

Green Industrial Revolution in Indo-Pacific Region: Economic and Political Implications

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Abstract: The dynamics of International Economy and Politics is strongly shaped by the industrial revolution an era has. A few decades ago, the dominant industry was mining industry. In comparison to the mining industry, the contemporary green industry is more sustainable and environmental friendly. The green industry is used often in the world of developmental policy, hence the shift from the unsustainable policies towards the more sustainable ones is a very significant change in the modern history. The shift can be seen in the ratification of Paris D'accord and the governments' official statements of their commitment to be a part of Sustainable Development Goals. The trend of green industry is caused by the public awareness of its necessity, and therefore the trend creates a huge market for entrepreneurs and job opportunities. However, the implication of the green industry is not always positive due to amount of reasons. For instance, the U.S market was getting better when Trump administration announced their withdrawal from the Paris D'accord, and therefore in some cases the absence of green industry results in positive economic outcome which implies that the presence of green industry can result in negative economic outcome. Besides the economic implication, the rise of green industry also impacts other sectors including the political sector. The green industry and sustainable development that once was a second-tier political issue has now entered the main political stage. The implication of green industry as one of the main political issues results in the possibility of politicization of a necessity that green industry is. In this paper, the author(s) will try to understand the gap of what theoretically ought to happen and what really is happening in regards of green industry rising trend and its implication via qualitative methodology.

1 INTRODUCTION

Over the course of last few decades, it has become apparent that the green sector has an undeniable increased significance in our daily lives. The green industry is experiencing massive growth in all parts of the globe. The use of solar photovoltaics (PV), wind, solar powered water heating system, and biofuels have been growing on average 15-50% annually. Environmental regulations established by states also doubled since 2005 to 2012 with 119 countries having some sort of regulations. Along side with the regulations, the investment on green industry due to the implementation of Green Industrial Policy shows paramount increases; an increase of 32% in 2011 to \$211 billion (Larry and Stevenson, 2012: 8). Corporations and firms that are expected to have more than 60% of their projects being green-certified is anticipated to double from 18% in 2016 to 37% in 2018. The outliers in such statement lies in the developing green markets like China, India, and

South Africa. China's firms which have done more than 60% green-certified projects amounts only 5% in 2015 and is rising to 28% in 2018. India on the other hand will have its number rise from 20% to 52%. Large parts of such rises are attributed to environmental regulations for green economy and the market demand on green industry. Such recognition applies to most developing green market in the globe, including China and India (SmartMarket Report, 2016: 5). While discussing green industry in large-populated nations, Indonesia is a great subject due to its significance in the Indo-Pacific region. Referring to Indonesian Green Economy Model by UNDP, the amount of agricultural green jobs is predicted to increase exponentially under green economy while conventional agricultural employment is decreasing (UNDP: 105). Indonesia's biggest industry is agriculture and the transition brought upon by the rise of green industry appears to be economically beneficial to Indonesia. Such transition is also apparent as shown by the decrease of annual carbon-

dioxide emission from 2015 to 2016, and such decrease will only continue in an exponential manner (UNDP: 109).

Public policy is affected by the political and economical sector, hence the sectors also inevitably affect the formulation of public policy. Corporate economy has significant implications on the operations of political system, whereas political system is reflected in actual policy outcomes (Salamon & Siegfried, 1977). The implication of green industry on the economy and politics can be linked to the rising significance of Green Industrial Policy around the globe. For instance, the rise of green industry and its policies also creates trade issues between countries such as the dispute between the US & Brazil and the US & China (Larry and Stevenson, 2012: 1). Besides the economic sector, the rise of green industry also affect the political domain of our lives. Other than the increases of GIP implementation, green industry which harness sustainable energy as the foundation for society's productivity also imply the tendency to support democratization, in particular the developing countries which are not yet democratically advanced. Such statement is based upon Ross' statement which says that tendency for reliance on oil wealth has a good amount of anti-democratic effects in poor countries. Ross believed that the link between oil reliance and authoritarianism could be caused by the combination of social and political factors that demobilizes the public (Ross, 2001). By that logic, the switching priority and the increase in GIP significance will inevitably create implications on the political domain, mainly by increasing democratization.

2 BACKGROUND

Green Industry is a situation where economies are striving towards a more sustainable future in terms of growth. Green industry is achieved by undertaking green public investments and implementing public policy initiatives that encourage environmentally responsible private investments (UNIDO, 2010). It can be said that the rise of green industry is closely tied to Green Industry Policy (GIP), up to the point where both terms could be used interchangeably. GIP means that the government attempts to hasten the development of low-carbon alternatives to fossil fuel (Larry and Stevenson, 2012: 1). Nowadays, due to the massive increases in the trend of Green Industry around the globe, some would call the phenomena as Green Industrial Revolution (GIR) (Clark, 2015).

Green Industrial Revolution started when the middle class in developing nations grows rapidly. Such people begins to want to have nicer things that previously could only be enjoyed by the middle class in developed countries. To keep up with the immense demand brought by the middle classes, sustainability is no longer prioritized by the producer of goods. The lack of sustainability caused environmental damages and climate changes, up to the point where the leaders of the world have to unanimously acknowledge the need for solutions. Therefore, a new era based upon sustainable green energy generation, innovative smart green technologies, and public sensitivities toward the environment has emerged. It started in Asia in the 1980s and catches up to Nordic countries in the 1990s, resuming its wave with Germany leading at the end of 21st century. It has been proven to be successful in its growth. As a result, GIR has been proven to be viable, economic, and successful in Japan, Korea, and the Nordic countries. Arab Oil Embargo of the 1970s plays a huge part in the success of GIR. After starting in Korea and Japan, Germany caught up with its *Energiewende* and its feed-in-tariff (FIT) program. That made Germany to be the number one producer and installer of solar panels from 2006-2009. In 2010, Italy took the FIT concept and implement it until it has become one of the distinct world leader in solar panel installation. In 2011, China took the lead as the number one solar panel and PV manufacturer and installer. The GIR is currently trying to make its way in America along with its new technologies and the prospect of new green jobs (Clark, 2015).

GIR does not guarantee or even promise to protect environmental degradation, but instead it serves as a trigger for a new wave of growth that will get industrialized countries out of the problems imposed by their outstanding growth. The main instruments that might support Green Industrial Revolution to achieve its purpose are technological advances and market potential (Demailly and Verley, 2013). Looking back at past technological innovations, the innovations unintentionally drastically increase productivity. There is an optimism about how green industry might revolutionize productivity and therefore also boosts the economy. Green industry is projected to improve welfare and worthy to be prioritized in long-term investment. Such optimism that is taking place due to increased awareness has given green industry great significance in influencing outcomes and trajectories. The significance that further leads to extensive pursuance of green industry can be observed in every part of the globe including the Indo-Pacific region.

Arguably, the most important region when discussing the rise of green industry in Indo-Pacific region might be the Southeast Asia region. The coral triangle in Southeast Asia is one of the most biologically diverse and economically productive marine regions in the world (Strange & Bayley, 2008: 8). Southeast Asian countries have benefitted from rapid yet unsustainable growth in the recent years (Strange & Bayley, 2008:4). Hence, Southeast Asia is highly vulnerable to climate change that will hurt farmers and people in coastal cities. Most Southeast Asian countries also face infrastructure challenge. Green growth however is believed to lay the foundation for a stronger, cleaner, and fairer economies and societies in ASEAN (Strange & Bayley, 2008: 5). In another word, generally around the globe but especially in Southeast Asian region, green growth should not be separated from economic development strategies. Southeast Asia is currently in the phase that constitutes perfect timing for transition towards green growth. Green growth and GIR main keys for activation is the political leadership in the region in combination with the policies and institutions. In the recent years, the rise of green industry in Southeast Asia is triggered by the three golden opportunities; sustainability of natural wealth, locking in clean and resilient infrastructure, and the possibility of becoming a hub for green investment. The most strategic actor in the global political stage, China, has managed to seize on the opportunities and ride on the demand of green industry. Solar power in china has risen for approximately 50% in 2015 (World Economic Forum, 2016). China is also acting as the biggest investor in renewable energy, with its investment amount twice of those of Europe's. China is just one of the instances that showcases Indo-Pacific's very positive attitude towards green industrial revolution, making the rise of green industry an apparent phenomena in the Indo-Pacific region.

3 IMPLICATIONS

In an attempt to explain the implications GIR has over Indo-Pacific region, we ought to refer back to green politics theory and green economy theory. These theories serve as the foundation to green growth theory. According to Barry (1996, 60), green politics theory mostly talks about environmental ethics. The most distinct feature from green politics theory is that the relationship between human and nonhuman world is a legitimate object of moral concern. In other words, the preservation of development as much as

conservation for development of the future or ecological restoration, all within a broad 'ecological management' framework (Barry 1996, 143). Even profound ecological experts that held typically contradictory principles as their main position ended up acknowledging that wildlife conservation requires social intervention and an especially active institution. The distinction between the two subjects — human and non-human opens up a space within green moral theory that talks about anthropocentrism and ecocentrism. That space is an effort to overcome the fact that the legitimate object of moral concerns has been largely neglected by contemporary moral theories. The moral concern should be applied to green politics because of its ability to accommodate the normative thrust of the ecocentric concern through public policy while protecting the interests of the nonhuman world. We need the right guiding principles that could help us make the right choices to create a better live for all human beings (Strange and Bayley 2008, 16). The deep ecological idea of the preservation of wilderness, the preservation of the nonhuman world from certain types of collective human transformation, in the form of 'development', paradoxically requires another form of human management, in the form of institutional structures and practices which serve as forms of social governance to limit and / or change development, in order to achieve the aim of preserving the wilderness. The political issue for green politics is on the type, scale, and institutional structure to manage social-environmental interactions that best suit the values and principles of green lifestyle. The institutionalization of green values in the collective management of ecology must be considered in terms of 'governance' as opposed to 'government' (Barry 1996, 143-4).

Economic system and policy execution could not be separated in their application (Hackett, 2006). There are three assumptions supporting the theory. First, economic system gets its input mostly from natural processes like ecological, hidrological, or geological system. Second, economic activity could get negatively effected by misconduct of system and natural processes, albeit these effects can be substantially reduced through public policy. Such assumption acts as the premise for the third assumption; activities that endanger the environment can be reduced through an economic scheme. This scheme may take the form of ecolabels, subsidies, and taxes, and aims to change the incentives of people or businesses. The relations between green political theory and green economic theory that leads to green growth theory can simply be seen from the stringent

definition of green growth, which means fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies (Jacobs 2012, 4).

The fact that GIR trend has been going upward happen because people start to understand the challenges that are being faced. Balancing between the use of sustainability and profit will produce true impact. Keeping the ecosystem in balance is very important that it reaches beyond environmental concerns (Strange and Bayley, 2008: 11). As we can see in the society, the balance between births and deaths, or emigrations and immigration bring huge implication in demography hence society. Therefore, people have to manage the balance of the system because societies will not able to stay stable when resources are limited. It is worth nothing that ultimately, humankind will grow and develop. The imbalances of supply and demand, in savings and expenditure, in loans and investments, can lead to economic collapse, recession and depression (Strange and Bayley 2008, 16). It is very important for society to preserve the balance of the systems. Development of greener industry has been a really great help to preserve the balance of the systems. It all could happen because the world is facing threat from the imbalance of nature that is happening now. Human beings need to be more aware and understand the importance of green living. A human will acquire more capabilities, evolve, and getting better while getting bigger (Hess 2013, 313). But because growth could also serve as an obstacle for the progress of human beings, there exist the need for better welfare. Green Industry acts as a way to increase welfare by minimizing the amount of pollution released to the environment. The growth of the population and the increased per capita consumption have affect the production of goods. The increasing production will require more resources and also will produce more wastes (Hess 2013, 314). GIR will add an important dynamic dimension towards economic development. As stated by Tracey Strange and Anne Bayley (2008, 15), economic development has made it possible for advancements that fundamentally changed the way people lived from the previous century, but this economic activity could also create problems with potentially dramatic consequences.

The significance of GIR in Indo-Pacific regions have been adequately apparent, however the significance in Southeast Asia is particularly standing out. Southeast Asian countries possess an abundant amount of natural resources, unfortunately accompanied with lacking human resources to

properly manage the natural resources. That serves as an opportunity for the core countries to exploit the condition; using Southeast Asian countries as the main producer of goods without having to face the environmental consequences. As time goes by, Southeast Asian countries started to realize the importance of prioritizing economic growth and growth in other sectors, which therefore also realizing the importance of sustaining such tremendous economic growth (Observer Research Foundation, 2017). There are three basic components of sustainable development that are identified by Harris et al (2001, in Hess 2013, 317); economic, environmental, and social. Those three components are related to each other. A nation will always put the best effort to maintain their economy by controlling their goods and services production. The production needs to maintain the environmental equilibrium, both in the source and sink functions that are provided by natural resources and the environment. As for the social dimension, it serves as the key that connect the other two components because equity and opportunity ought to be upheld in order to optimize how a country works. The three components work to strengthen the need and therefore the progress of Green Industrial Revolution. If the combination between those three works, the systems will be in balance, and the run of the production will be ensured. Ensuring production means increasing the chance of welfare increases. We do know that economic, environmental, and social systems must all be kept in relative equilibrium point and must be balanced with each other, in order to maintain sustainability (Strange and Bayley 2008, 16). The rise of climate awareness in Indo-Pacific implies human growth and development. Societies started to understand more about the importance of environment, because environment can make a huge effect to economy and when economy is affected, politics and other social sectors will be effected too. In the end, with the rising awareness regarding climate change, the political and economical sector is also affected. The chain reaction between those three components are undoubted. For example, countries that experience greater economic growth have been more successful at reducing absolute poverty and not only increasing life expectancy, but also improving their quality of life (Hess 2013, 314). When a country could not manage their economic growth, what will happen is poverty and the absence of improved quality of life. That condition will brings a lot more problems, because the political system will also get affected. And when it reaches the political area, things will just become more complicated. The climate change could

symbolize a larger and wider problem of the danger that inherent in pushing our ecosystems out of balance (Strange and Bayley 2008, 15). Climate almost certainly undergoes significant changes as a result of human activity, but human activity could also be affected by the climate change. Tracey Strange and Anne Bayley (2008: 46) stated that climate change issue has always face the same problem about how to fairly share the burdens between the developed countries and developing countries. The fact that most of the developing countries have to face climate change and other problems they never create is considered unfair. Therefore, the way to solve this is that the developed countries could help by giving technologies and financial aids to tackle down this issue.

GIR trend has been undeniably going upwards. The implication of GIR has on economic and political sector is to bring and stimulate balancing trajectory. There are plenty of evidence and indicators that guarantee that fact. The political significance of GIR which reflects its progress can be seen in the establishment and growth of Indo-Pacific Greens Federation (APGF). APGF is a federation of national green parties, social and environmental organizations from countries across Asia and Oceania, established with the purpose of realising the Global Greens Charter. APGF can be used interchangeably and is formerly known as APGN (Indo-Pacific Greens Network). The root of APGF can be traced with the rises of greens in Australia & New Zealand, eventually leading to the first ever Planetary Meeting of Greens in May 1992. In the meeting, 250 greens from 28 countries gathered in Rio De Janeiro. The next summit was held in August 2000 where Asia Pacific Green Politics Workshop was held by Asia Pacific Green network in Brisbane. The first ever Global Greens Congress was held in 2001 and since then, the Greens have been increasing its political influence; notably winning 34 seats in European Parliament in on June 2004 and contesting Australian Federal Elections. After the first APGN congress is held on February 2005, the green parties continue to consolidate political power, including the 2009 victory in Senegal Regional Seats. This also plays a part on the fact that Inamura has managed to become the first popularly elected Greens Mayor of Japan in late 2010 (Global Greens, 2010). Green policies can maintain and appreciate natural capital stocks along with creating a structurally higher rate of innovation. Such are based upon Hotelling's (1931) statements of the value on non-renewable stocks and the Schumpeterian (1942) view of fundamental role of innovation in value creation. These statements apply

in specific on Indo-Pacific economic condition of GIR (Fankhauser, Sam, et al 2017, 3). Economically, from an industrialized continent that were obviously unsustainable, Indo-Pacific has undoubtedly become one of economically greenest continent. The process of estimating the size of green industry in Indo-Pacific can be done by observing Low Carbon Environmental Goods and Services Sales (LCEGS) sales and Climate Change Mitigation Technologies (CCMT) trade data. Indo-Pacific boasts the highest value of LCEGS in absolute terms and per unit of GDP. Asia also accounts for 44% of global climate change mitigation exports (Fankhauser, Sam, et al 2017, 7). The Indo-Pacific region is experiencing green economy growth due to the GIR and the trend upwards is going to be continuous for a great amount of foreseeable future. Referring to the political and economical implications brought by GIR in the Indo-Pacific region, plenty of occurrences available. On the macro level, there are the establishment of international organizations like UN ESCAP, and regimes such as UNCSD and MCED. On the micro level, there are green growth success stories which reflects political and economical implications which otherwise wouldn't exist without Green Industrial Revolution. Such stories would include Solar Tuk-Tuk in Thailand, BYD Electric Bus in China, Green Subsidy Reform in Indonesia, et cetera (Nikolova, n.d.).

4 CONCLUSION

The rise of Green Industry around the globe has become very apparent these last decades. Such rise is named as Green Industrial Revolution (GIR) by the experts. Global GIR is started due to the exponential rise of middle class in the demographic hence the rise of goods consumption. In order to keep up with the increased demand of goods, sustainability is sacrificed to prioritize efficiency. The rise of middle class however also opens up the access to information and therefore green awareness, which ends up producing pressures to apply and implement green policy that further enhances the GIR. Economically, there are two basis for the rise of green industry, which are; market potential and technological advances. Market potential is reflected by the demand caused by the increased awareness. Technological advances on the other hand is the optimism on technological innovations that believe that innovations will increase productivity and boost the economy.

The implications brought by GIR in the sector of politics and economic can be attributed to the theory of green politics. Green politics theory focuses mostly on environmental ethics. Green politics theory stated that wildlife conservation and green trajectory require social involvement. Green policy is therefore established in order to address the moral concerns brought by green politics. Policies execution require human management, governance, and economic system. That is because environmental equilibrium is required to maintain economic equilibrium; as sustainability must be prioritized to make sure that the supply provided by nature can keep up with the rising demand of goods. The implication of GIR upon politic and economic can simply be summarized that GIR brings upon balance for societal system in accordance with the 3 components of sustainable development which consist of economic, environmental, and social. The motive of balance is reflected in a lot of evidence as the rise of greens in the political world and the rise of green sales in the significantly growing economy of Indo-Pacific.

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