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# Application of MSME and Green Economy Principles for Sustainability in Indonesia and Malaysia

**M. Noor Salim[A], Nur Hayati Abd Rahman[B], Darwati Susilastuti[C], Edi Wahyu Wibowo[D], Eri Marlapa[E], Khairunnisa Abd Samad[F]**

**Abstract**

To realize the principles of sustainable development, policies have been taken, especially in implementing the green economy in Indonesia and Malaysia. This research analyzes the influence of labor, exports, investment on MSME Green GDP and determines the comparison of MSME green GDP in Indonesia and Malaysia. This research uses quantitative methods for annual secondary data from 1990-2019 obtained through related agencies. The data analysis method begins with green economic valuation based on GDP of SME's which produces Green GDP of MSME, after that using Multiple Linear Regression. Test different dependent variables (different t test) to find out the comparison of Green GDP of MSME in Indonesia & Malaysia. For Indonesia, there is a simultaneous positive influence between MSME labor, MSME investment, MSME exports on MSME Green GDP, while partially there is a positive influence of MSME labor and MSME investment on MSME Green GDP, but for SME exports there is a negative influence on Green GDP MSME. The simultaneous influence of MSME employment, MSME investment, MSME exports on MSME Green GDP is 46%, the rest is influenced by other variables. For Malaysia, there is a positive simultaneous influence of MSME labor, MSME investment, SME exports on MSME Green GDP, while partially there is a negative influence of MSME labor and MSME investment on MSME Green GDP, but for MSME exports there is a positive influence, a negative impact on MSME Green GDP. The simultaneous influence of SME employment, MSME investment, SME exports on MSME Green GDP is 57%, the rest is influenced by other variables. Meanwhile, the different tests resulted in no significant difference in the Green GDP of MSME between Indonesia & Malaysia. The contribution of this research is as a basis for the policies of the two countries in creating green business mapping in the Indonesia & Malaysia.

***Keywords***: *Green Economy, MSME, Export, Investment, Labour.*

## INTRODUCTION

Global natural phenomena such as climate change, environmental damage, pollution, and economic crises have been the subject of extensive research and [1]–[5]. Development success can be

[A]*Mercubuana University, Jakarta, Indonesia, Email: kaifahal.indonesia@gmail.com*
[B]*Universiti Teknologi MARA Cawangan Melaka, Malaysia*
[C]*Borobudur University, Jakarta, Indonesia*
[D]*Institut Bisnis Nusantara, Jakarta, Indonesia*
[E]*Mercubuana University, Jakarta, Indonesia*
[F]*Universiti Teknologi MARA Cawangan Melaka, Malaysia*

seen from all aspects, including human, economic, and environmental [6]. Sustainable development is a complex and interdisciplinary topic that explores various interactions between economic, social, and environmental indicators [7]. Achieving sustainable development requires transdisciplinary innovation at the local scale [8]. The impact of various economic, social, and environmental indicators on economic growth in South Asian countries has been investigated [9]. Corporate sustainability is an important aspect of sustainable development, and research has identified three development areas: green human resource management, corporate social responsibility, and sustainable human [10].

From an economic perspective, the growth and development of Micro, Small, and Medium-sized Enterprises (MSMEs) have been recognized as a success in various contexts. MSMEs play a crucial role in ensuring economic security by creating jobs, generating income, and promoting innovation[11]. They are often considered the backbone of the economy, particularly in developing countries [12]. Economic growth is closely linked to the productivity of MSMEs. Studies have shown that economic growth acts as a determinant of increasing the productivity of small and medium enterprises [13]. This relationship highlights the importance of supporting and fostering the growth of MSMEs for overall economic development. Innovation, both in terms of product development and business processes, is a key driver of MSMEs' performance and economic impact. In the wearing apparel sector of emerging countries, product innovation and business process innovation were found to explain a significant portion of organizational and economic performance [14]. MSMEs' readiness for digital transformation is crucial for their continued growth and contribution to the economy. In Indonesia, for example, MSMEs are considered pillars of the economy, and their digital readiness has been identified as a key factor in achieving the country's Gross Domestic Product (GDP) targets [15].

The green economy is a form of awareness aimed at preserving nature and creating sustainable development. It is characterized by low carbon emissions, resource efficiency, and social inclusivity[ [16]. These practices focus on developing products and services that have minimal environmental impact and promote sustainability [17]. A greener economy aims to minimize waste generation and maximize the reuse of materials, reducing the overall environmental footprint[4]. The green economy seeks to promote social equality and alleviate poverty through its sustainable development practices [16], [18]. These concepts play a crucial role in achieving green innovation and sustainable development goals [16], [19].

Sustainable development is a normative concept that involves trade offs among social, ecological, and economic objectives, and is required to sustain the well-being of current and future generations [20]. The SDGs provide a common framework through which locally meaningful and globally relevant actions can be identified and

implemented. By aligning community efforts with the SDGs, progress can be made in various areas, such as poverty reduction, education, health, and environmental sustainability. Transdisciplinary approaches that involve multiple stakeholders and disciplines can help address complex sustainability challenges and create innovative solutions [8]. By fostering collaboration and knowledge sharing, communities can develop more effective strategies for improving welfare while minimizing negative impacts on the environment and society. Social protection measures, such as social welfare transfers, can help improve community welfare by providing support to vulnerable individuals and households. Investing in social protection systems can contribute to poverty reduction, improved health outcomes, and increased resilience to shocks and crises. Traditional economic indicators, such as GDP, do not capture the full range of social and environmental impacts of development By adopting alternative measures of progress, such as the Genuine Progress Indicator (GPI) or the Human Development Index (HDI), communities can better understand the relationship between economic growth, social well-being, and environmental sustainability. Ensuring access to safe, nutritious, and affordable food is essential for community welfare. Additionally, creating an enabling environment to finance a sustainable ocean economy can help protect marine resources, support livelihoods, and promote sustainable development [8]. Advancing the SDGs can be achieved through improving eye health, as evidenced by a scoping review that identified 29 ways in which eye health interventions can contribute to the SDGs [21].

The lack of human awareness in preserving the environment, both individually and as employees involved in MSMEs, has a significant impact on pollution. This is further exacerbated by high export demands, which also contribute to the lack of nature preservation. On the other hand, there is a high investment to provide awareness for MSMEs to develop a green economy, aiming for sustainability in Indonesia [22], [23]. The lack of human awareness in preserving the environment, both individually and as employees involved in Micro, Small, and Medium Enterprises (MSMEs), has a significant impact on pollution. This is further exacerbated by high export demands, which also contribute to the lack of nature preservation. On the other hand, there is a high investment in providing awareness for MSMEs to develop a green economy and promote sustainability in Malaysia [24]–[29].

The implementation of green economy principles still faces many challenges in Indonesia and Malaysia, and air pollution remains a significant problem in both countries, impacting sustainable development. A study on Indonesia's green economy and sustainable development aims to determine how air pollution, economic growth, carbon dioxide damage, and life expectancy are interconnected [29]. Understanding these links can provide insights into the specific challenges and potential solutions for addressing air pollution's impact on sustainable development. Malaysia's rapid economic growth over the

past two decades has led to concerns about the quality of air and water, which directly affect the socio-economic condition of society [30]. Understanding the specific aspects of environmental management that contribute to air pollution and its economic and social consequences can help identify areas for improvement and potential solutions. Energy policy, forest sector practices, and climate change issues are intricately linked in Indonesia[3]. Exploring the interconnections between these factors and their impact on air pollution and sustainable development can provide a more comprehensive understanding of the challenges and potential solutions for addressing air pollution in the country. A study on the dynamic impacts of economic growth and forested area on carbon dioxide emissions in Malaysia found that an increase in GDP and deforestation leads to an increase in CO2 emissions [31].

The urgency of this research is to analyze the green economy valuation, especially for MSMEs, so that it will provide a green economic policy framework for all business sectors in Indonesia & Malaysia. Meanwhile, the aim of this research is to analyze the impact of labor, exports and investment on the green economic growth of MSMEs in Indonesia & Malaysia. So the latest in this research is that it will compare the implementation of the green economy for MSMEs in Indonesia & Malaysia.

## METHOD

The method of determining research areas and respondents was carried out purposively, namely the green GDP of MSME in Indonesia and Malaysia. The population in this study is all variable data studied in Indonesia. Determination of the sample in this study using a purposive sampling technique that is in accordance with the required amount. The number of samples is determined by annual data between 1990 and 2019 or as many as 30 samples, both in Indonesia and in Malaysia.

### Formulation Models

The first model is used to determine the effect of openness, capital, labor, on green GDP. Model 1a for Indonesia and Model 1b for Malaysian data $Y = b_o + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + e$

Words:

| | |
|---|---|
| Y | = MSME Green GDP |
| $x_1$ | = Labor |
| $x_2$ | = Investment |
| $x_3$ | = Export |
| $x_1 \ldots x_4$ | = Independent variable |
| $b_1 \ldots b_4$ | = Parameters |

### Data Analysis Method

Green GDP Valuation

The data analysis method to be applied consists of:

a. Semi-Green GDP Valuation

According to Suparmoko (2006) in (Mulya, 2016), Semi-Green GDP is GDP which includes elements of depletion of natural resources and the environment. Mathematically, it can be stated as follows:

Semi-Green GDP is obtained by subtracting the natural resource depletion value from the Conventional GRDP value. The depletion value is obtained by multiplying the volume of extraction of each type of natural resource by the unit rent or unit price.

D = Q x U

Where:

D = depletion value

Q = volume of natural resources extracted

U = rental units

The way to calculate unit rent is to subtract the cost of taking per unit from the price of natural resources including the value of profit per unit (remuneration for investment costs) that can be received by investors. A reasonable profit value is the same as the interest rate on bank loans as an alternative to the cost of invested capital to exploit natural resources in the area concerned. Here's how to calculate unit rent.

b. Green GDP Valuation

To get the Green GDP value, the value of environmental damage or degradation is reduced by the Semi Green GDP value, so that the Green GDP value is obtained. Calculating environmental damage is more complex because it is necessary to use various estimates according to the type of natural resources and the environment that is degraded. The calculation steps in assessing environmental damage are as follows (Ratnaningsih, 2012) in (Mulya, 2016):

1). Identification of degraded environments

2). Physical quantification of environmental degradation

3). Economic assessment of environmental damage.

c. Green GDP Assessment of MSME

Derived from SME GDP divided by the result of Total Green GDP.

**Hypothesis Testing**

Determination Test (R Square)

To find out how far the influencing variables explain the affected variables using a determination test (R Square). The factor inputs of credit, investment, technology and cooperatives will be more closely related to green GDP if the R Square value is the same or close to one.

F test

The F test is used to test whether the use of several variables together influences Green GDP of SME's

F = (ESS / (k-1)) / (TSS / (N-1))

Where:
ESS = Sum of squares described (Sum of Squares Regression); TSS = Total Sum squared; k = number of variables, N = number of samples. By hypothesis:
H0: bi = 0
Hi: at least one bi ≠ 0
With a significant level α = 5%:

t test

The t test is used to determine the effect of each labor, Investment, Export on green GDP of SME's.

t hit = βi / (Se(βi)); where Se(βi) = ⟦ Se ⟧ ^2 / (∑_1^2(1-r))

Information:
Bi = regression coefficients μ1, μ2, μ3, μ4 and μ5; Se (βi) = standard errors μ1, μ2, μ3, μ4 and μ5

## RESULTS AND DISCUSSIONS

### Green GDP

**Table 1. Green GDP of Indonesia & Malaysia 1990–2019**

| Year | Indonesia | % Growth | Malaysia | % Growth |
|---|---|---|---|---|
| 1990 | 261,455,072,628 | 6.61 | 70,943,717,041 | 7.84 |
| 1991 | 283,465,276,594 | 8.42 | 79,528,713,037 | 12.10 |
| 1992 | 301,520,411,473 | 6.37 | 86,719,483,814 | 9.04 |
| 1993 | 321,931,624,671 | 6.77 | 95,674,927,080 | 10.33 |
| 1994 | 346,703,292,249 | 7.69 | 104,835,057,805 | 9.57 |
| 1995 | 374,215,600,454 | 7.94 | 115,025,310,539 | 9.72 |
| 1996 | 402,163,950,570 | 7.47 | 125,947,030,561 | 9.50 |
| 1997 | 422,020,908,313 | 4.94 | 135,368,406,122 | 7.48 |
| 1998 | 366,862,994,430 | - 13.07 | 126,375,591,215 | - 6.64 |
| 1999 | 370,560,472,224 | 1.01 | 133,596,030,695 | 5.71 |
| 2000 | 385,786,350,199 | 4.11 | 143,542,728,930 | 7.45 |
| 2001 | 400,765,041,306 | 3.88 | 145,455,603,598 | 1.33 |
| 2002 | 420,321,327,895 | 4.88 | 153,062,660,906 | 5.23 |
| 2003 | 440,059,528,394 | 4.70 | 161,004,555,178 | 5.19 |
| 2004 | 457,735,531,984 | 4.02 | 169,452,204,370 | 5.25 |
| 2005 | 478,882,518,052 | 4.62 | 176,076,727,726 | 3.91 |
| 2006 | 505,309,303,123 | 5.52 | 185,429,362,179 | 5.31 |
| 2007 | 534,867,318,002 | 5.85 | 197,786,807,806 | 6.66 |
| 2008 | 561,306,850,468 | 4.94 | 204,652,904,881 | 3.47 |
| 2009 | 598,626,114,966 | 6.65 | 205,908,082,365 | 0.61 |
| 2010 | 632,160,868,054 | 5.60 | 221,248,903,485 | 7.45 |
| 2011 | 661,756,944,468 | 4.68 | 230,607,786,292 | 4.23 |
| 2012 | 707,539,875,053 | 6.92 | 242,200,554,456 | 5.03 |
| 2013 | 750,616,398,376 | 6.09 | 254,872,621,736 | 5.23 |
| 2014 | 795,204,079,289 | 5.94 | 271,349,403,892 | 6.46 |
| 2015 | 846,220,514,196 | 6.42 | 288,565,556,494 | 6.34 |
| 2016 | 891,872,309,723 | 5.39 | 306,064,611,543 | 6.06 |
| 2017 | 934,262,326,103 | 4.75 | 322,564,207,841 | 5.39 |
| 2018 | 973,255,263,891 | 4.17 | 332,356,492,089 | 3.04 |
| 2019 | 1,029,532,073,155 | 5.78 | 350,316,114,846 | 5.40 |

Judging from Table 1, it is stated that the Green GDP of Indonesia & Malaysia from 1990 to 2019, the Green GDP was obtained from the Semi-Green GDP minus the amount of degradation. For

Indonesia, the highest Green GDP was in 1991 at 8.42%, while the lowest was in 1998 at 13.07%. For Malaysia, the highest Total Degradation occurred in 1993 at 10.33%, while the lowest occurred in 1998 at 6.64%.

**MSME Green GDP**

**Table 2. Indonesian & Malaysian MSME Green GDP 1990–2019**

| Year | INDONESIA Green GDP of SME % | MALAYSIA Green GDP of SME % |
|---|---|---|
| 1990 | 0,38 | 0,24 |
| 1991 | 0,47 | 0,36 |
| 1992 | 0,40 | 0,28 |
| 1993 | 0,55 | 0,32 |
| 1994 | 0,19 | 0,30 |
| 1995 | 0,53 | 0,30 |
| 1996 | 0,40 | 0,29 |
| 1997 | 0,34 | 0,23 |
| 1998 | - 0,28 | - 0,24 |
| 1999 | 0,06 | 0,18 |
| 2000 | 0,22 | 0,23 |
| 2001 | 0,88 | 0,04 |
| 2002 | 0,95 | 0,17 |
| 2003 | 0,79 | 0,16 |
| 2004 | 0,68 | 0,16 |
| 2005 | 0,71 | 0,12 |
| 2006 | 0,93 | 0,16 |
| 2007 | 0,82 | 0,19 |
| 2008 | 0,74 | 0,10 |
| 2009 | 1,50 | 0,02 |
| 2010 | 0,88 | 0,20 |
| 2011 | 0,63 | 0,11 |
| 2012 | 1,03 | 0,13 |
| 2013 | 0,94 | 0,14 |
| 2014 | 0,64 | 0,16 |
| 2015 | - 8,23 | 0,15 |
| 2016 | 0,02 | 0,15 |
| 2017 | 0,84 | 0,13 |
| 2018 | 0,77 | 0,07 |
| 2019 | 1,46 | 0,13 |

As seen from Table 2, it is stated that the Green GDP of Indonesian & Malaysian MSME from 1990 to 2019, the Green GDP of MSME is obtained from the division of Green GDP to the GDP of MSME. For Indonesia, the highest MSME Green GDP was in 2009 at 1.50%, while the lowest was in 2015 at -8.23%. For Malaysia, the highest MSME Green GDP was in 1993 at 0.32%, while the lowest was in 1998 at 0.24%.

**Model Findings**

Indonesia

The model establishes that MSME green GDP is influenced by MSME labor, MSME investment and MSME exports. All the previous variables are converted to natural logarithmic form. So, the estimated

model shown is Indonesian MSME Green GDP = f (MSME labor, MSME investment, MSME exports)

**Table 3. OLS Results for Indonesia**

Dependent Variable: INDONESIA_GREEN_GDP_OF_SME
Method: Least Squares
Date: 06/13/23 Time: 09:49
Sample: 1990 2019
Included observations: 30

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| INDONESIA_LABOUR_OF_SME | 3.82E-06 | 1.63E-06 | 2.347266 | 0.0268 |
| INDONESIA_INVESTMENT_OF_SME | 2.37E-10 | 4.96E-11 | 4.786050 | 0.0001 |
| INDONESIA_EXPORT_OF_SME | -8.74E-09 | 2.06E-09 | -4.250141 | 0.0002 |
| C | -231.6852 | 110.9717 | -2.087785 | 0.0468 |

| | | | |
|---|---|---|---|
| R-squared | 0.520170 | Mean dependent var | -18.05003 |
| Adjusted R-squared | 0.464805 | S.D. dependent var | 101.8382 |
| S.E. of regression | 74.50180 | Akaike info criterion | 11.58309 |
| Sum squared resid | 144313.5 | Schwarz criterion | 11.76992 |
| Log likelihood | -169.7463 | Hannan-Quinn criter. | 11.64286 |
| F-statistic | 9.395270 | Durbin-Watson stat | 2.161454 |
| Prob(F-statistic) | 0.000223 | | |

Regression analysis as shown in the table above shows that the MSME labor has a positive and significant effect on the MSME Green GDP. The MSME labor coefficient is 3.82 implying that a one percent increase in the labor will eventually increase the green GDP of MSME in Indonesia by 3.82%. MSME investment has a positive and significant effect on MSME Green GDP. The MSME investment coefficient is 2.37 meaning that a one percent increase in SME's investment will ultimately increase the green GDP of MSME in Indonesia by 2.37%. SME's exports have a negative and significant effect on MSME Green GDP. The MSME export coefficient is -8.7 meaning that a one percent decrease in MSME's exports will ultimately decrease Indonesia's green GDP by 8.7%.

Malaysia

In summary, the first model focuses on the determinants of MSME green GDP which are influenced by MSME labor, MSME investment and MSME exports.

Green GDP = f (MSME labor, MSME investment, MSME exports)

**Table 4. OLS Results for Malaysia**

Dependent Variable: MALAYSIA_GREEN_GDP_OF_SME
Method: Least Squares
Date: 06/13/23 Time: 12:32
Sample: 1990 2019
Included observations: 30

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| MALAYSIA_LABOUR_OF_SME | -1.17E-05 | 3.85E-05 | -0.305085 | 0.7627 |
| MALAYSIA_INVESTMENT_OF_SME | 1.45E-08 | 1.88E-07 | 0.077302 | 0.9390 |
| MALAYSIA_EXPORT_OF_SME | -0.039906 | 0.014346 | -2.781732 | 0.0099 |
| C | 1.012201 | 0.298157 | 3.394861 | 0.0022 |

| | | | |
|---|---|---|---|
| R-squared | 0.621968 | Mean dependent var | 0.039741 |
| Adjusted R-squared | 0.578349 | S.D. dependent var | 0.032859 |
| S.E. of regression | 0.021337 | Akaike info criterion | -4.733192 |
| Sum squared resid | 0.011837 | Schwarz criterion | -4.546365 |
| Log likelihood | 74.99787 | Hannan-Quinn criter. | -4.673424 |
| F-statistic | 14.25909 | Durbin-Watson stat | 1.688558 |
| Prob(F-statistic) | 0.000011 | | |

Regression analysis as shown in the table above shows that the MSME labor has a negative and insignificant effect on the MSME Green GDP. The SME's labor coefficient is -1.17 implying that a one percent decrease in the labor will eventually decrease the green GDP of MSME in Malaysia by 1.17%. SME investment has a positive and insignificant effect on MSME Green GDP. The capital coefficient of 1.45 indicates that a one percent increase in SME's investment will eventually increase the green GDP of MSME in Malaysia by 1.45%. MSME exports have a negative and significant effect on MSME Green GDP. The MSME export coefficient of -0.03 indicates that a one percent decrease in MSME exports will ultimately decrease Malaysia's green GDP by 0.03%.

The Green GDP of Indonesian and Malaysian MSMEs from 1990 to 2019 reveals some key points. In 2015, the Green GDP of Indonesian MSMEs was the lowest at -8.23%[1]. This indicates a significant negative impact on the environment due to the activities of these enterprises. For Malaysia, the Green GDP of MSMEs was the lowest in 1998 at 0.24%. This suggests a relatively smaller negative impact on the environment compared to Indonesian MSMEs in that year. A negative value indicates a net loss of environmental resources. The low Green GDP of Indonesian MSMEs in 2015 could be attributed to various factors, such as inadequate environmental regulations, unsustainable production practices, and limited access to green technologies and financing [32].

The partial negative influence of MSME exports on the Green GDP of MSMEs in Indonesia is not explicitly mentioned in the provided search results. However, some relevant information can be gathered from the search results to understand the challenges and impacts faced by MSMEs in Indonesia. MSMEs in Indonesia are a key sector that accounts for about 61 percent of the country's Gross Domestic Product (GDP) and employ 97 percent of the workforce [33]. They play a crucial role in the economy but face various challenges, including low export competitiveness. The COVID-19 pandemic has significantly affected MSMEs in Indonesia, with more than 50% of them experiencing weakening due to the crisis [34]. This situation may have implications for the Green GDP of MSMEs, although the specific relationship is not discussed in the search results. Barriers in the business environment can create negative effects on the productivity of MSMEs [34]. These barriers may also impact the Green GDP of MSMEs, although the exact nature of this influence is not explored in the provided search results. Digitization and readiness for digital transformation are important factors for the success of MSMEs in Indonesia [15]. While not directly related to the Green GDP of MSMEs, this information highlights the need for MSMEs to adapt to changing business environments and may indirectly impact their overall performance, including their environmental sustainability.

The discussion about the negative influence of MSME labor and MSME investment on MSME Green GDP in Malaysia is not found in the provided search results. However, the search results provide

information on MSMEs in general, including their productivity, employment, and contribution to GDP. MSMEs are the main source of employment worldwide, but they are lagging behind larger companies in terms of labor productivity [15]. In Malaysia, MSMEs represent about 48% of employment and 38% of GDP [15]. MSMEs have been hit the hardest by the negative socioeconomic impact of the COVID-19 pandemic, despite their significant contributions to SDGs[15]. Lack of awareness of green opportunities is one of the challenges faced by MSMEs in accessing climate finance [35].

The Green GDP of MSMEs between Indonesia and Malaysia in the search results. However, the search results provide some information about the GDP and economic performance of both countries. According to the IMF, unchecked climate change could shave 11 percent off Southeast Asia's GDP, including Indonesia and Malaysia. The Economics of Climate Change report by Swiss Re also suggests that Indonesia, Malaysia, the Philippines, Singapore, and Thailand would lose economic output totaling more than seven times their 2019 GDP by 2050. Malaysia is one of the most open economies in the world with a trade to GDP ratio averaging over 130% since 2010, and about 40% of jobs in Malaysia are linked to export activities. On the other hand, Indonesia is on course to become the seventh-largest economy in the world in 2030 from the 16th largest today, and it can offer businesses and investors a lucrative market opportunity if it can meet a range of constraints on growth [36][36][37].

## CONCLUSIONS

For Indonesia, there is a simultaneous positive influence between SME labor, SME investment, SME exports on SME Green GDP, while partially there is a positive influence of SME labor and SME investment on SME Green GDP, but for SME exports there is a negative influence on SME Green GDP. The simultaneous influence of SME employment, SME investment, SME exports on SME Green GDP is 46%, the rest is influenced by other variables. For Malaysia, there is a positive simultaneous influence of SME labor, SME investment, SME exports on SME Green GDP, while partially there is a negative influence of SME labor and SME investment on SME Green GDP, but for SME exports there is a positive influence, a negative impact on SME Green GDP. The simultaneous influence of SME employment, SME investment, SME exports on SME Green GDP is 57%, the rest is influenced by other variables. There is no significant difference in the Green GDP of MSMEs between Indonesia and Malaysia. The contribution of this research is as a basis for the policies of the two countries in creating green business mapping in the two countries of Indonesia & Malaysia. This research is only limited to the application of the green economy to MSMEs in Indonesia & Malaysia, so it can still be developed further to other aspects and other countries.

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