Democratization, Decentralization and Environmental Conservation in Indonesia[1]

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ABSTRACT

With a population of nearly 240 million, Indonesia can be considered as one of the largest democracy in the world. The fell down of Suharto, an authoritarian president who had been in power for 32 years, in 1998 has marked a transition of Indonesia toward a democratic state. The decentralization, to some extent, has paralyzed the effectiveness of Environmental Act No. 23, 1997 and its subordinate regulations. Implementation of decentralization policy provides space to local government, i.e. regency (*kabupaten*) and municipality (*kota*), to exercise greater autonomy. A higher degree of local autonomy combined with direct local election has shaped the attitude of most local governments to become more revenue oriented. In order to boost their local revenue (*pendapatan asli daerah*), municipalities or regencies eagerly produce local regulation (*peraturan daerah*). Driven by revenue generation attitude, many local regulations even justify the exploitation of natural resources and environment. Even worse, although the revenue had been generated from natural resources, no return whatsoever is allocated for the conservation. Local autonomy has also opened windows for privatization to take place easier. Private corporation, be it national or global, can now approach the local government directly. This leads to not only exploitation but also commodification of natural resources.

Keywords: *decentralization, local autonomy, environmental degradation, conservation*

INTRODUCTION

With a population of nearly 240 million, Indonesia can be considered as one of the largest democracy in the world. The fell down of Suharto, an authoritarian president who had been in power for 32 years, in 1998 has marked a transition of Indonesia toward a democratic state. This democratic transition took place only one year after the enactment of the then new environmental law, Act No. 23, 1997 to replace the Act No. 4, 1982. The primary objective of this law is to promote an environmentally sound and sustainable national development. In some instances this law has been quite beneficial in terms of environmental protection, up to now, however the country has still been experiencing a high degree of environmental degradation with an ever increasing trend.

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[1] Plenary Presentation at the 9th Asia-Pacific NGO Environmental Conference (APNEC9) and the 30th anniversary of Japan Environmental Conference (JEC), Kyoto, Nov. 20-21, 2009

With its large population Indonesia has been facing a problem of environmental carrying capacity, especially due to uneven distribution of the population. Population is concentrated in Java. Contributing an area of less than 7%, Java island is inhabited by about 60% of the country population. Moreover, the proportion of urban population has constantly been growing (48.3% in 2005).

Geographically, Indonesia is extending along 5110 km (west to east) and 1888 km(north to south) with a total area of 5,193,252 km^2, composed of 1,890,754 km2 land and 3,302,498 km2 sea (coast line of 108,000 km). Indonesia has 18,110 islands with tropical climate and high rainfall. These geographical conditions constitute Indonesia as a biologically affluent country. It is considered as one of countries with mega-biodiversity. Notwithstanding the biodiversity potentials, however, these geographical conditions also resulted in high vulnerability of the country toward climate change, e.g. sea levels rise due to global warming could submerge its small islands.

Positioned between two continents and two oceans and on Mediterranean and Circum-Pacific rows of volcano, Indonesia is at constant risk of earthquake and volcanic eruptions. At present there are 129 active volcanoes with 271 eruption points in Indonesia. The combination of the country's climatic conditions and surface topography as well as soil and rock formations lead to a high vulnerability of the hydrometeorological disasters, such as floods, landslides, forest fires and drought. Increased human burdens on the environment and natural resources can enhance the above vulnerabilities.

In theory, democratic transition toward decentralization is expected to yield a better of environmental management. Under a decentralized regime, environmental policies are generally assumed to be more appropriate and sensitive toward local community needs. Along this line, Indonesia's democratic transition which has been taking place for more than a decade poses an interesting question, i.e. "Is decentralization is of capable to improve environmental conservation?", or formulated differently "What are the impacts of decentralization on the environmental conservation?". Furthermore, it is also interesting to find out factors shaping these impacts?

This paper will describe the extent of environmental degradation and natural resource exploitation in Indonesia during the democratic transition from 1998 to present time. The discussion in this paper is centered around the impact of decentralization on environmental conservation.

DEMOCRATIZATION AND DECENTRALIZATION

The transition was formalized through the Decree of People's Consultative Assembly No. 15, 1999 on *The Implementation of Regional Autonomy; Just Resource Setting, Distribution and Utilization; and The Financial Balance Between National and Local Government within The Framework of The Republic of Indonesia*. Following this decree, two acts were stipulated, namely Act No. 22, 1999 on Local Government and Act No. 25, 1999 on The Financial Relation between National and Local Government. In principle, these two laws provide the legal and financial framework for governance primarily by local governments (i.e.

regencies or municipalities), with assistance from both provincial and central government (Patlis *et al.,* 2001).

The most important spirit of these Acts is decentralization, i.e. delegation of some authorities from the national to local government, so that local communities can be arranged and organized through their own decisions, based on their own aspirations (Article 4 of Act No. 22, 1999). According to many authors decentralization can be defined as any act in which central government formally delegate its power to lower level political, administrative and territorial institutions (Mahwood, 1983; Rodinelli, 1990; Smoke, 1993; Agrawal & Ribbot, 1999 cited in Gibson & Lehoucq, 2003). It was expected that decentralization will result in better policies for people's livelihood, since it shortens the distance between the decision makers and the public, both geographically and politically. With respect to natural resources, decentralization policy is expected to give a better access to local public to control the government policies. The underlying consideration for the shift toward decentralization include among other promotion of democracy, community participation, equitable resource distribution, empowerment of local potential and diversity.

The implementation of the Local Government Act (Act No. 22, 1999) required transfer of a number of authorities previously belong to central or provincial government, including environmental policy, to the local (municipalities or regencies) government (see e.g. Widianarko, 2004). Environmental management is a governmental affair that should be carried out by local/municipal government (see article 11 of the Local Government Act, UU no. 22, 1999). Further with the transfer of authority, in 2002 the position of the State Minister of Environment as the Head of National Environmental Impact Management Agency (Bapedal) was dissolved. This has substantially reduced the authority of the Ministry of Environment limited to only coordination function of environmental matters among departments and ministries.

Since 1999, environmental and natural resource management in Indonesia was regulated by Environmental Act (Act No. 23, 1997) along side with Local Government Act (Act No. 22, 1999). In 2004, however, Act No. 22, 1999 was replaced by a new Local Government Act, i.e. Act No. 32, 2004. This new act accommodates corrections and improvements of the previous act, especially for ensuring that the wide authority of local government is really implemented under the unity of Republic of Indonesia (Santosa, 2008).

Replacement of the Local Government Act was triggered by the fact that Act 22, 1999 does not explicitly regulate the hierarchy and relations between different levels of government. This makes local autonomy was implemented based on principles of a federation rather than a united republic. Due to that reason, from 1999 to 2004, the relation between national and local government was limited only to foreign policy, defense and security, court, religion, monetary and fiscal – which absolutely belong to national government (Santosa, 2008). The new Local Government Act is expected to ensure that the authority of local government will not be exercised independently without any relations with central

government or other local governments.

Implementation of Act No. 32, 2004 was arranged through Government Regulation No. 25, 2000 on government authority and the authority of provincial government as autonomous regions. Provincial government has six main authorities in environmental management, especially related to cross boundary (inter mucicipalties/regencies) environmental problems. The focus of environmental management is therefore at the municipality or regency level. According to Letter of Ministry of Home Affairs No. 045/560, 2002, local governments hold 79 authorities related to environmental management.

Implementation of decentralization policy provides space to local government, i.e. regency (*kabupaten*) and municipality (*kota*), to exercise greater autonomy. A higher degree of local autonomy combined with direct local election has shaped the attitude of most local governments to become more revenue oriented. In order to boost their local revenue, municipalities or regencies eagerly produce local regulation.

A too strong orientation toward local revenue generation has resulted in exploitation of natural resources, pollution and degradation of ecosystems because each local/municipal government puts the generation of regional income as the top priority (Widianarko, 2003). Driven by revenue generation attitude, local governments tend to produce local regulations which justify the exploitation of natural resources and environment. Even worse, although the revenue had been generated from natural resources, no return whatsoever is allocated for the conservation.

As an illustration, during 2001-2005, a joint team from Department of Finance and Department of Home Affairs has respectively cancelled and revised 404 and 44 local regulations (Anonymous, 2009). It is about 10% of the total local regulations enacted during the same period. These regulations were considered biased toward revenue generation and sacrificing the conservation of environment and natural resources.

LOCAL AUTONOMY AND ENVIRONMENTAL CONSERVATION

Up to now, the general discourse in Indonesia is that the implementation of local autonomy (i.e. decentralization) has exacerbated exploitation of natural resources, pollution and degradation of ecosystems. Unfortunately, this discourse has been supported by a growing number of environmental degradation and natural resource exploitation in Indonesia during the democratic transition from 1998 to present time.

In this course of democratic transition, environmental degradation and depletion of natural resources have continuously increased at a threatening level. The following is a brief summary of the present state of environmental degradation and depletion of natural resources in Indonesia.

Environmental degradation in Indonesia is mostly caused by pollution and environmental destruction. In 2006, results of monitoring of 35 rivers in Indonesia by 30 Provincial Environmental Impact Management Agencies (*Bapedalda*) showed that water of these rivers are categorized as polluted based on the criteria of second-class water quality, i.e.

drinking water source (Anonymous, 2009). Sources of surface water pollution and groundwater include the industry, agriculture, and households.

Measurements in major cities Jakarta, Surabaya, Medan, Bandung, Jambi, and Pekanbaru showed that in one year good air quality was only found in 22 to 62 days. The level of air pollutants in these cities is, in average, 37 times as higher as standards set by the World Health Organization (WHO). In Jakarta, the inhabitants can only breathe in good quality air only 22 days in one year (SMERI, 2006). This condition has been continued until now. In this year, together with Bangkok, two Indonesia's metropolitans are among the top three most polluted cities in Asia, in terms of air quality. Jakarta and Surabaya is the first and third polluted cities respectively (ANTARA, 2009).

In several big cities, garbage production in 2005 and 2006 tended to increase with an average of 20.9% (SMETRI, 2006). In 1995 average waste generation in Indonesia is 0.8 kg per capita per day. In 2000, it increased to 1 kg per capita per day, and in 2020 is expected to reach 2.1 kg per capita per day.

Based on data from the Ministry of Industry, in 2006 industrial activities generated 26,514,883 tons of hazardous wastes scattered in various industrial sector (SMETRI, 2006). Hazardous wastes generated at the downstream and upstream chemical industry were 3,282,641 tons and 21,066,246 tons, respectively. Indonesia also has been and still importing hazardous wastes from several countries, like Japan, China, France, Germany, India, Netherlands, Korea, England, Australia, and Singapore.

Depletion of natural resources is mostly due to over exploitation and, to a lesser extent, due to the decline of environmental quality. The condition of coral reefs Indonesia has declined dramatically to 90% in the last 50 years due to environmentally hostile fishing, sedimentation and coastal pollution and reef mining. Meanwhile, the area of mangrove forests in Indonesia has also been reduced substantially, from 3.7 million hectares in 1995 to only 1.5 million hectares in 2005.

Based on data from the Ministry of Forestry, in 2007, forest destruction has reached 59.2 million hectares with the rate of deforestation approximately 1.19 million hectares annually. Critical lands also continued to increase to reach 23.2 million hectares in 2000 and reached about 74 million hectares in 2004 (excluding Aceh, West Sumatera, Jambi, Bangka Belitung, Jakarta Special Territory, Banten, West Java, Gorontalo, and Central Sulawesi provinces).

A recent oceanological research revealed that in 2005 only 6% of the country's marine biodiversity was considered as very good, while 25%, 27% and 31% were considered as good, reasonable and bad respectively (Anonymous, 2009). Equally, Indonesia's mining resources has also been declined substantially, leaving the country with a stock which will last just in 18 years.

During 1998 to present time, there are a number of environmental incidents which worth

noted due to their magnitude of impacts as well as the level of public attention paid to them. The year 1998 recorded high magnitude forest fires with impacts spread over Indonesia's neighbor countries, i.e. Singapore, Brunei and Malaysia. Since then, forest fires are continued to repeat every year until now.

In 2000, landslide was occurred in mining area of PT. Freeport Indonesia in Lake Wanagon, Papua causing overflow of materials (sludge, overburden, and water) into the River Wanagon and Banti village located downstream of the lake. In 2001 a tank explosion happened at the Petrokomia Gresik, one of the country's largest chemical industries, resulted in health disturbance of local people.

In 2004-2005, two most noted environmental events were mining permit in the protected forest and the Buyat Bay pollution case. A mudflow disaster due to imprudent gas exploration in Sidoarjo, East Java, took place in 2006 is still unsolvable until this date. The mudflow has forced thousands of inhabitants to leave their settlements. The estimated total economic cost of going during 2006-2015 caused by this man-made accident is around 33 trillion IDR, or close to 33 billion USD. Sixty percent of this cost (± 19 billion USD) is attributed to the direct damage, e.g. lost of assets and income of the inhabitants.

Since 2002 - 2007 floods, landslides and drought alternately occurred in many parts of Indonesia. In 2002, Jakarta was struck by a flood that nearly paralyzed the activities of entire inhabitants. The same disaster happened again in 2007 with a larger affected area. In 2003 the public was startled by Mandalawangi landslide incident in West Java. West. In the years 2006-2007 a series of disasters, i.e. droughts, floods and landslides occurred in many areas across the country, such as in Bantul, Yogyakarta Special Territory; District Morowali, Central Sulawesi; Jember, East Java; and Solok, Padang, West Sumatra. Based data from Bakornas PBP in 2006 195 disasters have occurred. Of the total disaster events, flood happen the most (22%), followed by landslides (15%) and drought (14%). The most unbearable natural disaster in Indonesia was the Aceh's Tsunami in December 26, 2004. A most recent (September 30, 2009) disaster took place in Indonesia was an earthquake in West Sumatra with the dead toll of more than one thousand people.

On the practice of environmental management, Indonesia has extensively adopted the Environmental Impact Assessment (AMDAL) as one of the most important instruments. AMDAL has been used for assessing enviromental feasiblity of activities projected to generate significant impacts. Before the decentralization, evaluation of AMDAL was done at departmental/ministrial, regional/inter-provincial, and provincial levels. With decentralization, consequently, the evaluation of AMDAL has been under the authority of local government. This leads to problem of capacity. Most local government has limited, if not lacking of, capacity to conduct a proper AMDAL evaluation. As a result, the quality of AMDAL reports have been declining. This further undermines the effectiveness of AMDAL in really protecting the environment.

A recent survey showed that although 9000 AMDALs have been approved since 1986, they can not slow down the rate of environmental degradation (KOMPAS, 2008). The failure of AMDAL can oftenly be attributed to the bias of the consultant toward the interest of the

project proponent. Moreover, political will and capacity of the local environmental agencies are also instrumental to the failure. In a case study commissioned by the World Bank (2005), it was found that most of Local Environment Agencies can not perform optimally as the main evaluator of AMDAL. The compilation, documentation and analysis of comments and suggestions from the public were done by the AMDAL consultant/ project proponent. The study concluded that the main obstacle is not only the lack of manpower, but also the lack of intent.

Referring to the various persisting environmental problems, as briefly portrayed above, it can be tentatively concluded that the democratic transition toward more decentralized governance is just too fast to cope with. The awareness and institutional capacity of local governments in managing their environment and natural resources are away behind the pace of authority transfer. The decentralization, to some extent, has paralyzed the effectiveness of the Environmental Act (Act No. 23, 1997) and its subordinate regulations.

Most recent development showed that the deficiencies have been recognized and, to some extent, incorporated in the newly stipulated Environmental Act, i.e. Act No. 32, 2009 on Environmental Protection and Management. In its consideration, this new law is expected to fortify the previous Environmental Act, *i.e.* by covering several deficiencies, such as (1) democracy and decentralization principles, (2) incompatibility with the Local Government Act (Act No. 32, 2004), (3) incompatibility with the Spatial Planning Act (Act No. 26, 2007), (4) hierarchy and distribution of authority among environmental agencies, (5) formulation of AMDAL, (6) formulation of administration sanctions, (7) formulation of in court dispute resolution, (8) formulation of the authority of environmental investigators.

EXPLOITATION AND COMMODIFICATION OF NATURAL RESOURCES

Local autonomy, especially the strong drive toward local revenue, has also opened a window for privatization of natural resources. Private corporations, be it national or global, can now approach the local government directly. This leads to not only exploitation but also commodification of natural resources. Below, increased tendency of commodification of natural resources is further discussed using water as the example.

Despite the fact that Indonesia is the fifth wealthiest country in the world with respect to water resource, some areas in Indonesia have been experiencing water scarcity. Two most remarkable examples are water deficit in (1) the island of Java (contributing only 4.5% of the country's total area but inhabited by 65% of the country's population) (2) Nusa Tenggara region (having only 2% out of 5% of the total national available water needed) (AMRTA, 2009). These water deficits take place because there is no good compatibility between the distribution of population and that of water resource (see Table 1).

Table 1. Indonesia's Water Resource Availability and Demand by Island in 2003

Island	Availability in millions cubic meter (percentage)	Demand in millions cubic meter (percentage)	Surplus/ Deficit
Sumatera	480,963 (25 %)	19,965 (18 %)	Surplus
Kalimantan	556,699 (28 %)	4,898 (4 %)	Surplus
Maluku	61,776 (4 %)	235 (0,2 %)	Surplus
Papua	545,763 (28 %)	137 (0,1 %)	Surplus
Sulawesi	143,778 (7 %)	15,440 (14 %)	Surplus
Nusa Tenggara	42,156 (2 %)	5,760 (5 %)	Deficit
Jawa & Bali	126,451 (7 %)	65,839 (59 %)	Deficit

Source: AMRTA (2009)

The most serious threat is faced by Java and Bali. In 1990, the total water demand of these two islands was 1,074 million m^3 and increased up to 65% in 2000 (1,777 million m^3). It is projected that in 2015 the islands will need 1,878 million m^3 water (AMRTA, 2009).

The increasing water demand is closely connected to the rapid growth of urbanization. According to Asian Development Bank Technical Assistance Completion Report (2002) as cited by AMRTA (2009) during the last decade urban population in Indonesia grew 4% annually, This significantly surpassed the national annual growth rate (1,7%). Urban population in Indonesia is projected to rise from 45% to 60% (160 million) in 2005. The present demand for drinking water is estimated at 1800,000 liter/second with the production capacity of only 110,000 liter/second. Currently, water supply system can serves only to about 45 million or 40% of urban population and 7 millions or 8% of rural population (TWD, 2009).

In Indonesia water provision has already been decentralized since colonial time. Traditionally, local governments meet their responsibility in water provision through the local water utilities (PDAMs). However, the 1999 decentralization gave local governments more options to improve water provision through inviting non-state actors, especially private corporations. It is generally believed that privatization option (often termed as public-private partnership) is an effective means for improving the performance of water provision. It is the unfit conditions of existing PDAMs which give the opportunity for private sector to come into the water provision business.

Prior to 1968, only few cities owned water utility (PDAM). The number of PDAM grew to 306 in 1995 with mostly under performance. Despite of the 1997's economic crisis, mismanagement has also been regarded as the cause of of PDAMs deterioration. In 1998, there are 243 PDAMs with outstanding debt, only 21 PDAMs classified as viable, while the majority was rated less satisfactory to critical (TWD, 2009).

Act No. 22, 1999 and its successor, Act No. 32, 2004, allow local governments to invite

private sector participation in improving the performance of PDAMs. In other words private sector can now involve in the provision of water, through extraction and utilization of water resources. Since then, many local governments invite private sectors to work together with PDAM to produce and sell water (see Table 2).

Table 4. Private Sectors Involvement in Water Provision in Indonesia

(a selected list)

City	Arrangement	Investor
JAKARTA	Full Concession	Suez & Thames
MEDAN	BOT – Bulk water	Degremont
BATAM	Full Concession	Cascal BV & BCS
TANGERANG	O&M Contract	Tirta Cisadane
TANGERANG	ROT- Bulk water	PT. TKCM
AMBON	Joint Venture	WMD
JAMBI	BOT – Bulk water	Novco
SEMARANG	ROT – Bulk water	Degremont
SERANG	BOT – Bulk water	Gadang Berhad
PEKANBARU	Joint Operation	PT. KTDP
SIDOARJO	BOT – Bulk water	Vivendi
BANJARMASIN	BTO – WTP	PT. Adhi Karya
MENADO	Joint Venture	WMD

Source: TWD (2009)

The most problematic aspect of private sector involvement in water sector is its strong notion of water pricing. Water tariff hikes after privatization takes place is evident in many countries. This will treat water as tradable good, as opposed to social and ecological good. In other words, water is now undergoing a commodification process. Moreover, privatization of water sector in Indonesia also tends to trigger a social justice problem. With a very weak enforcement of environmental laws and regulations, various pollution, particularly those by industry, can still take place without any strict penalty. Costs of purifying polluted water have to be born by all the users, regardless their shares in contaminating the water. In this situation there is an obvious risk of overcharging the ordinary human user with the cost of purifying the polluted water. It is clearly injustice to charge an ordinary user solely based on the volume of water, without leaving behind the cost's component for cleaning up the contamination which are done by others. Without incorporating the polluter pays principle in the formula, calculation of cost recovery will certainly be socially injustice.

To meet the water of the population any source of water – not limited to surface water - are exploited, notably the ground water. The problem with this source of water is that it will only fully recover in thousands of years, make it practically a non-renewable resource. The extraction and exploitation of ground water in Indonesia, however, have been done at a high magnitude. One of the most significant exploiters is the bottled water companies. The decree of Minister of Industry and Trade No. 167, 1997 even oblige the bottled water companies to use ground water (AMRTA, 2009). According to the Indonesian Association of Bottled Water Companies (ASPADIN) the sale volume of the bottled water has constantly increased. It is projected that the volume will increase from 8,2 billion liters in 2003 to 12,4 billion liters in 2007.

The promising prospect of bottled water business has attracted many local governments to issue permits to private investors for exploiting ground water in their jurisdictions. Some local governments even establish their own bottled water companies. Practically, no robust regulatory protection to ground water is available. Government Regulation No. 65, 2001 on Regional Tax only paid a minimal attention to the sustainability of ground water. This regulation states that users of ground water receive 80% reduction of tax, so they only have to pay 20% of the designated amount (AMRTA, 2009). The Central Java Province even further deducts the already reduced tax up to 70%. It means that ground water exploiters in that province should only pay 1.4% of the designated amount.

These resource unfriendly regulations have naturally triggered the private exploitation of ground water. One of the most striking examples of private exploitation is the operation of PT. Tirta Investama which is affiliated to Danone (French based multinational), the world largest bottled water company. This company has been exploiting ground water at Sigedang Village, Klaten Regency since October 2002. In 2005, the company produced 53 million liters bottled water resulted in total annual sale of approximately 96 million USD but only paid around 7,200 USD ground water tax. In addition to ground water tax, the company also paid 230,000 USD to Local Government as a contribution to regional income and 30,000 USD to the village (AMRTA, 2009). The wide gap between revenue and tax associated with the exploitation of ground water, naturally, has triggered a rapid expansion of bottled water Industry in Indonesia.

CONCLUDING REMARKS

Theoretically, decentralization of environmental management is expected to yield a better result than the centralistic regime. As maintained by its proponents, decentralization will enhance the local bureaucracy to be more responsible toward public interests and promote a more efficient and participatory local government (Gibson & Lehoucq, 2003). Moreover, under a decentralized regime, local politicians and bureaucracy will be able to device more appropriate policies because naturally they are more customary to their environments and community needs. Decentralization is also believed to increase the capacity and to maximize the accountability of local institutions (Dahl, 1981; Crook & Manor, 1998; Blair, 2000 cited in Gibson & Lehoucq, 2003).

Relying upon the above features, one might expect that environmental conditions under a decentralized regime will be better than under centralistic administration. Its opponents, however, warn that decentralization carries a risk for local governments to underinvest in environmental protection since they cannot capture all the benefits of the public goods provided by the environment (Bahl, 1999; Manor, 1999 cited in Gibson & Lehoucq, 2003).

In the case of Indonesia, our examination, so far, clearly justify the hypothesis of Mori (2009) that democratization and decentralization may not always enhance environmental management when and where locals urge more development than conservation. The implementation of local autonomy (i.e. decentralization) in Indonesia has exacerbated exploitation of natural resources, pollution and degradation of ecosystems a threatening level.

Unfortunately, in dealing with the risk of environmental degradation and naural resources depletion, Environmental Impact Assessment (AMDAL) as one of the most globally employed environmental instrument has failed to prove its effectiveness in Indonesia. Capacity of the local government, i.e. Local Enviromental Agency, has been identified as one of the factors contibuting to the inffectiveness of AMDAL. Despite of the bias of AMDAL toward the interest of the project proponents, political will of Local Environmental Agencies is also recognized as another factor contributing to the failure.

Local autonomy in Indonesia has led to a strong drive toward local revenue which opens a window for natural resource-based income generation. This drive has been manifested in the form of exploitation, as well as commodification of natural resources. From the example of ground water resource, it is clear that the wide gap between revenue and tax associated with the exploitation of ground water, naturally, has triggered a boom of water commodification. Without any change of policy in the near future the sustainability of ground water resource will be seriously threaten. In the current era of decentralization, the roles of local and provincial governments are of utmost importance for the country to conserve its vital resources, such as ground water.

REFERENCES

Act No. 22, 1999 on Local Government, Republic of Indonesia.

Act No. 32, 2009 on Environmental Protection and Management, Republic of Indonesia.

AMRTA (2009). Local Revenue from Water Resources. AMRTA Institute & TIFA Foundation. (in Indonesian).

ANTARA (2009). Surabaya ranks third among polluted cities in Asia. *ANTARA NEWS* 19 October.

SMERI (2006). State of the Environment 2006. State Ministry of Environment Republic of Indonesia. Jakarta.

Anonymous (2009). Academic Manuscript of Environmental Protection and Management Law. State Ministry of Environment Republic of Indonesia.

Gibson, C.C. & F.E. Lehoucq (2003). The local politics of decentralized environmental policy in Guatemala. *Journal of Environmental & Development* **12**(1): 28-49

KOMPAS (2008). 9000 Amdal tidak menahan laju kerusakan. 30 Oktober.

Mori, A. (2009). Economic Development and Environmental Governance in East Asia. Graduate School of Graduate School of Environmental Studies. Kyoto University. A background paper. 12 p.

Patlis, J.M., R. Dahuri, M. Knight & J. Tulungen (2001). Integrated coastal management in a decentralized Indonesia: How it can work. *PESISIR & LAUTAN* 4(1): 24-39.

Santoso, I. (2008). Decentralization journey of Indonesia's forest resources. International Seminar on "Ten Years Along: Decentralisation, land and Natural Resources in Indonesia, Atma Jaya University, Huma, Leiden University, and Radboud University. Jakarta, 15-16 July.

Sudarmadji (2007). Sustainable Development, Environment and Local Autonomy. Faculty of Geography Gadjah Mada University. Yogyakarta. (in Indonesian)

TWD (2009). Contextual Analysis. The Water Dialogues Indonesia. Jakarta.

Widianarko, B. (2003). Reading a transition toward decentralization: environmental pollution in Central Java 1999-2002. *RENAI* 3(2): 5-15 (in Indonesian)

Widianarko, B. (2004). Impact of decentralization on the state of environment at the Kali Tapak, Semarang, Indonesia. In A. Mori (ed.): Impact of Decentralization on Local Environmental Management in Indonesia. Graduate School of Environmental Studies. Kyoto University. p. 69-86.

World Bank (2005). Study on Public Participation and Access to Information in Amdal. AMDAL Reform Program (Phase 2): Linking Poverty, Environment, and Decentralisation.
Final Report.