Resistive Economics
International Journal

The Open Access Journal of Resistive Economics (OAJRE)/
Volume 8, Number 3, 2020 Published Online July 01
E-ISSN: 2345-4954 http://oajre.ir

Original Article

Pages: 1-11

Green Economy in the BRICS

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Received: 2020/02/23 Revised: 2020/04/7 Accepted: 2020/06/11

ABSTRACT: Green economy is considered as the key of sustainable development. In other words, implementing sustainable development is based on attending to green economy. Accordingly, it not only causes the reduction in poverty, the increase in public welfare, health care and the implement of social justice, but also controls governmental performance. This study has aimed to investigate green economy in BRICS countries and library method has been used. Results from the study showed that many new economies including BRICS countries have recognized needs to change to green development strategies but they lack implementing mechanisms including educational actions to promote green economy skills. Changing to green economy has remained week due to inefficient political structure, lack of organizational support and implementing strategies in some countries.

KEYWORDS: Green Economy, Sustainable Development, BRICS.

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1. INTRODUCTION

From its emergence to now, the earth has experienced ecological events that part of them has natural origin and other part has human origin. From ice age to destructive volcanos and small and big meteorites and to now, species of plants and animals whose compatibility with unpleasant conditions of ecology have been higher have only been able to maintain their survival. Among these two factors (human and nature), increasing destruction and environmental pollution with human origin can expose the life of human and other species in danger (Ramezani ghavam abadi, 2012). When Concerns of human on environment are nationally, regionally and globally evident, using renewable and non-renewable sources are increased by industrial development. There is organic relationship both between development with industry and technology and between developments with destruction of ecological pollution (Chupani, 2009).

Flow of being developed is not related to special country. But all countries in the world are in the way of developing by different trends. At the same time, globalization, in the recent years, has intensified this trend even harmful; as a result, it has both positive and negative effects on human and world. Because being industrialized has accompanied with increasing use of land as a main source (Salehi, 2014).

Today, environment is not expected to remain virgin by industrial development which is the necessity of development and economic growth. Because increasing growth of population requires needs and necessities which are responded by such activities (Chupani, 2009).

But, this reality has been clear that ideal future cannot be proposed for present and next generations without observing the principle of Sustainable Development and environmental protection (Salehi, 2014). In past two decades, to see harmful effects such as increase in atmospheric temperature, destruction of ecology and the pollution of industrial residues and to decrease the sources have caused researchers and policymakers of developed countries to change the programs of Sustainable Development and correct management in the earth. The achievement of this review in economic trend is the formation of green economy. Green economy means producing products compatible with nature and environment, reinstruction of business and social infrastructure so that the amount of producing greenhouse gases and extracting sources are reduced (Sarwari, 2011).

From the view point of many people, the concept of "greenhouse" includes many expectations. This concept is expected not only to help the reduction of the rate of climatic changes and environmental attrition but also to help job creation in developing countries through strengthening green growth, therefore conflicting with unemployment and poverty (Kazemi, 2014).

However, it is necessary to take action in green economy trend, but moving toward green economy needs changing implicit and explicit structures of economy, changing policies and policy making ways and changing life style and behaviours.

2. LITERATURE REVIEW

In 1962, Rachel Carson, the American woman researcher, firstly proposed introduction of green revolution by publishing a book named "silent spring". growth limitations " book published by Dr. Dennis L. Meadows 1970s that has investigated global problems of environmental sources by using modelling can be known as the first effort of the Rom club to review traditional economy method (Xiaowei, 2011). Holding the first international conference on environment in 1972, publication of green economy book by Peers (British economist) in 1989 (Xiaowei, 2011) and holding great Rio conference named the earth summit conference indicate that international bodies have attended to environment. This shows that protection from environment and creation of appropriate environment have been changed to one of the most important responsibility of governments in world (Salehi, 2014). In2002, World Summit on Sustainable Development was held by presence of heads of states (summit) in Johannesburg. This conference held to continue the aim of Rio conference aimed to search a common way toward a world with sustainable development. This session led to creation of international agreements whose important one was the

statement on sustainable development of Johannesburg (report of sustainable development conference, 2012). Low carbon economy is proposed in energy white book: Our Energy future: Create Low Carbon Economy in 2003 published by the British government. In 2006,Stern Report leadingly made by Nicolar Stern, the former World Bank chief economist pointed out: the world invest 1% of the GDP per year could avoid 5%-20% GDP loss in the future, appeal the whole world switch to low carbon economy. December 3rd, 2007, the United Nation climate change conference was held at Bali Indonesia. The conference drew a world people concerned "Bali Roadmap".

The itinerary establish a clear-cut agenda for the key issue of tacking the climate change, demand the developing country reduce 25%-40% of the greenhouse gas emission, which play a active role moving a further step to the low carbon economy, has milestone meaning. United Nation environmental planning office fixed the theme of 2008 "World Environment Day" (June 5th) "transformed the traditional concept, launch low carbon economy". Although the 2009 Copenhagen meeting didn't reach an expected agreement, the 2010 Kankun meeting remarks an important step to the overall and law constraint global climate action framework (Xiaowei, 2011).

At the same time with the 20th anniversary of environment conference and development of the united nations in Rio in 1992 (the earth conference), this global session was held inRiodeJaneiro (Brazil) from 12 to 23 Jun, 2012. This session named "Rio +20"was held to renew political commitments for sustainable development, evaluate obtained developments, present gaps to implement the results of great conferences of sustainable development, investigate new and forming challenges. This conference mainly focused on two given issues including: creating green economy in structure of sustainable development and poverty reduction and making international framework for it.

3. THEORETICAL FRAMEWORK

3.1. The concept of green economy

Green economy is the new pattern of developing economy with Synchronization approach of today's economic world with environment to optimally use natural properties and utilize present economic sources attended by United Nations, developed and developing countries in recent years. Although, there is no common and agreed definition of green economy, there are the wide range of definitions on it which investigates difference and similarity between present patterns.

Green economy is one being able to reconstruct itself sustainably. A green economy must develop gradually so that it distinguishes the growth of economic return from environmental effects of that activity. This distinguishing and separation will consist of technical changes which reduces our use of sources and pollutions from this use (Terner, 2000).

In green economy, the most important purpose is to reduce pollution, especially greenhouse gases; accordingly, it is named "low-carbon economy". In green economy, the purpose is to produce productions and processes which are compatible with nature; these productions are named green productions (Najafifard, 2014).

However, the concept of green economy results from the primary ideas about the relation between sustainable ecological management and economic development. In this case, it is considered as the key of sustainable development. In other words, the implementation of sustainable development is based on moving toward green economy.

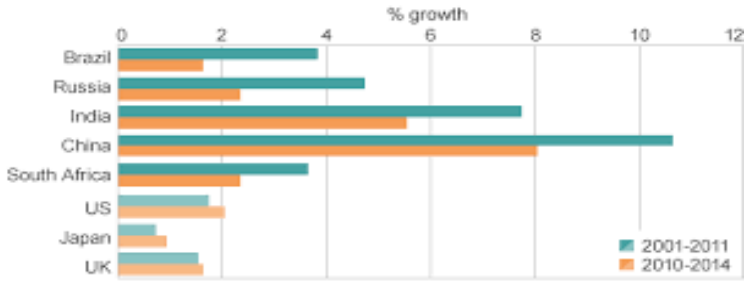
From the viewpoint of UE, the economy is green that cause the growth, the creation of job and the decrease in poverty through investment in nature for long-term survival of the earth. In this definition, UE has more attended to factors of economic growth and emphasized on producing low carbon and using sources effectively and promoting consumer methods and sustainable production. To implement these policies, Europe commission has attended to market mechanisms including tariff, customs duties, and environmental subsidy. Because these mechanisms are considered as tools to obtain economic, social and environmental purposes of sustainable development (Luiset, 2012). United Nations Environment Program (UNEP) has defined it"green economy is economy which is obtained in developed welfare condition of human and social equity; at the same time, it

reduces ecological dangers and deficiency". It aims to reduce air pollution, especially greenhouse gases; so, it is named low-carbon economy. It aims to produce the products and processes being compatible with nature; so, they are named green products. Thus, green economy is the most important component to reach sustainable development of environment (Najafifard, 2014).
The Organization for Economic Co-operation and Development (OECD) has defined it so, "low carbon development strategies are forward-looking national economic development plans or strategies that encompass low-emission and/or climate-resilient economic growth" (Caribbean Development Bank, 2014).
Nicolas Stern, the British economist also points out" Let's find a green developing path, walk out of this economic depression, this road not only can make our earth free from ecological risks but also promote the new investment, so as to create a safer and cleaner, more attractive economy" (Xiaowei, 2011).

3.2. BRICS Country

Global economy which is changing paradigm from west-governed parameters to multi-polarization. New economic powers in different continent particularly move in this direction ; BRICS group is its symbol.in fact, development is the most important concern of countries so-called south and the main mystery of international relations in recent century and when it accompanies with the effort of non-western countries, the complexity of this concept will be double (Izadi, 2015).
This group is an international group consisting of Brazil, Russia, India, China, and southern Africa. This group can be considered as an economic club with political attitudes. Countries which have formed BRICS is not only considered as potentially developing countries, they but also are the main polar of multipolar structure of the world. This institution firstly was named BRIC, then it is changed to BRICs by joining southern Africa to it. The organization was developed by joining southern Africa to this institution in2011 and became more global. Countries of BRICS group have 30% of area of world and 42% of population of the world. Being crowded, having natural sources, considerable extent and the highest economic growth are the characteristics of BRICS countries. The trend of industrial- economic revolution of these countries shows that the base of movement and mental infrastructure of forming this group as a new institution is to play role in future multi-polar world and to challenge present order governing international system.
The slow-down of economic growth in the developed economies of the US and the EU during the 2008 global financial crisis was profound. At the height of the crisis in 2009, the US economy contracted by 5.1%.10 In contrast, the cumulative growth of the BRICS countries was around 5% at the time and they owned more than half the global share of gross domestic product (GDP). Certainly, emerging economies were not impervious to the crisis. Even now, the recessionary effects are being experienced in a slowing of the economies of all five BRICS countries, and with the start of recovery in the US and Japan, the pre-crisis liquidity in emerging markets has dried up to a large extent (Wentworth, 2013).

Figure.1. Average annual growth rates for the BRICS and three major developed economies



Source: IMF World Outlook Database, 2014

4. RESEARCH METHOD

In any research, the researcher must explain his/her method of carrying out his/her work. The researcher must explain what tools have been used and how data has been gathered. In this study, library or documentary method has been used in which the researcher has used his most important tool that is note taking on the card.

5. GREEN ECONOMY IN BRICS

Climatic changes, urbanization development, lack of water and increase in food, increase in drought … show the excess development which has damaged environment and green economy is the only way of overcoming these outcomes. Table1 shows ecological components in BRICS countries from 2010 to 2013.

Table 1: ecological components in BRICS countries from 2010 to 2013

Country	ecological components	2010	2011	2012	2013
Brazil	Population growth (%)	0.97	0.95	0.94	0.91
	Renewable energy consumption (% of total final energy)	47.01	45.47	43.63	-
	Improved water source (% of population access)	96.9	97.2	97.5	97.8
	Forest area (sq. km)	4984580	4974740	4964900	4955060
	Arable land (% of land)	8.42	8.65	8.69	9.09
	Fossil fuel energy consumption (% of total)	53.49	54.57	56.55	58.02
	Greenhouse gas emissions	2902242.6	2953040.5	2989417.9	-
Russia	Population growth (%)	0.04	0.08	0.17	0.21
	Renewable energy consumption (% of total final energy)	3.34	3.23	3.25	-
	Improved water source (% of population access)	96.3	96.5	96.6	96.8
	Forest area (sq. km)	8151360	8150945.8	8150535.6	8150125.4
	Arable land (% of land)	7.27	7.33	7.31	7.46
	Fossil fuel energy consumption(% of total)	90.55	90.92	90.88	90.72
	Greenhouse gas emissions	2603289.6	2777724.3	2803398.4	-
India	Population growth (%)	1.37	1.33	1.29	1.25
	Renewable energy consumption (% of total final energy)	40.63	39.85	38.99	-
	Improved water source (% of population access)	90.3	91.3	92.2	93.1
	Forest area (sq. km)	697900	699684	701468	703252
	Arable land (% of land)	52.81	52.80	52.65	52.81
	Fossil fuel energy consumption (% of total)	71.56	71.41	72.37	72.44
	Greenhouse gas emissions	2771456.7	2828845.8	3002894.9	-
China	Population growth (%)	0.48	0.48	0.49	0.49
	Renewable energy	19.08	18.02	18.36	-

	consumption (% of total final energy)				
	Improved water source (% of population access)	91.4	92.3	93.2	94
	Forest area (sq. km)	2006100	2021525	2036947	2052369
	Arable land (% of land)	11.42	11.35	11.28	11.26
	Fossil fuel energy consumption (% of total)	87.52	88.18	87.91	88.14
	Greenhouse gas emissions	11183810.6	12064260	12454710.6	-
South Africa	Population growth (%)	1.46	1.49	1.52	1.55
	Renewable energy consumption (% of total final energy)	16.88	17.11	16.93	-
	Improved water source (% of population access)	91.1	91.6	92	92.4
	Forest area (sq. km)	92410	92410	92410	92410
	Arable land (% of land)	10.33	9.92	10.30	10.30
	Fossil fuel energy consumption (% of total)	87.46	87.17	87.24	86.7
	Greenhouse gas emissions	456538.4	451483.8	450615.7	-

Source: world Bank

Each of these components have had changes in above countries during investigation years, but what is important on the basis of table 1 is that dissemination of greenhouse gases in all mentioned countries (other than southern Africa) has been changed during these years. Meanwhile, it is necessary that BRICS countries change their developmental patterns and move toward green economy. But, each of them have been faced with challenges which are discussed in continue, when confronting green economy.

5.1. Brazil

In the global discussion on outcomes and advantages of developing green economy, Brazil has adapted a situation in which there is balance between purposes of economy development used by government and ecological purposes supported by economists of ecology. This balance has more extended concept for holistic development in Brazil which completely is not ideal. On the contrary to a view which is shared by developed and developing countries, green economy can result in economy growth and poverty extermination.

Policymakers in Brazil mostly adopt the standpoint that developing a green economy would mainly benefit developed nations. From their perspective, developing countries do not have the necessary competence to develop new technologies that would support the development of a low-carbon economy. In addition, the investment needed to establish a green economy is outside the reach of most developing countries. Embarking on this process would mean restructuring their economy to accommodate new costs and, consequently, depleting the budgets in other economic sectors. For this reason, Brazil seeks dialogue with other countries in the BRICS economic bloc to co-ordinate harmonised responses to mandates and commitments regarding the development of a green economy as elaborated on in the G-20. Brazil's main objective in promoting talks on green economy issues in BRICS is to develop alliances and establish a platform from which unified answers to policy proposals from developed countries can be provided, mainly to protect its interests, as well as those of other emerging markets and developing countries. For the past few decades, public policy in Brazil has been dominated by the industrialist paradigm which focuses almost entirely on the economic dimension of development (Wentworth, 2013).

Recently, governments have had efforts to include social development in agenda of Brazil.

In this regard preference is given to policy established to reduce social inequalities and poverty.

To obtain this, policy makers have related purposes to social development to lead permanent public policies to develop holistically. However, given policies to promote environment development and conflict with climatic changes have not been considered due to focusing on economic development in the country. In Brazil, policy makers argue that investment in a green economy takes time and attention to environment and climatic will decrease the growth rate and will weaken purposes for social inclusions. Besides this, they know that developed countries can impose export sanctions for other countries on the basis of lack of obligation to commitments to act ecological and climatic issues. About business, they considered global talks about green economy, but they are cautious about market deviation in international business and investment flows resulting from giving subsidy to developing countries which agree with green economy development by developed countries. Collectively, in view of international developments, the dominant perception of green economy issues among Brazilian policymakers is that new alliances and asymmetries between developed and developing countries could be formed. This could have an impact on global trade dynamics, which would affect Brazil's industrialist economic growth strategy (Wentworth, 2013).
Although Brazil does formally not undertake to limit or decrease the dissemination of greenhouse gases, national plan on climatic change has special criteria published by department committee for climatic change. From the viewpoint of global recourse institution, this plan is relatively comprehensive, but it cannot determine the steps of special actions and executive strategies. According to country reports, executive strategies is related to produce cleaner energy, efficiency of energy and appropriate biofuel. Educational and environmental Departments proposed national plan to teach ecology in 2003 (Kazemi, 2014).

5.2. Russia

Russia is a resource-rich country that holds a leading position in the production of major commodities such as steel, iron, agricultural products, oil and gas.
These commodities, however, requires energy-intensive activities. In a bid to modernise its economy and move away from resource-based economic development, Russia considers the development of a green economy to be a strategic option that could increase overall economic efficiency. Over decades, Russia's wealth as a nation has been derived from the abundance of minerals in the country. The extraction and processing of these minerals using fossil fuels has resulted in severe environmental challenges based on a continual focus on national development, narrowly defined as 'economic prosperity', which is entirely dependent on resource extraction and trade.18 However, on the international platform, Russia has shown its willingness to transform its economy in order to promote inclusive and sustainable development by supporting the agenda for green economy reforms. Russia, in co-operation with some international organisations such as UNEP, has developed a network of environmental institutions and legislative frameworks to promote its plan for developing a green economy.
Also, this country has been faced with challenges to execute policies and to really implement the plans (instable). Dominance of endergonic industries has helped to damage and pollute the environment in economy strategy of Russia. Lack of transparency to set general agreement based on political framework results in decreasing plans of green economy development in this country (Wentworth, 2013).
To increase efficiency of ecological policy making in Russia, there have been suggestions:

1. Changing investment priority.
2. Green economy through changing economic and environmental policies in the highest level (European Environment Agency, 2011).

5.3. India

Decision of India as the member of the group promotes 20 concepts of green economy related to its aim to promote wellbeing and sustainability in development, as it has been engaged in 5 –year

plan (2012-2017). In concept of green development, India proposes the decrease in poverty and economic inequities as an important advantage obtained by implementing the concept of green economy. Before embracing green growth, India, in its quest to reduce poverty and spur economic activity, regarded the controls on carbon emissions from fossil fuel-generated energy as unfair. Recently, India's economic development objectives provided a different perspective in which opportunities for growth could be realised from developing a green economy (Wentworth, 2013).
In analytic discussions, it is seen that its approach to green economy development is opposed and dominant discourse. The main hypothesis of dominant discourse is that there is no exchange between economic growth and sustainability of environment. Supporters who disagree with discourse believe that development of green economy has positive effect on economy. However, India can follow both discourses to implement both market strategies and scientific strategies in economic development without imposing the environment to danger. They underline deficiency of economic growth to mention the decrease in poverty in India by using economic-historical data. Competition requires economic development to change current economic patterns of India and result in wellbeing and sustainability for all. They question dominant ideological condition that there is no exchange between economic growth and environmental sustainability. Coexistence of two different statements shows a level in which the concept of green economy may be interpreted by different political domains to confirm their reasons. In India, different conditions of real advantages of green economy development constitutes the main issue of discourse (Wentworth, 2013). Also, India has comprehensive researches and developmental program on changing climate and is making its satellite to control greenhouse gases in atmosphere. In 2008, this country published the plan of national action to change climate developed by special council and interference of interested people. This plan determined 8 missionaries including solar energy, energy efficiency, sustainable habitat and strategic knowledge (Kazemi, 2014).

5.4. China

Now, economy of China is developing very fast but if it continues this development on the basis of traditional methods, uncontrolled extraction of environmental sources will result in the decline of sources and severity of air pollution. Current condition shows that these crises are increasing now. Due to population growth, the decrease in cultivable lands and water pollutions, this country increasingly has faced with crisis of cultivable lands. This country has third rank in world in water supplies but the per capita supply is only 2500 cubic meter that this amount is one-fourth per capita of world. This country has 110 rank in world in amount of per capita supply. Climatic crises and injecting surplus foreign exchange into global market result in increasing environmental problems in the country. Using new energies and new primary materials can be helpful in this way. It needs to the support from government. Replacement of clean energies (instead of coal) can decrease pollutions from coal in long term (Xiaowei, 2011).
In the meanwhile, China has created a long term perspective and follows ambitious purposes of green economy, but only perspective is not sufficient and actions must be taken to reach them. Accordingly, this country has set green economy as a priority in all economic parts. One of the biggest commitments of transfer of green economy is the potential of increasing job in industry and economic parts being able to decrease ecological effects. The plan of green economy has been centered in three target regions:

1.Increasing share of renewable energy in supplying energy
2. Increasing and maintaining natural properties of the country ,specially forest.
3.Using new technologies to decrease ecological effects of traditional parts (Pan, 2011).

In the international conference on property of China held in September, 2010, green financial supplement was agreed. Green financial supplement, in fact, is all financial components which can influence green economy and promote handicrafts. This includes all types of financial organizing systems, organizations, market, products, human sources and trade activities. In fact, this act is the

beginning of new system which secures cooperation between government and market to reach green development. Investment in decreasing the dissemination of greenhouse gases and making tradable tools in carbon market has wide concept and China has high capacity to develop the market with such potential (Xiaowei, 2011).
Moving this country toward green development has considerable effect on making green economics in the world. Its success in green transfer of national economy as the second macro - economy in the world and encourages many countries (developed or developing) to follow correct way for sustainable ecology (Pan, 2011).

5.5. South Africa

Southern Africa is middle –income country and developing market. The government follows financial policies from obtaining democracy in 1994 and this may provide the protection from the worst financial crises. However, there is inequities among different population. In rural regions, women are deprived class. The government is forced to provide public welfare for low-income regions. And it is addressed in issues of land, unemployment, poverty, crime, and educational opportunity. The government is obliged to promote green economy as the tool to decrease carbon dissemination and present new job opportunities. Policies and plans are developing and funds have been allocated to support these purposes (Musyoki, 2012).
South Africa regards the concept of a green economy as a viable path to sustainable development. This stems from the potential of the green economy to foster economic development while preserving the integrity of the natural environment. In order to achieve its objective, South Africa has made significant investments in green energy sectors and has developed policies to promote the development of a green economy. Transitioning to a green economy has already provided a mix of opportunities and challenges for South Africa. Developing a green economy presents the country with an opportunity to lower its carbon footprint and diversify its energy systems. However, the challenge lies in the fact that most industries in South Africa are heavily reliant on energy derived from coal. Since establishing a National Framework for Sustainable Development in 2008 to promote sustainability in the country, South Africa has consistently developed a number of policy frameworks and action plans to support the development of a localised green economy. The most recent of these frameworks are a National Strategy for Sustainable Development created by the Department of Environmental Affairs in 2011 and an Industrial Policy Action Plan, developed by the Department of Trade and Industry in 2012. These policy frameworks elaborate on the need to develop a green economy and South Africa's strategy in this regard. South Africa considers the growth of a competitive renewable energy sector as a key element for developing a green economy. South Africa's rationale for investing in renewable energy is mainly the creation of "green jobs" through small and medium enterprises, while maintaining the environment by reducing carbon emissions and diversifying its energy mix to ensure energy security. South Africa showed its dedication to transitioning to low-carbon technologies and the development of a green economy in its National Development Plan which was released in 2011. Additionally, the South African government established a Green Economy Accord an agreement to partner with the private sector and public organisations to create jobs through the development of a green economy. In this accord, the South African government agreed to foster the green economy, and to provide financial support and institutional frameworks to promote green industrial development. The main rationale for developing a green economy is the potential it has to create employment. A less popular perspective suggests that aggressively embarking on a transition to low-carbon technologies could affect the country negatively in terms of employment. On the continent, South Africa – as the country seemingly with the most experience in transitioning to a low-carbon economy and, subsequently, developing a green economy– could play an important role in advising other African countries keen to diversify their energy mix. South Africa could be a valuable source of information on designing policy frameworks, financing low-carbon technology development, and highlighting the role of government and the private sector in realising established objectives for developing a green economy (Wentworth, 2013).

6. CONCLUSION AND SUGGESTIONS

It is clear that countries differently pay attention to green economy because the development level are different and natural and human sources of each of them are involved in this issue. Thus, green economy development has long way and long term plan. It is necessary the governments and official institutes don't waste time to implement the agenda for global green economy. Separating from this issue how countries look at this concept is not only ideal but also necessary. Many new economies including BRICS have recognized needs to green development strategies but they lack implementing mechanisms including educational actions to promote green economy skills. Converting to green economy has remained weak due to inefficient political structure, lack of organizational support and implementing strategies in some countries.

In the meanwhile, it is suggested that the plans of changing climate with characteristics of decreasing carbon dissemination, knowledge and technology, public knowledge, organizational improvement, cooperation of organization and international companies. However, moving to green economy is necessary that not only will maintain natural sources for future generation but also will create jobs in this domain. This result corresponds with study of Musyoki (2012), Xiaowei (2011) and Wentworth (2013).

ACKNOWLEDGMENTS

None.

ETHICAL CONSIDERATION

Authenticity of the texts, honesty and fidelity has been observed.

AUTHOR CONTRIBUTIONS

Planning and writing of the manuscript was done by the authors.

CONFLICT OF INTEREST

Author/s confirmed no conflict of interest.

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