

## CHAPTER II

### GENERAL UNDERSTANDING OF GREEN GROWTH

In this chapter, the writer give a general understanding of Green Growth based on defintion from international organizations, such as the Organizations of Economic Cooperation and Development (OECD), the World Bank, the United Nations of Environment and Program (UNEP). However, the focus will be on Green Growth concepts by OECD as its measurement and abstraction. Besides, in this chapter also will provide the example of Green Growth adoption in EU countries.

#### A. Definition of Green Growth

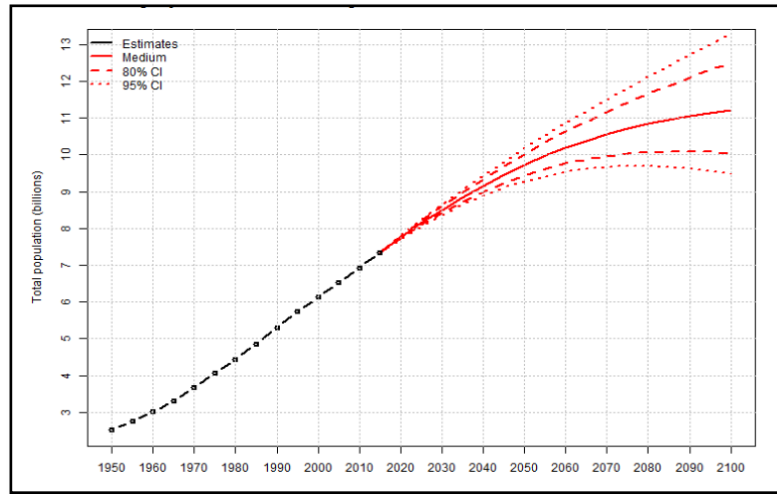
##### 1. Background

Green Growth has became new concept for development strategy in this 21<sup>th</sup> century. However, the concept starts with the introduction of sustainable development that is introduced in Brundtland Report 1987. It defined

*"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts, first is the concept of **needs**, in particular the essential needs of the world's poor, to which overriding priority should be given; and the last is the idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs."* (IISD, 2017).

Regarding definition above, sustainable development would mean development which would meet the need of people in the present without compromising the ability if the future generations to meet their own needs (Statistic Center, 2012).

**Figure 2.0.1 Population Growth and Its Projection**



Source: United Nations. (2015). World Population Prospect: 2015 Revision, Key Findings and Advance Table

Looking at the figure 2.1, it is necessary to know that world's population has doubled since the last half century ago. In line with the population's growth, the world economy growth also gradually increase, it has more than tripled and proverty has been reduced. Based on World Bank data, GDP per capita has increased by 80% in developing countries. People's living standards also have been improved such as life expectancy, number of literacy, etc (OECD,World Bank, & United Nations, 2012). But major challenges have not been resolved yet, poverty, hunger, health problems and inequality still remain. Thus are showing that the growth has not been enough. People are needed to continously show their effort through economy activities.

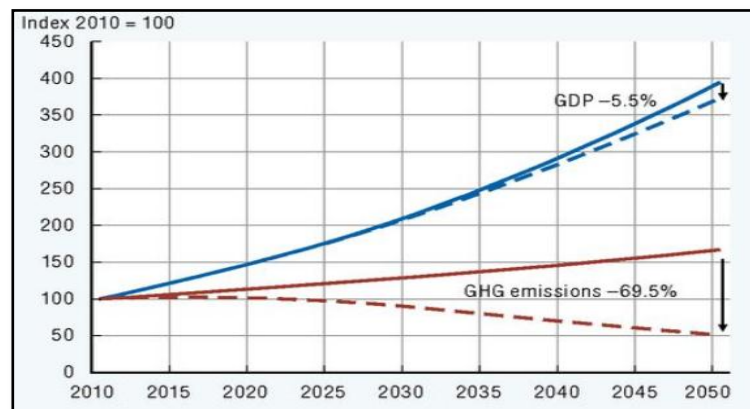
## **2. Environmental Damage**

To improve the quality of people's life, countries are seeking growth, especially in economy. Along with economic activities, energy and environmental consumption has continously increased. People fail to manage natural assets,

because the growth depends on environment. Human activities in burning fossil fuels, such as to run the firms, transportation, households, etc.

The activities release carbon dioxide and other greenhouse gases emission (Hearest Seattle Media, 2017). Without the real action from people, the OECD has projection of a 50% increase in greenhouse gass emissions and a projection of worsening of air pollution in 2050, like in the figure 3.2 because of human activities (OECD, 2012). Considering that human is major cause of climate change, the Earth are currently facing the crisis. All member countries considered that the challenge of all countries facing today are achieving economic growth while preserving the nature.

**Figure 2.2 Global Emissions and Cost of Migration**



Source: OECD. (2012). *OECD Environmental Outlook*. Paris: OECD Publisher

People are needed to be aware with the increased of GHG emissions, since the main effect is leading into global warming. GHG emissions include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous dioxide (N<sub>2</sub>O) and fluorinated gases such as hydrofluorcarbons, perfluorcabons, sulfure hexafloride, etc. These gases trap

heat in the Earth's atmosphere, because GHG absorb energy slowly and prevent the loss of the heat into space that should be released into atmosphere (U.S. Environmental Protection Agency, 2017) (Whatisyourimpact, 2017).

In addition, global warming also effects other environmental issues, such as;

### ***1. Shrinking Water Supply***

Carbon dioxide persists in the atmosphere for 50 to 200 years. Therefore, the emissions that produced recently will continue trapped in the Earth and warm the climate in the future. The environmentalist predicts that climate change will cause the increased of water's demand. Since water is necessary not only for human, but also for manufacturing process and the production of energy and food.

Climate change is expected to increase rainfall in some areas, thereby it is causing an increase in the sediment and pollutants washed into drinking water supplies. Rising sea levels will cause saltwater to infiltrate some freshwater systems, increasing the need for desalination and drinking water treatment (Munich RE, 2013).

### ***2. Increasing Incident of Severe Weather***

According to NASA, global warming has potential to result in more wildfires, droughts and tropical storms. Catastrophic weather issues that caused casualties and big amount of money to take care the issues, for example in United States, the damage from series of weather-related issues, such as tropical cyclone, severe thunderstorm, drought, wildfire, winter storm, floods, they caused 284

fatalities, and more than US\$1 billion (Munich RE, 2013) (Hearest Seattle Media, 2017).

### ***3. Changes in Food Supply***

Changing weater affets the agricultural industries and food productions. Carbon emissions contribute to incrasing temperatures and decreasing precipitation, changing the growing conditions for food crops in many areas (Hearest Seattle Media, 2017).

### ***4. Geographical Change***

The consequences of climate change are extremely terrible giving an effects on the environment. Glaciers have shrunk, ice on rivers and lakes is melting earlier,distinction of plants and animal (NASA, 2017). The scientists also predict that global tempratures will continue rise for decade due to greenhouse gasses produced by human activities (NASA, 2017).

Facing serious issues of environment, United Nations member countries held United Nations Conference on Environment and Development (UNCED) or Rio Summit in Rio de Janeiro on 3<sup>rd</sup>-14<sup>th</sup> of June 1992. The conference talked about tranformation behaviour to solve the complexcity of the problem that people's facing, including damaging on environment because of exessive consumption (United Nations, 1997). The conference was resulted Agenda 21, the Rio Declaration on Environmetn and Development, the Statement of Forest Principles, the United Nations Framework Convention on Climate Change and the United Nations Convention on Biological Diversity.

The aims of the UNCED is to ensure that economic activities would take account on environment impact, the government created decisions that led into eco-efficient guidance for bussiness, such as first, the pattern of production, particularly the production of waste, and toxic components. Second, find alternative energy resource to replace fossil fuel that became major cause of climate change. Third, create good public transportation to reduce emissions from vehicle and air pollution. The last, rise awareness of people to put their concern on water scarcity (United Nations, 1997).

However, based on report from World Wildlife Fund (WWF), after twenty years adoption of UNCED or Rio Summit, the global environment is getting worse (Hale, 2012). In previous twenty years, the countries have made effort to implement sustainable development under the Rio Summit framework. However, the results are climate change worsening, natural resource decreased, inequality and poverty increased and the destruction of nature (Jung, 2015).

### **3. Financial Crisis in 2007-2008**

Looking back to the 2007 until 2008, the world suffered from financial crisis. It began in 2007 with a crisis in the subprime mortgage market in the USA. In a brief, it became international banking crisis with the collapse of Lehman Brothers in September 2008, the biggest invesment bank, and the other banks expected to follow. Financial institutions had tried to give massive bail-outs to prevent the possible collapse of the word's financial system (The Economist, 20013) (Williams, 2010).

Unfortunately, the international crisis happened with some worldwide stock market's had dropped as consequences of it. The crisis also contributed to European debt crisis. It also caused failure business, great recession in 2009 and prolonged unemployment in many countries (Baily & Elliot, 2009).

Because of the crisis, developing countries that already made strong economic progress saw significant slowdown. Facing the complex situation of environmental issues before, the international sphere must keep conducting economic activities and resolute policy action is needed to restore confidence and put the economic recovery into a sustainable growth path. Green Growth will be relevant to address solution towards the current situation (GGGI, 2015).

In order to achieve sustainable development, OECD provides practical and flexible approaches. It also gives progress about economic and environmental pillars, while taking full responsibility of the social consequences of greening economic growth (OECD, 2016). The OECD's Green Growth Strategy provides a coherent framework for assembling the best policy mix (OECD, 2012).

Green growth was known by public with the publication in *The Economist* of a Yale University study presented at the World Economic Forum (WEF) on 29 January 2000. According to the South Korea's Presidential Committee on Green Growth, it is the idea where pursuing economic growth patterns in environmental friendly (Jung, 2015).

Moreover, the concept of Green Growth has been recently advocated in different international organizations such as Organization of Economy

Cooperation Development (OECD), United Nation Environment Program (UNEP) and World Bank, because it was officially introduced on 25 of June 2009, when all 35 member countries of the Organization of Economic Cooperation and Development (OECD), including South Korea and European communities, signed a Green Growth declaration.

The declaration states that the member countries will “*strengthen their efforts to pursue Green Growth Strategies as part of their responses to the financial crisis, acknowledging that green and growth can go hand-in-hand*”. The signed countries approved a mandate for OECD to develop a Green Growth Strategy, to include economic, environmental, technological, and development aspects within comprehensive policy measures (OECD, 2009b).

Although Green Growth has no universally agreed definition, from the Organization of Economic Cooperation and Development, it is defined as “*fostering economic growth and development, while ensuring the natural assets continue to provide the resources and environmental services on well-being relies*”.

While the World Bank defines Green Growth as “*growth that is efficient in its use of natural resources, clean in that it minimises pollution and environmental impacts, and resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disaster.*” (Bowen, 2012).



Some development agencies regard Green Growth as “*economic foster progress that fosters environmentally sustainable, low carbon and socially inclusive development.*” (Bowen, 2012)

Green Growth itself is the means by which the current economy can make transition to a sustainable economy while reducing pollution and green house gas emissions, minimising waste and inefficient use of natural resources, maintaining biodiversity and strengthening energy security. It involves promoting growth and development while reducing pollution and green house gas emissions (OECD, 2009b).

The focus of the strategies is to ensuring natural resources that can deliver their full economic potential on a sustainable basis. That potential includes the provision of critical life support services, such as clean air, water, resilient biodiversity needed to support food production and human health. Natural assets are not infinitely substitutable and Green Growth policies take account of that. Green growth is also making investment in the environment a new source of economic growth (Zelenovskaya, 2012). Because the Green Growth is relevant to sectors across the economy, like water, energy, agriculture and waste (GGKP, 2016)

On the declaration of green the ministries encouraged to make green investment and sustainable management of natural resources by making efforts to use efficient and effective climate change policy mixes. To implement framework of Green Growth, requirement of a good understanding of the determinants of

Green Growth is highly needed. It also requires appropriate information to support policy analysis and to monitor progress.

The set of Green Growth indicators listed below is a starting point rather than a final list and will be further elaborated as new data become available and as concepts evolve (OECD, 2011). The first indicator are environmental and resource productivity, representing production or consumption-based emissions productivity, material productivity, water productivity, multi-factor productivity reflecting-environmental services. (Statistic Center, 2012)

The second group of indicators are based on natural asset including representing water resources, forest resources, fish resources, mineral resources, land resources, soil resources, wildlife resources, (Statistic Center, 2012)

The third group of indicators are environmental quality of life, representing environmentally induced health problems and related costs, population living in areas exposed to natural risks or industrial risks, access to sewage treatment and sanitation. (Statistic Center, 2012)

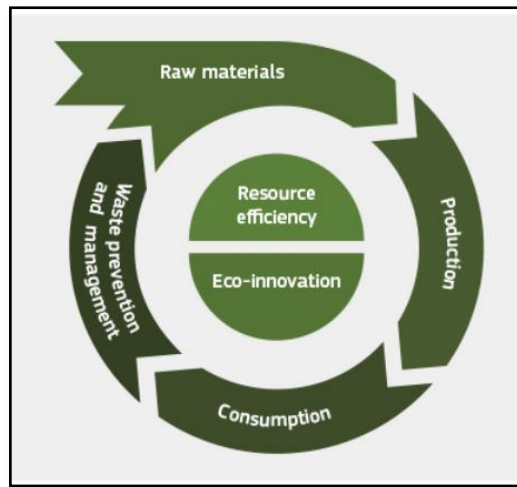
The fourth group of indicators are economic opportunities and policy responses, South Korea's Green Growth based on the OECD green growth indicators representing green research and development, patents of importance to green growth, environment-related innovation in all sectors, production of environmental goods and services, financial flows of importance to Green Growth, environmentally related taxes, energy taxes and end-use prices, environmental expenditures and training and skill development (Statistic Center, 2012).

**B. Green Growth Adoption in Other Country (The Example: European Union)**

The current climate change had caused several environmental issues in European Countries. As consequences of it Southern and Central Europe are seeing more frequent heat waves, forest fires and droughts. In Mediteranian areas is becoming drier, it made even more vulnerable to drought and wildfires. Contrary with Mediteranian areas, Northen areas is getting significantly wetter, and winter floods could become common. Meanwhile in urban area, where 4 out of 5 Europeans now live are exposed to heat waves and experienced flooding because of rising sea levels (European Commission, 2017).

To counter environmental issues, European Union (EU) had set up to protect, preserve, improve its environment since 1973 by Environment Directorate General of the European Commission (DG Environment). The commission aims to protect natural habitants, keep air and clean water clean, ensure proper waste disposal, improve knowledge about hazardous chemical, and help the economy move towards a sustainanble economy. It also assures that EU member states will implement EU environmental law based on current environmental strategy that they adopt (European Commission, 2015).

**Figure 2.3 The Circular Economy**



Source: [http://ec.europa.eu/environment/green-growth/index\\_en.htm](http://ec.europa.eu/environment/green-growth/index_en.htm)

The EU commission apply circular economy action plan to achieve certain economic wealth while moving towards sustainable development (European Commission, 2017). The circular economic includes legislative proposals on waste, with long-term targets to reduce landfilling and increase recycling and reuse. In order to achieve the targets, circular economic also includes an Action Plan to support the circular economy in each step.

The Action Plan was adopted in December 2015 and to introduce key deliverables for 2017, such as food waste, eco design, organic fertilisers, guarantess for consumer goods, and innovation and investment (European Commission, 2017). It is practical action to implement the circular economy package.

Some of key deliveries action plan that EU member countries try to adopt are;

1. *Legislative Proposal on online sales of goods*

The proposal aims to protect the consumer from defective products and prevents the products being thrown away.

2. *Legislative proposal on fertilisers*

The commission proposed that will create a single market for fertilisers made from secondary raw materials, therefore it creates re-cycle to turn waste management problem into economic opportunities.

3. *Launch of the Innovation Deals*

The innovation aims to bring innovators, national, regional and local authorities and Commission services to clarify the regulatory obstacle.

4. *Ecodesign*

The commission talked about the importance of the possibility to repair or recycle, durability, reparability, upgradeability, design for disassembly, information and ease of reuse of the products. The regulations requires the sellers or manufactures to give information about recyclers.

5. *Food Waste*

The commission has given the actions to support against the food waste and achievement related with Sustainable Development Goal in this area. It launched a platform on food waste prevention. The platform is to support and take actions to achieve *Sustainable Development Goals commitment to halve food waste per capita by 2030.*

6. *Waste To- Energy*

The commission adopts a communication on waste-to-energy processes and their role in the circular economy. The objective is to ensure the recovery of energy from waste in the EU. It is to support the objective of the circular economy action plan.

7. *Proposal to amend the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment*

The commission is adopting a proposal to make restriction of the use hazardous substance in electrical and electronic equipment.

Beside those above proposal, the commission also deliver another initiative, they are first, *guidance on circular economy into BREFs for several industrial sectors* to help government reduce waste, boost recycling and reduce resource use. Second, *Green Public Procurement* is to set criteria for office building, roads and computers or monitors. The criteria can be used by public authorities on a voluntary basis, and contain requirement relevant to the circular economy (European Commission, 2017).

Third, *Updated Guidance on Unfair Commercial Practices Directives-Actions on Environmental Claims* is revised version of Unfair Commercial Practices Directives that includes specific elements to make green claims more trustworthy and transparent. Forth, *Stepping Up Enforcement of the Revised Waste Shipment Regulation* is the regulation that set out to correlate between customs and waste codes. Fifth, *Good Practices in Waste Collection System* is a program that the Commission has been promoting good practices to separate waste collection since 2016. Sixth, *Water Reuse* is the top priority of EU as water

scarcity has worsened in some EU member countries. Seventh, *Construction and Demolition* aims to improve management construction, collection of waste and quality of management in construction sector. Eighth, to limit use of biomass resources, the Commission adopted *Biomass and Bio-Based Products*. The last is *Research and Innovation: Industry 2020 in the circular economy*. The program facilitate and give funds to demonstrate the economic and environmental feasibility based on the circular economy approach (European Commission, 2017).

The proposals that the commission tried to apply show the implementation of Green Growth based on the indicators of Green Growth measured by the OECD. The proposals already accommodate indicators of environmental and resource productivity, preserving natural asset, environmental quality of life, the indicators of economic opportunities and policy responses (European Commission, 2016).

Some of the proposals that commission tries to adopt have shown some beneficial from both environment and economic development, for example ecodesign, people are having job to repair or recycle, durability, reparability, upgradeability, design for disassembly, information and ease of reuse of the products.

The circular economy package and its action plans are accommodating three objectives the 7th Environment Action Programme (EAP), they are protection, conservation and enhancement the EU's natural capital, turning the EU member countries into resource-efficient, green and competitive low carbon economy and being safeguard the EU's citizen from environment-related pressures and risks to

health and wellbeing (European Commission, 2016). The 7th Environment Act is the sustainable development-related guidance European policy until 2020.

The member countries oblige to use resources more efficiently for greener and competitive economy. This point is the basic principle that supports other circular economy strategy and it is a fundamental to Green Growth. Using resources in efficient way, the countries can create Green Growth, sustainable job and move to better protection of the environment (European Commission, 2016).