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THE PROGRESS OF SUSTAINABLE DEVELOPMENT IN INDONESIA A COMPARISON OF SOCIAL ECONOMIC INDICATORS BETWEEN REGIONS¹

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Abstrak : Global awareness and concept on the environmental friendly development has been emerged since early 1970s. However, the progress on its implementation was varied across countries. In Indonesia, sustainable development indicators have been studied and published by the Central Statistics Board (BPS) since 2002. Based on the recommendation of the United Nations Commission on Sustainable Development, those indicators were classified into two groups, i.e. environment indicators and social economic indicators. This paper is aimed to compare the progress of social economic indicators among provinces in Indonesia by using descriptive approach. Observed indicators were including population, per capita gross domestic product (GDP), open unemployment, poverty, energy consumption, transportation, and agriculture. In addition, regional fiscal capacity and human development index among provinces were also analyzed. Although the fund transfer from central to local governments has increased significantly since the implementation of local autonomy and fiscal decentralization in 2001, however, in general, the improvement of social economic indicators were varied between provinces. Several provinces with high fiscal capacity were not able to improve its social economic indicators significantly. On the contrary, the other provinces with low fiscal capacity have achieved better

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social economic indicators. This phenomenon has proved the importance of having appropriate capability in managing local economic development.

Keywords: regional fiscal capacity, social economic indicators, sustainable development.

INTRODUCTION

The main objective of development activities is to improve people's welfare. In reality, development activities are undertaken by exploiting various existing resources include natural resources. Furthermore, development is often accelerated by creating negative impacts to the environment. These negative impacts are not only influence sustainable development indicators, such as climate change, air quality, forest resources, marine and coastal resources, and biodiversity, but also social economic indicators include population, per capita GDP, open unemployment, poverty, energy consumption, transportation, and agriculture.

Global awareness on the environment-development concept was started from the World Summit on 5 July 1972 in Stockholm, Sweden. This summit has produced "Stockholm Declaration". Afterwards, in 1987, the concept of sustainable development was successfully formulated by the World Commission on Environmental and Development (WCED), a commission formed by the United Nations. The sustainable development is defined as development that meets the needs of the present without compromising the ability of future generation to meet their own needs.

In the 1992 Earth Summit in Rio de Janeiro, an Agenda 21 was produced. To fulfill the agenda, a conference was conducted by the United Nations Commission on Sustainable Development (CSD) in April 1995. In

total, 134 sustainable development indicators have been formulated in the form of a Force-State-Response Framework (FSR Framework). The Agenda 21 for Indonesia has been agreed at the end of 1996. The Indonesian Agenda 21 is consisted of human services, waste management, land resource management, and natural resource management.

There are three requirements which should be fulfilled in the environment-based development. They are economic, socio-cultural, and ecological aspects. This paper is aimed to compare the progress of social economic indicators among regions in Indonesia.

LITERATURE REVIEW

The sustainable development indicators have been developed from time to time. In the FSR Framework (1995), the sustainable development indicators are including social, economic, environmental, and institution aspects. Meanwhile, in the Organization for Economic Cooperation and Development (OECD) Framework (1998), the environmental indicators are consisting of environmental monitoring, integration of sector policies, commitment in economic policies, and review of environmental performance.

In 2001, the CSD has renewed the FSR Framework by setting the core indicators. These indicators were then reviewed by the Division for Sustainable Development (DSD) in 2005 for two reasons. First, a large number

of countries have had developed their own national indicators. Second, the CSD indicators have been used to measure the progress of Millennium Development Goals (MDGs) achievement. The revised CSD indicators are containing 50 main indicators as part of 96 sustainable development indicators. These main indicators could be categorized into 14 themes, i.e. poverty, governance, health, education, demographics, natural hazards, atmosphere, land, oceans and coasts, freshwater, biodiversity, economic development, global economic partnership, and consumption and production patterns. There are also 44 sub themes.

The CSD revised indicators are covering more relevant sustainable development issues in most countries. Besides, it provides critical information which is not available in other core indicators. Moreover, it has utilized the data which is readily available in many countries.

In Indonesia, BPS has compiled and published the sustainable development indicators since 2002. The indicators were selected based on the environmental condition and data availability. In general, the indicators were divided into environmental and social economic indicators.

According to Wikipedia, the free encyclopedia, sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for future generations. The term was used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development as development that meets the needs of the present without compromising the ability

of future generations to meet their own needs. The field of sustainable development can be conceptually broken into three constituent parts: environmental sustainability, economic sustainability and sociopolitical sustainability.

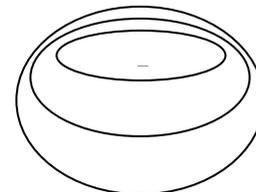


Figure 1. Scope of Sustainable Development

Sustainable development ties together concern for the carrying capacity of natural systems with the social challenges facing humanity. As early as the 1970s "sustainability" was employed to describe an economy "in equilibrium with basic ecological support systems". Ecologists have pointed to *The Limits to Growth* and presented the alternative of a "steady state economy" in order to address environmental concerns. A representation of sustainability showing that the economy and society is constrained by the environmental limits.

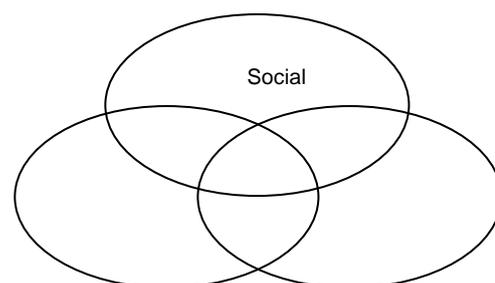


Figure 2. Pillars of Sustainable Development

Sustainable development does not solely focus on environmental issues. The scheme of sustainable development is confluence of three constituent parts. The United Nations 2005 World Summit outcome document refers to the "interdependent and mutually rein-

forcing pillars" of sustainable development as economic development, social development, and environmental protection.

In the context of economic sustainability, Agenda 21 has clearly identified information, integration, and participation as key building blocks to help countries achieve development. It emphasizes that in sustainable development everyone is a user and provider of information. It stresses the need to change from old sector-centered ways of doing business to new approaches that involve cross-sector coordination and the integration of environmental and social concerns into all development processes. Broad public participation in decision making is a fundamental prerequisite for achieving sustainable development.

Sustainability is a process which tells of a development of all aspects of human life affecting sustenance. It means resolving the conflict between the various competing goals, and involves the simultaneous pursuit of economic prosperity; environmental quality and social equity famously known as three dimensions (triple bottom line) with is the resultant vector being technology. Hence, it is a continually evolving process; the 'journey' (the process of achieving sustainability) is vitally important, but only as a means of getting to the destination (the desired future state). However, the 'destination' of sustainability is not a fixed place in the normal sense that we understand destination. Instead, it is a set of wishful characteristics of a future system.

Sustainable development is an eclectic concept, as a wide array of views fall under its umbrella. The concept has included notions of weak sustainability, strong sustainability and deep ecology. Different conceptions also re-

veal a strong tension between eco-centrism and anthropocentrism. Many definitions of sustainable development coexist. Broadly defined, the sustainable development mantra enjoins current generations to take a systems approach to growth and development and to manage natural, produced, and social capital for the welfare of their own and future generations.

During the last ten years, different organizations have tried to measure and monitor the proximity to what they consider sustainability by implementing what has been called sustainability metrics and indices.

Sustainable development is said to set limits on the developing world. While current first world countries polluted significantly during their development, the same countries encourage third world countries to reduce pollution, which sometimes impedes growth. Some consider that the implementation of sustainable development would mean a reversion to pre-modern lifestyles.

Environmental sustainability is the process of making sure current processes of interaction with the environment are pursued with the idea of keeping the environment as pristine as naturally possible based on ideal-seeking behavior. An "unsustainable situation" occurs when natural capital (the sum total of nature's resources) is used up faster than it can be replenished. Sustainability requires that human activity only uses nature's resources at a rate at which they can be replenished naturally. Inherently the concept of sustainable development is intertwined with the concept of carrying capacity. Theoretically, the long-term result of environmental degradation is the inability to sustain human life.

Such degradation on a global scale could imply extinction for humanity.

Table 1. Sustainability Consumption of Renewable Resources

No.	Consumption of Renewable Resources	State of Environment	Sustainability
1.	More than nature's ability to replenish	Environmental degradation	Not sustainable
2.	Equal to nature's ability to replenish	Environmental equilibrium	Steady state economy
3.	Less than nature's ability to replenish	Environmental renewal	Environmentally sustainable

The sustainable development debate is based on the assumption that societies need to manage three types of capital (economic, social, and natural), which may be non-substitutable and whose consumption might be irreversible. In fact, natural capital can not necessarily be substituted by economic capital. While it is possible that we can find ways to replace some natural resources, it is much more unlikely that they will ever be able to replace eco-system services, such as the protection provided by the ozone layer, or the climate stabilizing function of the Amazonian forest. The natural, social, and economic capitals are often complementarities. A further obstacle to substitutability lies also in the multi-functionality of many natural resources. Forests, for example, not only provide the raw material for paper (which can be substituted quite easily), but they also main-

tain biodiversity, regulate water flow, and absorb CO₂.

Another problem of natural and social capital deterioration lies in their partial irreversibility. The loss in biodiversity, for example, is often definite. The same can be true for cultural diversity. For example, with globalization advancing quickly the number of indigenous languages is dropping at alarming rates. Moreover, the depletion of natural and social capital may have non-linear consequences. Consumption of natural and social capital may have no observable impact until a certain threshold is reached. A lake can, for example, absorb nutrients for a long time while actually increasing its productivity. However, once a certain level of algae is reached lack of oxygen causes the lake's ecosystem to break down suddenly.

The concept of sustainable development raises several critiques at different levels. Various writers have commented on the population control agenda that seems to underlie the concept of sustainable development. Sustainable development is a policy approach that has gained quite a lot of popularity in recent years, especially in international circles. By attaching a specific interpretation to sustainability, population control policies have become the overriding approach to development, thus becoming the primary tool used to "promote" economic development in developing countries and to protect the environment.

The real purpose of sustainable development is to contain and limit economic development in developing countries, and in so doing control population growth. It is suggested that this is the reason the main focus of most programs is still on low-income agricul-

ture. Sustainable development has continued to evolve as that of protecting the world's resources while its true agenda is to control the world's resources. It should be noted that Agenda 21 sets up the global infrastructure needed to manage, count, and control all of the world's assets.

In economy like in ecology, the interdependence rule applies. Isolated actions are impossible. A policy which is not carefully enough thought will carry along various perverse and adverse effects for the ecology as much as for the economy. Many suggestions to save our environment and to promote a model of sustainable development risk indeed leading to reverse effects. Moreover, the bounds of public action are underlined by the public choice theory: the quest by politicians of their own interests, lobby pressure, partial disclosure, etc. The improvement of environment quality depends on the market economy and the existence of legitimate and protected property rights. They enable the effective practice of personal responsibility and the development of mechanisms to protect the environment. The State can in this context create conditions which encourage the people to save the environment.

In their study, Alisjahbana and Yusuf (2003) have adopted the definition of sustainability as "non-declining welfare per capita", and measure genuine savings and change in wealth per capita as indicator of weak sustainability. The results suggests that the overall trend in sustainability as measured by changes in wealth per capita had shown that the Indonesian economy during the last twenty years had not been on a sustainable path. Despite this, sustainability had been on an improving long-run trend due to the re-

structuring of the economy away from oil and gas sector, towards more reliant on secondary and tertiary economic activities.

However, the need for more appropriate approach in managing mineral, forest resources depletion, as well as environmental degradation caused by industrial sector's pollution is called for as they had rapidly becoming a growing problem. Measures of sustainability during the economic crisis and its adjustment period clearly show that the crisis had adversely affected the positive trend in sustainability through a combination of reduction in savings rate and increases in natural resources depletion. This has rephrased the importance of economic growth in the context of sustainable development, and provided empirical evidence that economic crisis had created incentives for more rapid natural resources extraction that could endanger sustainable development.

According to Frant (2009), the concept of sustainable development is built on the premise that human civilization is a subsystem of the ecosphere and is dependent on its material and energy flows, on its stability and capacity for self-adjustment. Public policies that are being developed on this assumption. Romania's National Sustainable Development Strategy, seek to restore and preserve a rational and enduring equilibrium between economic development and the integrity of the natural environment in ways that society can understand and accept.

Ayman and Badr (2007) revealed that sustainable development is an approach to economic planning that attempts to foster economic growth while preserving the quality of the environment for future generations. The concept of sustainable development

proved difficult to apply in many cases, primarily because the results of long-term sustainability analyses depend on the particular resources focused upon.

The other researcher, i.e. Theodoropoulou et al. (2009) stated that demographic changes have increased the social and cultural diversity of tourist areas with historical heritage and natural beauty in Greece, causing an expansion in the cultural and economic horizons of local people and producing at the same time conflicts in their interests, values and lifestyles. Their research was focused in the concept of sustainable development in three areas in south Greece, in order to examine if tourist development can cause a danger for human values and natural environment.

Three municipalities of southern Peloponnese in Greece namely Koroni, Methoni, and Pilos were selected for the study. These three municipalities were selected because they constitute regions of common historical heritage, big natural beauty and high environmental importance. By using empirical social research methods, sample data of 120 questionnaires were collected on the characteristics of residents and local enterprises and land use changes in these areas.

The results showed that the main employment is farming (24%), even though that residential land had increased at the expense of farmland. Local residents in the public or private sector supplement their low income with agricultural or tourist activities (67%). Therefore, new enterprises were found through private investments, which increase the local entrepreneurship (42%). In addition, the analysis of the multiple regression models showed that local development increases in

places with more chances for employment. Also, among areas with the same cultural development those with better infrastructure were expected to have more sustainable development (6 units of difference) than those areas with worse infrastructure. They concluded that the development of soft tourism, organic farming and better infrastructure could enhance sustainable development in tourist areas with historical heritage, big natural beauty and high environmental importance.

Sustainable development has been defined in many ways, but in general, it contains two key concepts:

- the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

All definitions of sustainable development require that we see the world as a system—a system that connects space; and a system that connects time. When you think of the world as a system over space, you grow to understand that air pollution from North America affects air quality in Asia, and that pesticides sprayed in Argentina could harm fish stocks off the coast of Australia.

And when you think of the world as a system over time, you start to realize that the decisions our grandparents made about how to farm the land continue to affect agricultural practice today; and the economic policies we endorse today will have an impact on urban poverty when our children are adults. We also understand that quality of life is a system, too. It's good to be physically healthy,

but what if you are poor and don't have access to education? It's good to have a secure income, but what if the air in your part of the world is unclean? And it's good to have freedom of religious expression, but what if you can't feed your family?

The concept of sustainable development is rooted in this sort of systems thinking. It helps us understand ourselves and our world. The problems we face are complex and serious—and we can't address them in the same way we created them. But we *can* address them. It's that basic optimism that motivates people to innovate for a healthy and meaningful future for this planet and its inhabitants.

SOCIAL ECONOMIC INDICATORS

Population

The trend of population growth rate and population density can be used to indicate pressure level of human being to natural resources. The more populated a region, the higher activities in that region, the potential for environment damage is also higher. Indonesia has faced the unequal population distribution among the regions.

At national level, population growth rate tends to decrease, i.e. from 1.97 % in 1980-1990 to 1.45 % in 1990-2000, and 1.35 % in 2000-2009. There were only three provinces with the increased population growth rate in the same period. They were D.I. Yogyakarta, Bali, and East Nusa Tenggara. Population growth rate in D.I. Yogyakarta has increased from 0.57 % in 1980-1990 to 0.72 % in 1990-2000, and 1.29 % in 2000-2009. In Bali, the population growth rate has increased from 1.18 % in 1980-1990 to 1.31 %

in 1990-2000, and 1.34 % in 2000-2009. As for East Nusa Tenggara, the population growth rate was decreased from 1.79 % in 1980-1990 to 1.64 % in 1990-2000, but the increased to 2.13 % in 2000-2009.

On the reverse, the population density at national has increased from 110 people per km² in 2000 to 124 people per km² in 2009. All provinces have experienced increased population density, except Papua. The population density in Papua was constant in the period of 2000-2009, i.e. 7 people per km². Meanwhile, the highest population density in Indonesia was found in DKI Jakarta Province, which was 12.459 people per km² in 2009. High population density was also found in most provinces located in Java Islands.

Per Capita Gross Domestic Product

The growth rate of Indonesia's GDP at constant market prices was 4.21 % in 2009, while the growth rate for non-oil and gas GDP was 4.62 %. In the period of 2000-2009 the GDP growth rate were always fluctuated with the highest GDP growth rate was found in 2007 (6.32 %). On the contrary, the lowest GDP growth rate was 3.83 % in 2001.

If compared between provinces, in the period of 2003-2008, East Kalimantan was a province with the highest per capita regional GDP. This province was followed by DKI Jakarta, Riau, and Riau Islands. Meanwhile, the provinces with the lowest per capita regional GDP were North Maluku, East Nusa Tenggara, and Maluku.

Open Unemployment

Provinces in Indonesia with the highest open unemployment rate in the period of

2006–2009 were Banten, DKI Jakarta, and West Java. On the reverse, the lowest open unemployment rate in the same period was found in Bali, East Nusa Tenggara, and Papua.

Poverty

International community has declared poverty alleviation as one of the key goals of the sustainable development. Poverty measurement is important because it can indicate the potential of environmental damages. Many of poor people have exploited natural resources excessively in order to fulfill their needs.

Since 1998, total number and percentage of poor people in Indonesia were tended to decrease. Total number of poor people in 1998 was 49.5 million people or 24.23 % and then decreased to 32.5 million people or 14.15 % in 2009. Meanwhile the poverty line has increased in the same period. Poverty line for urban areas has increased from Rp 96,959 per capita per month in 2000 to Rp 222,123 per capita per month in 2009. While, the poverty line for rural areas for the same period has increased from Rp 72,780 per capita per month to Rp 179,835 per capita per month.

The highest number of poor people in 2009 was found in West Java Province, i.e. 41.7 million people. The other provinces with relatively high number of poor people were East Java (36.1 million people) and East Java (32.3 million people). On the reverse, the lowest number of poor people was found in West Papua Province (719,170 people).

Meanwhile, the province with the highest percentage of poor people in 2009 was Papua, i.e. 37.53 %. This province was

followed by West Papua (35.71 %) and Maluku (28.23 %). On the contrary, three provinces with the lowest percentage of poor people were DKI Jakarta (3.62 %), South Kalimantan (5.12 %), and Bali (5.13 %).

Energy Consumption

Energy consumption is an important indicator for sustainable development because energy is a vital input for almost all development activities. Fossil fuel combustion by both mobile and immobile sources is the main sources of air contamination and the dominant contributor to the green gas emission. Furthermore, fossil fuel combustion also contributes to the degradation of water and land quality. Energy input for mobile sources are mainly for transportation use, while immobile sources are include domestic, industrial, and commercial purposes.

The different level of energy consumption among regions is basically depending on the number of population, level of economic activities, and consumption patterns. Regions with excessive energy consumption will also have higher demand on fossil fuel. These regions will have faster air quality degradation.

The highest growth of domestic fossil fuel sale in the period of 1998–2008 was diesel fuel (solar) followed by gasoline (premium) and kerosene. Diesel fuel sale was 14.8 billion liters in 2008, declined from 27.5 billion liters in 2005. Gasoline sale in 2008 was 11.3 billion liters, also declined from 17.5 billion liters in 2005. Meanwhile, kerosene sale was declined from 11.4 billion liters in 2005 to 5.1 billion liters in 2008.

Most of fossil fuels in Indonesia are consumed by transportation sector. In 2008,

total fossil fuel consumption of transportation sector has reached 34.5 billion liters. This consumption level has increased from 31.9 billion liters in 2005. The next important sectors of fossil fuels consumers are industry and electricity. Total consumption of these two sectors in 2008 was 7.9 billion liters and 7.7 billion liters, respectively. In the same year, household sector has consumed 7.4 billion liters of fossil fuel.

Those consumptions have been supported by the existing crude oil and natural gas reserves in Indonesia and also from imports. Unfortunately, Indonesia's natural oil reserve has decreased from 9.6 billion barrels in 2000 to 8.2 billion barrels in 2008. From this amount, 4.5 billion barrels was proven reserves and 3.8 billion barrels was potential reserves. Similarly, the natural gas reserve has also slightly declined from 170.3 trillion ft³ in 2000 to 170.1 trillion ft³ in 2008. Amount of 112.5 trillion ft³ was found as proven reserves and 57.6 trillion ft³ was potential reserves.

Transportation

The contribution of transportation sector to the sustainable development is basically related to the vehicle density and its contribution to GDP. High intensity of transportation will also provide higher pressure to the environment, especially energy consumption and air pollution. Today, air pollution has created serious problems in the urban areas.

Together with the increased development activities and people's income, the vehicle density in Indonesia was always increased in the period of 2003–2008. In 2003, the vehicle density was only 74 units per km. In

2008, this density has increased sharply to 153 units per km.

All provinces in Indonesia have experienced significant increased in vehicle density as well as the road length. As the capital of Indonesia and the biggest city, DKI Jakarta was a province with the highest vehicle density, i.e. 1.693 units per km. The second and third ranks were Bali and D.I. Yogyakarta Provinces with the respective vehicle density of 385 units per km and 286 units per km in 2008. The two provinces with the lowest vehicle density in the similar period were Papua (21 units per km) and Maluku (38 units per km).

Although the vehicle density was always increased every year, however, the contribution of transportation sector in GDP at current market prices was tending to decrease. In 2000, the share of transportation sector was 3.80 % of total GDP and increased to 4.28 % in 2006. But, since then the share was decreased continuously. In 2009, the share of transportation sector to the GDP was 3.31 %.

Road transportation was the main contributor to the transportation sector. The share of this sub sector was 1.93 % in 2009. The next important sub sectors were service transport and air transport with the share of 0.56 % and 0.39 %. Meanwhile, the other sub sectors were including sea transport (0.29 %), river, lake, and ferry transport (0.12 %), and railways transport (0.03 %).

Agriculture

Until recently, agriculture sector has played important role in Indonesia's economy. It contributes significantly in the GDP and

provides jobs and income for large proportion of the population. The important agriculture commodities in Indonesia are including paddy, maize, peanut, soybean, cassava, sweet potatoes, vegetables, and fruits. Besides, there are also non-food crops, livestock, forestry, and fishery.

Agriculture development, especially food crops, is extremely vital to support food security. However, agriculture development can also provide negative impacts to the environment. For example, the excessive use of inorganic fertilizers brought by the Green Revolution has reduced paddy land quality in North Java. In addition to that, most of paddy farmers have neglected organic farming.

Cassava was found as the highest food crop productivity in the period of 2000–2009. Its productivity has increased from 12.5 tons per ha in 2000 to 18.2 tons per ha or equal to 45.92 %. Meanwhile, as the primary food crop in Indonesia, paddy's productivity has also increased about 12.27 %, i.e. from 4.4 tons per ha in 2000 to 4.94 tons per ha in 2009. In the same period, the productivity of the other food crops was also increased.

The contribution of agriculture sector and its sub sectors to the GDP at current market prices were varied in the period of 2000–2009. The share of agriculture was declined from 17.23 % in 2000 to 15.63 % of total GDP in 2009. The food crops contribution was also decreased slightly from 8.91 % to 8.12 % in the same period. Non-food crops share was declined from 2.67 % to 1.76 % and livestock share was decreased from 2.14 % to 1.85 %. Moreover, forestry contribution was declined from 1.80 % to 0.79 %. The only agriculture sub sector which has increased

contribution was fishery. In 2000, the share of fishery was 2.33 % of total GDP. In 2009, the share was increased to 2.75 %.

As for livestock population, Bali was a province with the highest livestock population, i.e. 4.7 heads per ha in 2008. This province was followed by West Java and Central Java Provinces which have equal livestock population, i.e. 3.9 heads per ha in 2008. The other provinces with relatively high livestock population were D.I. Yogyakarta (2.9 heads per ha), Banten (2.8 heads per ha), and East Nusa Tenggara (2.7 heads per ha).

CLOSING REMARKS

Understanding social economic indicators are equally important as the environmental indicators in sustainable development. In one side, people are exploiting natural resources in conducting development activities to improve their welfare. At the other side, excessive exploitation of natural resources will damage the environment and provides negative impacts for people's living and limit the capacity of natural resources to support development activities.

The population distribution in Indonesia is not equal among the regions and this situation will create different level of human being pressure on the natural resources in respective regions. Intensity of development activities which was required to create employment were varied across regions. By that, the economic welfares of people in those regions were also different.

The highest number of poor people was found in the west part of Indonesia, especially in Java. However, the highest percentage of poor people was found in the east part of In-

Indonesia. Poverty is relevant to sustainable development, because poor people tend to exploit the natural resources excessively and damage the environment.

Energy consumption has contributed significantly to the environment pollution. Regions with high number of population, economic activities, and consumption will have higher demand on energy and faster environment quality degradation. In this context, high intensity of transportation will provide higher pressure to the environment, especially in urban areas.

Agriculture development is necessary in Indonesia, especially to support food security and economic performance. However, this effort should undertake wisely by considering the capacity of the existing natural resources.

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