

# Bio-circular-green model knowledge and environmental knowledge causing sustainable development perspective

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## ABSTRACT

The population were undergraduates of Rajabhat Mahasarakham University in the first semester academic year of 2022 (Rajabhat Maha Sarakham University, 2022). The simple random sampling technique was used to collect the samples of 400 undergraduates of Rajabhat Mahasarakham University in Maha Sarakham Province. The questionnaire used a tool for data collection. Multiple Regression Analysis was an inferential statistic for data analysis. Descriptive statistics were mean, and standard deviation. The objective of the research was to determine BCG model knowledge and environmental knowledge causing sustainable development perspective. The finding demonstrated that the prediction equation of the relationship between independent variables of Bioeconomy (X1), Circular economy (X2), Green economy (X3), Water management (X4), Energy management (X5), and Waste management (X6) causing dependent variable Sustainable Development Perspective (Y) of undergraduates of Rajabhat Mahasarakham with prediction power of 70.10 percent. Green economy (X3) has the highest causing power with can explain the Sustainable Development perspective (Y) of undergraduates with 34.20 percent at statistical significance at a level of 0.01. Moreover, the other factors also aid to enhance prediction power to explain the Sustainable Development perspective (Y) of undergraduates, except Circular economy (X2) showed a negative direction. To develop the proper curriculum for undergraduates of Rajabhat Mahasarakham University, the university administrators should launch programs and activities to encourage them to continuously participate in programs and activities to meet better environmental quality at both their household and university and for better life quality.

**Keywords:** BCG model knowledge, environmental knowledge, sustainable development perspective.

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## INTRODUCTION

In the past, Thailand had a social and economic structure mainly based on the agricultural sector. A large proportion of the population is in agriculture. It is 32.3 percent of the workforce is in the agricultural sector, 17.0 percent in industry and 7.0 percent in services. Moreover, in the agricultural sector, the working people have low incomes, and it causes the new generation of workers to

enter the agricultural sector less at present (Thiengkamol, 2011e; Office of the National Economic and Social Development Council, 2013; Thiengkamol, 2020; Kaewhao, 2022).

The Bio-Circular-Green Model is a holistic economic development that focuses on the development of 3 economies at the same time, namely, 1) Bioeconomy,

which aims to add value to biological resources, production increment, and biodiversity conservation; 2) Circular Economy, taking into account the use of resources for the most cost-effective or long-lasting, recycling, and full life cycle product use; and 3) Green Economy), economic development taking into account the sustainability of resources, the environment quality conservation with zero waste management, and greenhouse gases reduction (BCG, 2023; Thiengkamol, 2011e; Thiengkamol, 2020; Kaewhao, 2022).

The BCG Model is a mechanism with high potential to comprehensively improve the quality of life of people in the country. It can effectively diversify opportunities and reduce inequality. At the same time, Thailand can become a world leader in some areas where Thailand has potential. BCG Model in the early stages emphasizes 4 strategic areas: 1) agriculture and food, 2) health and medicine, 3) energy, materials and bio-Chemical, and 4) tourism and creative economy. It contributes 21.0 percent to GDP and is associated with the occupations and employment of more than 16.5 million people in the country.

This is an economic development that does not focus only on economic development. But it must be developed in parallel with social development and environmental preservation in a balanced way to achieve stability and sustainability at the same time. By changing the advantages that Thailand has in biodiversity and culture. to be able to compete with innovation to achieve sustainable development (Preston, 2005; Thiengkamol, 2020; Kaewhao, 2022). BCG economy grows, is globally competitive, and distributes the income into the community to reduce inequality and strengthen the community. It is environmentally friendly and sustainable development (BCG, 2023; Thiengkamol, 2020; Kaewhao, 2022).

Trend factors that will affect soon include many new technologies emerging. Changes in the structure of Thai society that has become a rapidly aging society and fewer labor entering the market. Recently, the government has attempted to push forward policies related to the new economic system with the following important features: (1) an economic system that is a new concept. This is partly due to economic, social, political, and technological changes. (2) It is an economic system that relies on knowledge management and new technologies, which must bring the country's distinctive points, namely location biodiversity including the strength of personnel in some fields such as medical science both in terms of research and service. The last important characteristic is (3) it is an economic system that has a lot of economic impacts and can be adjusted quickly, such as the application of Big Data to the overall agricultural management planning of the country (BCG,

2023; Thiengkamol, 2020; Kaewhao, 2022).

Therefore, Thailand can efficiently develop and promptly adapt according to the above guidelines. It will make a stronger economic system and a rapidly sustainable environment. It is ready and proud to step into a developed country (Thiengkamol, 2011e; Thiengkamol, 2020; Kaewhao, 2022).

The Thai government has adapted by changing the advantages that Thailand has from biodiversity and enrich cultures to be able to compete through innovation by creating a BCG economy that grows and supports global competition. The target of the policy is to distribute income into the community and to reduce inequality while strengthening community competencies to meet environmentally friendly and sustainable development in line with the Sustainable Development Goals (SDGs) of the United Nations. This leads to accomplishing the vision of Thailand, "Stability, Sustainability, Developed Country based on Sufficiency Economy Philosophy" of the 20-year National Strategy (2018-2037), (Preston, 2005; BCG, 2023).

"Sustainable development" is a concept arising from the awareness of the negative impacts caused by development, especially the impact of liberal economic development on the environment and the deterioration of natural resources. The concept of sustainable development has been developed since the beginning. "United Nations Conference on the human environment" (The United Nations Conference on Human Environment: UNCHE) in Sweden in 1972. The results of the conference led to the establishment of "The United Nations Environmental Program (UNEP) in the year 1973. Later, the concept of sustainable development was formally presented in 1987 in the report "Our Common Future" by the World Commission on Environment and Development (WCED, 1987). Sustainable development is widespread. After that, when the United Nations Conference on Environment and Sustainable Development (UNCED, 1992), known as the "Earth Summit" was held in Rio de Janeiro, Brazil in the year 1992. The concept of sustainable development was adopted in the international arena. The outcome of the meeting has certified 3 documents, namely (1) Rio Declaration on Environment and Development, which outlines the rights and responsibilities of the United Nations; (2) Agenda 21 to be the world's master plan for sustainable development, all social, economic, and environmental; (3) Statement of Forest Principle. As well as two other conventions: (1) United Nations Framework Convention on Climate Change (UNFCCC), and (2) Convention on Biological Diversity (CBD). Biodiversity is essential for human health and well-being, economic prosperity, food safety and security, and other critical areas necessary for the individual and collective thriving

of all humans and all human societies (United Nations, 2022). In addition, it was decided to establish "Commission on Sustainable Development (CSD) to take responsibility and follow up to set guidelines for implementing the results of the meeting into concrete in the book "Our Common Future", which is a report from the United Nations Conference of the Committee. Committee on Environment and Development published in 1978 (United Nations World Commission on Environment and Development (WCED, 1987), it becomes a principle of sustainable development that has given the definition that "Development that meets the needs the livelihood of the present without compromising the ability of future generations to meet their own needs" (Thiengkamol, 2011e). The United Nations General Assembly organized The World Summit on Sustainable Development (WSSD, 2002) or Rio+10 meeting in Johannesburg, South Africa in 2002 to review the progress of each country's sustainable development efforts in accordance with the Agenda 21 of the previous year. It aimed at tackling poverty by maintaining the level of development and environmental protection by this meeting, the Johannesburg Declaration was adopted. (Johannesburg Declaration) and Johannesburg Action Plan (Johannesburg Plan of Implication (JPOI) is a framework action to achieve the objectives of the implementation of Agenda 21 and other agreements based on the principles of integrated development in economic, social and environmental aspects. The principle of shared responsibility and sustainable development is established by a National Council for Sustainable Development as part of the Johannesburg Implementation Plan chaired by the Prime Minister. As for the role of academic agencies, the Thailand Research Fund (TRF) joined in the year 2000, creating the concept of Millennium Development Goals (MDGs) or the goals arising from the merger at the United Nations Millennium Summit in New York City USA, the year 2000, The country's leaders have agreed on 8 common development goals with a time frame of 15 years, which is between 2000-2015 (2000-2015). MDGs, therefore, are like the history and movement of the world in dealing with important problems that arise. MDGs have been communicated to make the world society aware of the problem of poverty, communicable diseases, lack of education for children around the world, gender inequality, and destruction of natural resources. In addition, the MDGs set clear goals and have time to direct. This makes communication more effective than planning in the 90's too. MDGs have reached the end of the target phase in 2015 (United Nations, 2015). Sustainable development comprises three pillars of sustainability which are social, economic, and environmental dimensions (United Nations, 1972). The

UN has prepared and arranged meetings in advance at various levels including gathering opinions of the world community through the Internet for a period of not less than 3 years before 2015 to jointly set a framework for enhancing the living standards of people around the world. In the next phase, a new target framework called the Sustainable Development Goals or SDGs was issued in September 2015 and will be used as a framework to move the world until August 2030 (15 years). The SDGs were developed based on looking at the links between the economy, society, and environment. The goals are divided into 17 goals, in addition to the 17 goals that are developed in 3 dimensions, namely economy, society and environment, according to the guidelines of the SDGs, connecting all dimensions of sustainability. The United Nations is divided into 17 goals as follows: (1) Eradication of poverty, (2) Eradication of hunger, (3) Health and well-being, (4) Quality education, (5) Gender equality, (6) Clean water and sanitation, (7) Affordable clean energy, (8) Good jobs and economic growth, (9) Industry, innovation and infrastructure, (10) Reduce inequality, (11) Sustainable Cities and Communities, (12) Sustainable and Responsible Use of Resources, (13) Climate Action, (14) Sustainable Use of Ocean Resources, (15) Sustainable Land Use, (16) Peace and justice, and (17) strengthening global cooperation (Thiengkamol, 2020; Kaewhao, 2022; Department of Economic and Social Affairs Sustainable Development, 2023).

Thailand 2017 Constitution, Section 43, Section, Rights and Liberties of the Thai People stipulates that a person and community have the right in issue three, people can sign a petition to suggest to government agencies to implement what action would be useful to people or communities by taking action to release the impacts that affect the peaceful living of the people or the community. They will quickly get notified of the results of consideration from the governmental sector. However, government agencies must consider the proposal recommended by the relevant people to participate in the consideration in accordance with the procedures provided by law. According to Section 58, any action taken by the state, or which the State will allow any person to undertake if such action may affect natural resources, environmental quality, health, sanitation, quality of life, or any other significant impacts on the people or communities. The state must conduct a study and assess the impact on the quality of the environment and the health of the people or communities. Moreover, the state must arrange for the opinions of stakeholders, relevant people, and communities to be heard first by assembling consideration of operations according to the law provided. Individuals and communities shall have the right to receive information, clarifications, and reasons

from government agencies prior to the operation or permission under paragraph one. In carrying out or granting permission under paragraph one, the state must be careful to minimize impacts on people and communities by conserving the environment and biodiversity. They must proceed to remedy the suffering of damage that affected people or communities fairly and without delay (Langkarbindhu, 2018; Kaewhao, 2022).

To achieve sustainable development, undergraduates should pay attention to BCG model knowledge and environmental knowledge to apply for environmental behavior alternation (Thiengkamol, 2012e; Bootrach, et al., 2015a; BCG, 2023). The natural resources and environmental knowledge are essential variables that cover the water, air, soil, forest, biodiversity, energy, recycling, life cycle assessment, ecological footprint, and waste management to daily practice to have better environmental behavior by concerning and following the national environmental laws and regulations (Donkonchum et al., 2012a; Suebsing et al., 2013a; Maporn et al., 2015; Mukpradab et al., 2016; Kramer, 2018). Therefore, the new generations are powerful people to assist the natural resource and environmental conservation by considering on basic concept of everyday life activity through energy saving, waste reduction, water, forest, biodiversity and ecological system conservation in their households and communities or university campus including knowledge transferring, and behavior change (Udonboon et al., 2012b; Tippalert et al., 2015; Saisunantharom et al., 2013a; Kaewhao et al., 2015; Sutthiphapa et al., 2016; Lhaophet et al., 2016). These activities are required to apply their daily living activities to reach pro-environment behavior (Pimdee et al., 2012a; Kotchachote et al., 2013a; Kamin et al., 2014; Srikaewtoom et al., 2014; Thiengkamol, 2020; Chena et al., 2020; Kaewhao, 2022).

Therefore, this research will forecast the BCG model knowledge and environmental knowledge of undergraduates of Rajabhat Mahasarakham University leading sustainable development. The research finding will be used for curriculum development to serve undergrads and to encourage them to practice and participate in their families and communities to support the local and national environmental law compulsory for effectively conserving the environment and natural resources.

### Research objective

The research was to determine BCG model knowledge and environmental knowledge causing sustainable development perspective.

### Research hypothesis

H<sub>1</sub>: BCG model knowledge and environmental knowledge were causing sustainable development perspective.

### METHODOLOGY

The research design was conducted step by step as follows:  
1. The population was undergraduates of Rajabhat Mahasarakham University in the first semester academic year of 2022 (Rajabhat Maha Sarakham University, 2022). The simple random sampling technique was used to collect the samples of 400 undergraduates of Rajabhat Mahasarakham University in Maha Sarakham Province, Northeastern in Thailand. The size of the sample was calculated by Taro Yamane Formula  $n = N / (1 + Ne^2)$ . The sample size was 384 at least with a confidence interval of 95% or 5% error that is calculated from a population of 9,478 (Yamane, 1973). This research collected 400 undergraduates.

2. The research tool was the questionnaire with 68 items and it was used for data collection. The content and structural validity were determined by Item Objective Congruent (IOC) by 5 experts in the aspects of environmental knowledge, social science, and environmental management. The accepted value of content validity was more than 0.5. The 5-rating scale of Likert's scale was used for each item evaluation by starting from 1 as strongly disagree to 5 as strongly agree. There are 7 items for each issue of BCG model knowledge environmental knowledge and sustainable development perspectives. The questionnaire comprises 5 items of demographic characteristics, 21 items of BCG model knowledge, 21 items of environmental knowledge, and 21 items of sustainable development perspectives. Thus, there were 68 items in the questionnaire. The total reliability determined by Cronbach's correlation was 0.945 and the accepted level was 0.70 (Hair et al., 2010; Thiengkamol, 2016).

3. Descriptive statistics was used to determine mean and standard deviation and inferential statistics was multiple regression analysis that was used for data analysis for predicting the causing of BCG model knowledge of bioeconomy, circular economy and green economy, and environmental knowledge of water management, energy management and waste management toward sustainable development.

This sample was selected to be studied because they are the new generations who will be important change agents to assist the family, society and country to improve the better environment, and economy if they apply this knowledge to create the advantage from this knowledge

and understanding to perform the proper environmental behavior to save the world.

people (70.00%), and their family was nuclear with 295 people (73.75%) as showed in Table 1.

## RESULTS

### Demographic characteristics of sample group

The finding revealed that the demographic characteristics of undergraduates of Rajabhat Mahasarakham University, most of them are 240 females (60.00%), studying in the first year with 218 people (54.50%), a study in the Faculty of Education with 156 people (39.00%), most of them lived in their dormitory with 280

### BCG model knowledge

BCG model knowledge includes bioeconomy, circular economy and green economy. The results are presented in Table 2. Undergraduates of Rajabhat Mahasarakham University had BCG model knowledge in the aspect of the green economy at the highest level with a mean of 4.35. Subsequences were bioeconomy with a mean of 4.27, and circular economy environmental damage with a mean of 4.19 respectively.

**Table 1.** Results of demographic characteristics of sample group.

Demographic characteristics	Number of sample	Percent of sample
1. Gender	Male = 160	40.00
	Female = 240	60.00
2. Study in Class	Study in First Year = 218	54.50
	Study in Second Year = 120	30.00
	Study in Third Year = 80	20.00
	Study in Forth Year = 24	6.00
3. Faculty	Faculty of Science and Technology = 28	7.00
	Faculty of Education = 156	39.00
	Faculty of Management Science = 34	8.00
	Faculty of Humanities and Social Science = 80	20.00
	Faculty of Agricultural Technology = 25	6.00
	Faculty of Information Technology = 15	4.00
	Faculty of Polital Science and Public Administration = 32	8.00
	Faculty of Law = 15	4.00
Faculty of Engineering = 15	4.00	
4. Living	Dormitory = 280	70.00
	Outside Dormitory = 120	30.00
5. Family Type	Nuclear Family = 295	73.75
	Extended Family = 105	26.25

**Table 2.** Mean and standard deviation of BCG model knowledge

BCG model knowledge	Mean	Standard deviation
1. Bioeconomy	4.27	1.33
2. Circular economy	4.19	1.26
3. Green economy	4.35	1.65
Total BCG model knowledge	4.29	1.47

**Environmental knowledge**

Environment knowledge includes water management, energy management and waste management. The results are presented in Table 3. Undergraduates of

Rajabhat Mahasarakham University had environmental knowledge in the aspect of water management at the highest level with a mean of 4.31. Subsequences were energy management with a mean of 4.28, and waste management with a mean of 4.25, respectively.

**Table 3.** Mean and standard deviation of environmental knowledge.

<b>Environmental knowledge</b>	<b>Mean</b>	<b>Standard deviation</b>
1. Water management	4.31	1.42
2. Energy management	4.28	1.61
3. Waste management	4.25	1.78
Total environmental knowledge	4.28	1.72

**Sustainable development**

Sustainable development covers environmental, social and economic perspectives. The results are presented in Table 4. The undergraduates of Rajabhat Mahasarakham University had sustainable development in the economic perspective at the highest level with a mean of 4.34. Subsequences were environment perspective with a mean of 4.32, and social perspective with a mean of 4.28, respectively.

Sustainable Development Perspective. It revealed that the variance value of the F-test: Variance Ratio Test was conducted, and the value is 271.011 with statistically significant at 0.01.

**Multiple analysis of the correlation of BCG model knowledge and environmental knowledge toward sustainable development perspective**

The relationship between independent variables of BCG model knowledge and environmental knowledge causing dependent variable of Sustainable Development Perspective of the undergraduates of Rajabhat Mahasarakham University is presented in Tables 5 and 6.

From Table 7, the linear regression equation revealed that independent variables of Bioeconomy (X1), Green economy (X3), Water management (X4), Energy management (X5), and Waste management (X6) causing dependent variable Sustainable Development Perspective of undergraduates, with statistical significance at the level of 0.01 for 5 aspects of independent variables of Bioeconomy (X1), Green economy (X3), Water management (X4), Energy management (X5), and Waste management (X6) can predict Sustainable Development Perspective (Y) of undergraduates, except Circular economy (X2), was not able to predict Sustainable Development Perspective. Thus, Equation 1 is written as follows:

As shown in Table 5, Multiple Linear Regression was analyzed between independent variables of Bioeconomy (X1), Circular economy (X2), Green economy (X3), Water management (X4), Energy management (X5), and Waste management (X6) causing dependent variable Sustainable Development Perspective. It revealed that the regression coefficient equaled 0.755 (75.50%) and the coefficient of a R Square was 0.722 (72.20 %) with statistical significance at a level of 0.01. After it was adjusted, the coefficient of R Square with the power of prediction was 0.701 (70.10%).

$$y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 \tag{1}$$

- When
- y = Sustainable Development Perspective as Dependent Variable
- a = constant value
- b1 = Coefficient relation of Bioeconomy as Independent Variable
- x1 = Bioeconomy as Independent Variable
- b2 = Coefficient relation of Circular economy as Independent Variable
- x2 = Circular economy as Independent Variable
- b3 = Coefficient relation of the Green economy as Independent Variable
- x3 = Green economy as Independent Variable
- b4 = Coefficient relation of Water management as Independent Variable
- x4 = Water management as Independent Variable

As shown in Table 6, Multiple Linear Regression was analyzed between independent variables of Bioeconomy (X1), Circular economy (X2), Green economy (X3), Water management (X4), Energy management (X5), and Waste management (X6) causing dependent variable

**Table 4.** Mean and standard deviation of sustainable development perspective.

Sustainable development	Mean	Standard deviation
1. Environment perspective	4.32	2.01
2. Social perspective	4.28	1.98
3. Economic perspective	4.34	1.82
Total sustainable development	4.31	2.01

**Table 5.** Result analysis prediction power of BCG model knowledge and environmental knowledge causing sustainable development perspective.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.755	0.722	0.701	0.165

a: Predictors: Constant, bioeconomy, circular economy, green economy, water management, energy management, and waste management

b: Dependent variable: Sustainable development perspective.

**Table 6.** Multiple linear regression analysis between BCG model knowledge and environmental knowledge causing sustainable development perspective.

Model		Sum of squares	df	Mean square	F	Sig.
2	Regression	52.673	6	8.779	271.011	0.000**
	Residual	17.420	393	0.056		
	Total	70.093	399			

a: Predictors: Constant, constant, bioeconomy, circular economy, green economy, water management, energy management, and waste management

b: Dependent variable: Sustainable development perspective.

**Table 7.** Coefficients of independent variables causing sustainable development perspective.

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	
	B	Std. error	Beta			
3	Constant	0.121	0.163	-	0.365	0.098
	Bioeconomy (X1)	0.129	0.034	0.188	4.651	0.008**
	Circular economy (X2)	-0.162	0.038	-0.113	1.356	0.0712
	Green economy (X3)	0.342	0.037	0.423	9.888	0.000**
	Water management (X4)	0.215	0.035	0.342	11.413	0.000**
	Energy management (X5)	0.323	0.036	0.372	10.023	0.000**
	Waste management (X6)	0.231	0.037	0.356	8.659	0.000**

a. Dependent variable: Sustainable development perspective.

b5 = Coefficient relation of Energy management as Independent Variable

x5 = Energy management as Independent Variable

b6 = Coefficient relation of Waste management as Independent Variable

x6 = Waste management as Independent Variable

Accordingly, the prediction equation of the relationship

between independent variables of Bioeconomy (X1), Circular economy (X2), Green economy (X3), Water management (X4), Energy management (X5), and Waste management (X6) causing dependent variable Sustainable Development Perspective (Y) of undergraduates. It can be explained that the Green economy (X3) was the most effective for Sustainable Development (Y) with 34.20 percent with statistical

significance at a level of 0.01. Subsequences were Energy management (X5) at 32.30 percent, Waste management (X6) at 23.10 percent, Water management (X4) at 21.50 percent, and Bioeconomy (X1) at 12.90 percent. Except for Circular economy (X2) with a negative direction of 16.20 percent and no statistical significance at a level of 0.05 as shown in Equation 2.

Equation prediction in terms of raw score was demonstrated as follows:

$$Y = 0.121 + 0.129X_1 - 0.162X_2 + 0.342X_3 + 0.215X_4 + 0.323X_5 + 0.231X_6 \quad (2)$$

Equation prediction in terms of the standard score was demonstrated as shown in Equation 3:

$$Z_r = 0.188X_1 - 0.113X_2 + 0.423X_3 + 0.342X_4 + 0.372X_5 + 0.356X_6 \quad (3)$$

## DISCUSSION

The results illustrated that Green economy (X3) was the most effective for Sustainable Development (Y) with 34.20 percent with statistical significance at a level of 0.01. This indicated that the Green economy (X3) is an important factor causing Sustainable Development Perspective. Thus, the administrators of the university should use this factor to emphasize the attention of local people to be aware to comply with environmental law practice by performing better participation through the environmental conservation behavior regarding the issues of natural resource and environment conservation, energy management, waste reduction, people participation, knowledge transferring and behavior change. The results go along with the studies of Udonboon et al. (2012b), Kamin et al. (2014), Bootrach et al. (2015a), Tippalert et al. (2015), Wongsueb et al. (2015) and Sutthiphapa et al. (2016). Accordingly, Energy management (X5) is another critical variable that caused the Sustainable Development Perspective (Y) of undergraduate students with 32.30 percent. The result is pertinent to the study of Pimdee et al. (2012a). Besides, Waste management (X6) can forecast the Sustainable Development perspective (Y) of undergraduate students with an effect of 23.10 percent and it is also congruent with the study of Lhaophet et al. (2016). Nevertheless, Water management (X4) also plays another significant variable influencing the Sustainable Development perspective (Y) of undergraduate students with 21.50 percent. The finding indicated that BCG Model knowledge and Environmental Knowledge are able to cause the sustainable perspective with a prediction power of 70.10 percent which is rather high. Therefore, accomplishing sustainable development goals for each university environmental plan requires the BCG Model knowledge and environmental knowledge to solve the current environmental quality whether in terms of water management, energy management or waste reduction is a crucial situation to encourage undergraduate students to change their behavior of consumption as a social norm

and way of student life. Consequently, the university administrators who take responsibility for the environmental management of the university should understand all aspects of environmental, social, and economic perspectives. Thus, they must launch projects and activities to initiate lecturers, personnel and students to participate in environmental projects that are appropriate to their university. Nonetheless, this research demonstrated that the finding shows the 3 important issues of Green economy, Energy management, and Waste management are required put in the university environmental conservation with priority considerations.

## Conclusion

The findings showed that the green economy plays a very significant role in regulating the environmental conservation of university students to perform better environmental behavior. Subsequences were Energy management (X5), Waste management (X6), Water management, and Bioeconomy (X1) are also other crucial variables to help and empower the sustainable development goals of undergraduate students. Hence, if the university administrator can empower and encourage the proper environmental program for their university, this will lead to transforming the university students to participate in environmental and natural resources conservation by acquiring proper environmental knowledge to alter their behavior with complying environmental knowledge seriously. Finally, sustainable development will be accomplished in the family and university to lead to better life quality for students and their families as well. The research result indicated that green economy, water management, energy management and waste management explicitly cause the sustainable development perspective.

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