agropreneurship can be eliminated. The indicator for measuring the reflective variable of latent current economic situation awareness after the indicator with a low loading factor is dropped only leaves a positive reflective indicator on how this economic situation can cause entrepreneurs to be more aware and care about others.

This reflective indicator is based on suppressing the impact of COVID-19 and the R-youC. Thus, this insignificant relationship can be explained by the approach to economic growth in rural areas. Economic growth in rural areas, especially in eastern Indonesia, is not based

on investment or saving patterns but is based on consumptive patterns (Kindangen & Tumiwa, 2017). In the early 60s, Indoneisan economic growth were increase stronger due to the investment and fiscal policy (Sundrum, 1986). However, in coastal area, people fulfill their need from local resources, less investment, and high household consumption due to the thanks giving tradition (Adams & Cuecuecha, 2010; Lamadirisi, 2015). Whereas previously explained that the coastal area has a lot of natural resources, fulfilling primary and secondary public consumption is not complicated to meet the community's demands. With a consumptive pattern like this, it will not be affected by the disruption of the economic crisis caused by COVID-19 and R-YouC. This insignificant relationship has also been seen when determining the reflective outer model of economic situation awareness, where there are two indicators, EA4 and EA6, are eliminated. Unlike regions or countries with economic growth based on investment and saving, rural areas are proven to have strong resilience compared to urban areas during economic, especially financial crises.

This dissertation accepts hypothesis 6 with the question of a significant effect between the latent variable eco-agropreneurship of 20.6% on business performance. The significant results meaning also supported by the $F^2$ value, which states that eco-agropeneurship has a medium $F^2$ size effect on the performance of MSMEs. In addition, when referring to the $Q^2$ value of the eco-agro-agriculture variable, 0.380 is greater than 0, which means that the eco-agorpreneur measurement model is well structured and significantly influences business performance. Previous research on the application of green entrepreneurship, ecopreneurship, agropreneurship, and various other sustainability issues found that this concept is still limited to big business (Achda, 2006; Awawdeh et al., n.d.; Corazza, 2018; Hosoda, 2018; Legendre & Coderre, 2013; Scagnelli et al., 2013; Van Tulder & Da Rosa, 2014). Palmås & Lindberg (2013) found that the overly advanced and complicated ecopreneur concept has no benefit to MSMEs in generating profits. Many measurement indicators in eco-agropreneurship are the combined definition of ecopreneurship and agropreneurship that, according to the previous research finding only based on a literature review (Ben Amara & Chen, 2021; Kirkwood & Walton, 2010a; Kummitha, 2021; Phillips, 2013; Strydom et al., 2021), have found that eco-agropreneurship does not have significant impact on business performance, especially profit generation. The results of this dissertation prove that eco-agropreneurship can be applied at the MSME level and produce promising business performance. The significant effect of eco-agropreneurship on business performance is assessed from the social and environmental impacts and the economic impact, which is profit. Most respondents answered that environmental issues were limited

to waste processing and information technology, such as online marketing, delivery, and online payments, which are essential indicators at the level of micro business. Meanwhile, the other eco-agropeneurship indicators, such as the company's image, green environmental certification, participation in social activities, business ethics, and production impact, still have a low mean value compared to other measurement indicators (Guan et al., 2020). This result is slightly different with the research by López-Pérez et al (2017) and Bartolacci et al. (2020). The measurement of these low mean category indicators at the MSMEs level is in line with the Palmås & Lindberg (2013) research, which found that this element did not affect business, especially in agricultural businesses in rural areas.

The dimensions of energy consumption savings also support this significant effect. This result is in line with previous research regarding businesses that implement green process innovation through efforts to save electricity and use energy will experience a reduction in production costs. The decrease in production costs resulted in reduced operating expenses and then increased the business's profit, and the company's performance also increased.

Hypothesis 7 is the mediating role of the eco-agropreneurship variable to link other latent variables, such as internal and external factors, coastal areas, and current economic situation awareness, to the performance of MSMEs, including the direct influence of these variables. Based on the results of the PLS-SEM analysis, it was found that there was no significant direct influence between internal factors, external factors, and current economic awareness on the performance of MSMEs. This conclusion can be seen in Figure 00 Structural Measurement Model Evaluation (Inner Model), where the p-value is above 0.05; thus, this influence relationship must be eliminated.

The role of eco-agro-agriculture as mediation in this model is significant, especially for internal and external variables with indirect influence values of 4.5% and 8.4%, respectively. The effect of the eco-agropeneurship model can be seen in table 00 $Q^2$ size effect ($q^2$). All independent latent variables have good structural modeling, except for the latent variable current economics situation awareness.

## 4. CONCLUSION AND NOVEL FINDING

This dissertation has successfully combined the concepts of eco-preneurship and agro-preneurship based on the SLR technique. In addition, the eco-agropeneurship model is proven to be well structured based on the statistical meaning of the $q^2$ value.

This dissertation provides an indicator of reflective measurement of the latent variable of eco-agropreneurship using the SLR method. In addition, it also contributes to reflectors of internal and external factors, coastal areas, and current economic situation awareness. These research indicators can be used as a benchmark for further research.

This dissertation contributes to research on eco-preneurship, agro-preneurship, and business performance. Previous research found a direct influence on business performance between internal and external variables. In this dissertation, it turns out that during a pandemic and other economic situation, internal and external factors negatively affect business performance. This dissertation contributes a variable as a mediation, namely eco-agropreneurship. This variable is proven to be a mediating relationship between internal and external factors on business performance.

This dissertation also succeeded in finding that the concept of green/eco/social-entrepreneurship can improve the performance of MSMEs, not only non-financial performance but also financial performance. It is proven that applying a business concept with an eco-agropreneurship model can improve environmental and social performance and generate profits simultaneously for MSMEs.

This dissertation can also be presented as a benchmark for using PLS-SEM holistically for the outer reflective model. This dissertation shows all the calculation requirements to find GoF based on the suitability of the outer model and inner model. This dissertation also provides input on the GoF calculation based on the calculation of the roots of the $R^2$ formula, which is proven to be more robust than the fit model criteria offered by the PLS-SEM calculation.

This dissertation has several limitations, including:

- This dissertation examines micro, small and medium enterprises (MSMEs), but from the results of the dissertation, it has been found that the majority of MSMEs that are the object of the dissertation are micro and small businesses only.
- Covid-19 caused this dissertation only to take one research area, namely coastal areas in 5 provinces in Indonesia, thus, the generalization of the results of this research is still limited.

- In this study, the measurement of the variables is only estimated based on the perceived opinion of owners/managers of micro, small and medium enterprises (MSMEs). One of the description analyses tries to reveal the income. However, it was not easy to generalize into variable measurement since it is only subjective and determined by the surveyor based on the data given per day, week, or month.

Suggestions for further research;

- It is necessary to increase the number of research coverage areas and might perform a PLS-MGA based on the coastal area or respondent's demographic.
- Further developing the model by adding other latent variables since the current economic concern variable does not significantly impact eco-agropreneurship.
- This dissertation focuses on developing countries. Exploring the factors that influence the sustainability of SMEs as influenced by local variables in developed countries can help create an understanding of the differences and similarities in various locations.
- For the related parties such as government to use this dissertation findings for further policy implementation.

## 5. SUMMARY

Indonesia has a vast coastal area and abundant natural gifts, making Indonesia a member of the G20 countries. MSMEs are believed to play an essential role in utilizing these resources as the backbone of the national economy. However, previous studies discussed that improving the MSMEs performance was inversely proportional to the environmental impact, especially for the manufacturing industry. Currently, besides international trade and ecological preservation issues, MSMEs face a global economic crisis caused by the COVID-19 pandemic and R-YouC that significantly impacts the national economy. Many studies suggest that MSMEs must become pioneers in environmental conservation, agents of change, and pioneers in saving the future through concrete actions. However, there are also many debates about the unfavorable effects of applying the concept of environmental preservation to business performance related to profit, especially in a developing country. Some researchers suggest concepts called agro-entrepreneurship and livelihood approach in generating profit for businesses in rural areas.

Internal and external factors are believed to influence MSMEs' performance significantly. However, during the economic crisis due to COVID-19 and R-YouC, these internal and external factors should be tested with a statistical approach. Regard Indonesia's advantages lies in its enormous coastal area with abundant resources, this dissertation purpose a model of eco-agropreneurship that is influenced by internal and external factors, coastal area variable, and current economic awareness variable, and then the influence of eco-agropreneurship effects on MSMEs performance.

As a theoretical approach, this dissertation carries two grand theories, entrepreneurship, and organizational behavior. Subsequently, from the grand theories, this dissertation constructs the middle theory and applied theory to explain the current phenomenon or background of the problem in the introduction, which is coastal communities in rural areas and the current economic situation awareness of COVD-19 and R-YouC.

The object of this dissertation is coastal areas in several cities and regions in several provinces in Indonesia. Since 17 provinces in Indonesia have coastal coasts, this dissertation uses 5 (five) provinces in northeastern Indonesia that consider less developed compared to the western part. Therefore, the sample of this dissertation is 312 respondents after eliminating the outlier.

This dissertation uses SLR and TAA filtering methods to define the eco-agropreneurship measurement. Since the number of eco-agropreneurship indicators is enormous, this dissertation uses factoring reduction analysis using PCA to reduce the indicators.

Furthermore, this dissertation uses descriptive analysis for the respondents' characteristics and the latent variables.

The PLS-SEM goodness of fit model is measured by analyzing the inner and outer models' congruence and then purpose another new fit model measurement for PLS, the R2 root formula.

Based on the results of the SLR analysis with the TAA filtering method, PCA, descriptive analysis, and PSL-SEM, this dissertation finds that MSMEs performance in profit perspectives can be achieved through the eco-agropreneurship variable, which is a combination of ecopreneurship and agropeneurship. Furthermore, there is no direct influence between internal and external factors on MSMEs performance during the economic crisis due to COVID-19 and R-YouC. Internal and external factors will only have a statistically significant influence through the eco-agropreneurship variable. Other latent variables that affect eco-agropreneurship are current economic awareness and coastal areas. This research has implications for further research direction and related parties for the policymakers to consider the eco-agropreneurship model.

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## List of publications related to the dissertation

Articles, studies (11)

1. **Tumiwa, J. R.**, Tuegeh, O. D. M., Bittner, B., Nagy, A. S.: The challenges to developing smart agricultural village in the industrial revolution 4.0.
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