

STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) IN A CONFLICT SITUATION: A CASE STUDY ON NORTH KENDENG MOUNTAIN AREA, CENTRAL JAVA, INDONESIA

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Abstract – Since 2008, the utilization of limestone for cement production at the North Kendeng Mountain Area, Central Java, has sparked conflict between local and provincial governments on one side and local residents, NGOs and academicians on the other side. The government and their allies argue that allowing cement factories to mine the area will create economic growth, job opportunities and other positive impacts. By contrast, the local residents and their supporters are concerned that mining activities will potentially deplete water resources and degrade the environment. These effects, in turn, will threaten availability of potable water for household use and of irrigation water for rice production. Strategic environmental assessment (SEA) is expected to mediate conflicts similar to the above case by providing recommendation on the allocation of areas for conservation and for mining. This paper reviews the process of SEA, and the problems encountered during the identification of issues and during the determination of natural karst landscape for conservation. The data collection techniques include observation, informal interview and literature review. SEA requires the full participation of stakeholders, objectivity and transparency. However, given that each party has their own interest and own agenda regarding the use of limes tonere sources in the area, trustis required to achieve a good result for sustainable development.

INTRODUCTION

Regional sustainable development is achieved when environmental, economic, and social interests can bebalanced (World Commission on Environment and Development, 1987). Land management should be addressed to achieve sustainable, equal, and efficient land uses, particularly responding the increase of population and economic activities (Sugiri *et al.*, 2015). It finally aims to gain economic resilience that is able to contribute to regional development and suitable environmental management (Omer, 2008).

One activity that often create a conflict between economic and environmental interests is mining. A conflict between mining companies and

communities frequently occurs in many places around the world. In this concern, creating shared value may produce more sustainable outcomes than traditional corporate social responsibility approaches (Fraser, 2018). In a broader context, Strategic Environmental Assessment (SEA) can be an interesting tool that is essential to role how the potential conflicts can be minimized (Rega *et al.*, 2018). SEA is a kind of environmental assessment aiming to assess whether policies or plans are able to led to sustainable development, and, if necessary to recommend to revise them (George, 1999). Some researches have highlighted the problems around the application of SEA, many of which were focused on the policy to mediate the interest of company, communities as well as government sectors (Debrah

et al., 2018; Fraser 2018; Cape *et al.*, 2018; Di Ludovico and Fabietti, 2018). Some others have tried to integrate the environmental issues into a spatial planning process to make the implementations more effective (Hegazy, 2015; Lechner *et al.*, 2017; Rozas-Vásquez *et al.*, 2018).

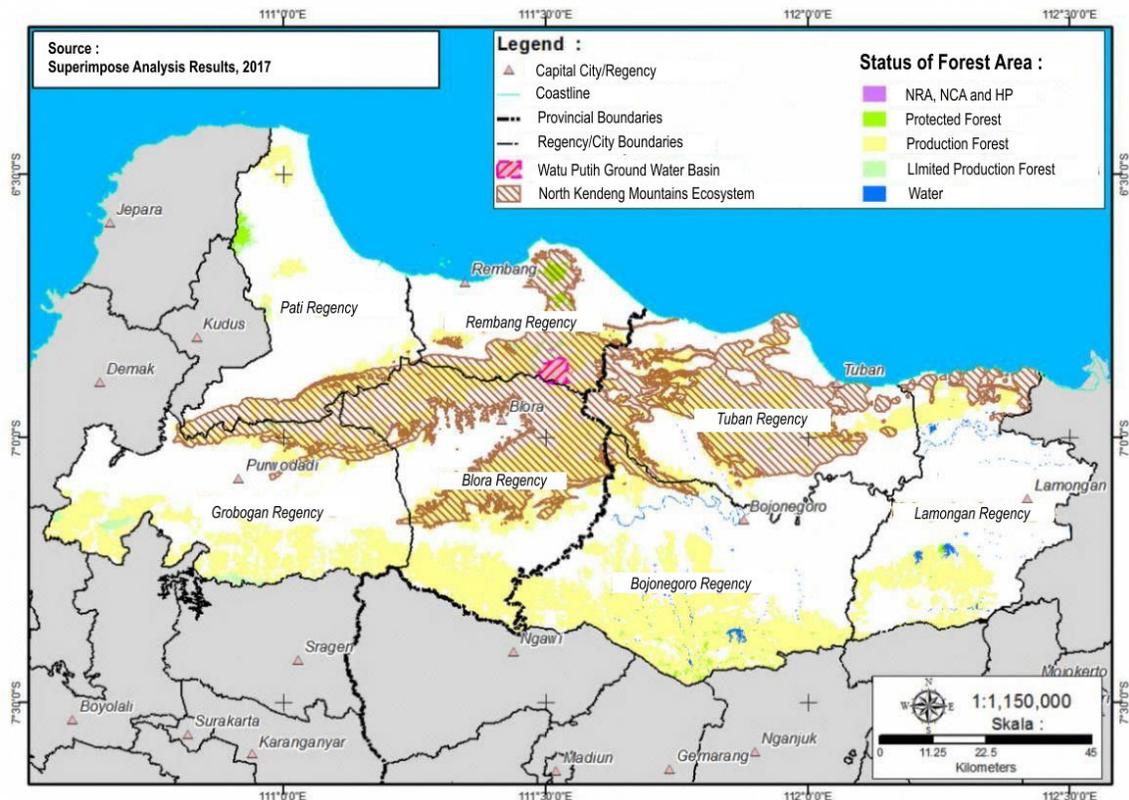
As a developing country that is trying to improve its economic growth, a conflict between economic needs and environmental conservation often occurs di Indonesia. Recent event that have caused pros and cons in the community since 2008 is the exploitation of the karst area in the North Kendeng Mountains for raw materials of cement factories. It is located throughout regencies of Grobogan, Pati, Blora and Rembangin Central Java and of Bojonegoro, Tuban and Lamongan in East Java as shown in Figure 1. The area is rich in limestone resources with potential uses as raw materials for cement production and other products such as cosmetics and paint.

Since the 1990s cement companies have attempted to build factories in this area. The government tends to support this plan for economic reasons such as creation of job opportunities that will encourage local, regional and national

economic growth. From the perspective of local residents, however, the limestone resources in the area forms a karst that potable water for household use and irrigation water for hundreds-hectares of rice-fields in these regencies.

The conflict between the government and local residents began in 2008 when a state-owned cement-company planned to build a factory at the district of Sukolilo, Pati Regency. This plan was strongly opposed by the local residents who were supported by academicians and NGOs. Findings by the local residents, who were spearheaded by Sedulur Sikep (an adat or traditional people) revealed that previously conducted Environmental Impact Assessment (EIA) studies was inadequately recorded the number of water resources that would be potentially affected by the activities of the proposed cement factory. EIA studies predicted that only six non-permanent water resources would be potentially affected, whereas local residents reported that 41 water resources would be potentially affected.

In 2010, a private company initiated a plan to build a cement factory in the districts of Tambakromo-Kayen, Pati Regency. The company



Source: Ministry of Environment and Forestry, 2017.

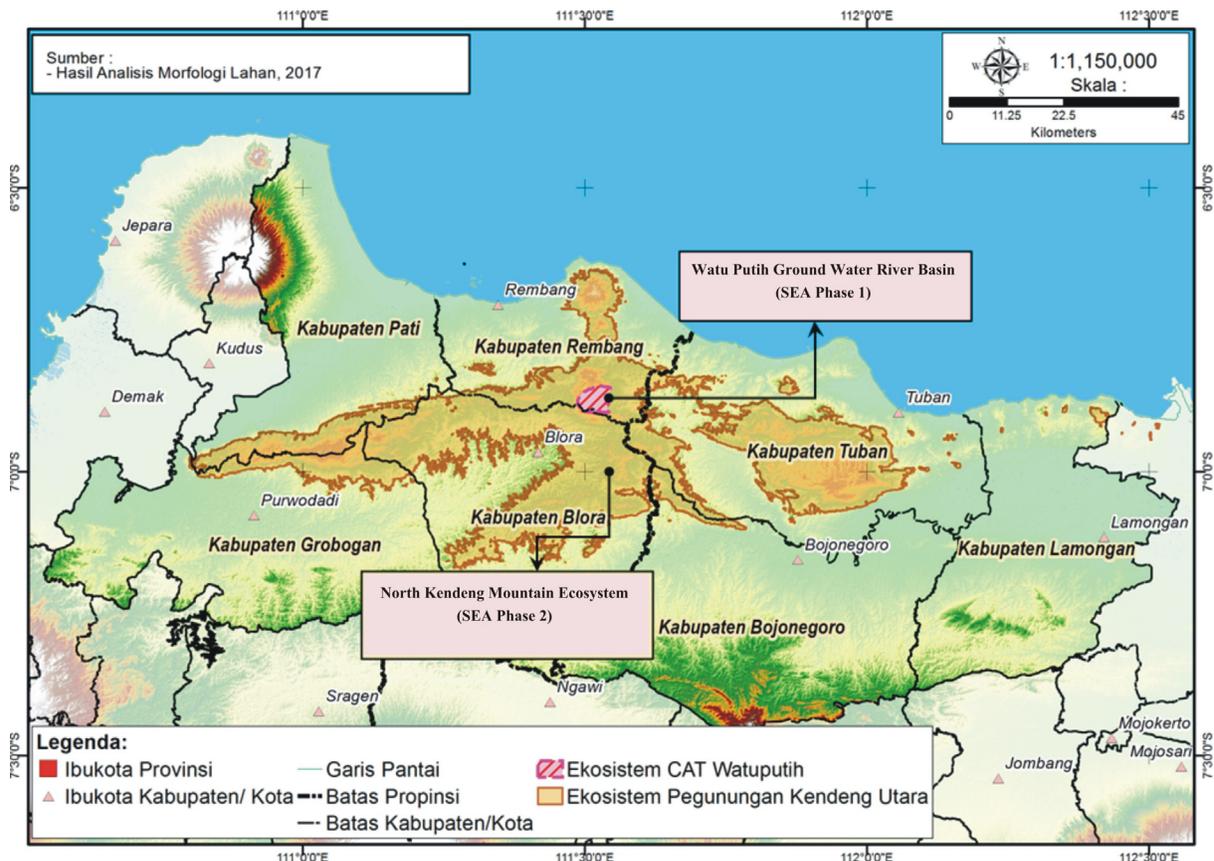
Fig. 1. Map of North Kendeng Mountain.

faced resistance from the local residents who argued that the proposed site of the cement plant and its mining area have similar characteristics as natural landscape area of karst (KBAK) which must be conserved. A state-owned cement-company that failed to build a factory at Sukolilomoved their plant to district of Gunem, Rembang Regency. This plant was also opposed by local residents of the area for similar reasons. The local residents claimed that EIA studies for this project were inadequate given the limited public participation and inaccurate data on water resources and the number of caves in the area. Local residents supported by NGOs and academicians have formed an organization called Community Network for Caring of North Kendeng Mountains (JMPPK). This group mobilizes residents, conducts discussions and organizes cultural events. Their actions have attracted the attention of President Joko Widodo who met with JMPPK on August 2, 2016 and agreed to order SEA for the ecosystem of North Kendeng Mountains. SEA is expected to mediate the conflict between the two parties by providing recommendations for the

areas for conservation and for mining.

In the past 15 years progress has been made advancing sustainability in the mining sector. Yet mining-community conflict continues to grow. While the causes of conflict are often complex and interwoven, water is a frequent trigger of mining-community tension. Mineral resources are often found in areas of water scarcity and in regions susceptible to climate change. Furthermore, mining requires substantial volumes of water for operations. Competition with communities and other industrial users for this increasingly scarce resource, gives rise to questions about whether mining can yield sustainable outcomes.

The present paper focuses on stage 1 the SEA of *Cekungan Air Tanah* (CAT) or ground river basin in Rembang Zone, a proposed mining site for a cement company as shown on Figure 2. This paper reviews the process of SEA and the problems associated with identifying issues and determining alternatives and recommendations. It is also aimed to contribute the knowledge on the extent to what SEA can bridge the interests among related parties, reduce



Source: Ministry of Environment and Forestry, 2017.

Fig. 2. Map of Watuputih Ground Water River Basin, Rembang Zone.

environmental conflicts, and criticize the established plan or policy.

Literature Review

The Indonesian government has adopted sustainable development as a goal since the beginning of 1970s. The broad Outline of State Policy (GBHN) of 1973, Chapter 3 (10) states that the natural resources must be utilized rationally. The use of natural resources must be managed in such a way as to avoid the degradation of the ecosystem and human environment, implemented as an integral policy, and consider the needs of the next generation. One instrument of achieving sustainable development is Environmental Impact Assessment (EIA).

EIA has been adopted as a strategic component for sustainable development adopted since 1986. EIA, however, have some weaknesses. For example, the majority of EIAs have been treated as technical studies and did not incorporate the needs and aspirations of local residents. Many EIA studies such as the ones on cement have sparked steamed protest among local residents. Besides, many projects that have been accompanied by EIA have ultimately caused environmental and social impacts because the project proponent did not implement the proposed environmental and management plan (Atlin and Gibson, 2017).

From the perspective of environmental management theory, the decision-making process mentioned above can be categorized as hierarchically structured, top-down decision making with centralized authority and short-term orientation (Monteiro and Partidário, 2017). According to Buchholz (1993:350) such decision making process is classified as traditional management and not eco-centric management. Dunn (2000:99) reiterates that the kind of decision taken by the government is linked with the value guides the future direction of the decision. A perspective oriented toward economic growth tends to provide room for investors.

Over the years, SEA has been applied in more than 60 countries world-wide (Cape *et al.*, 2018). In Indonesian case, one consideration of stipulating SEA by Act 32 of the 2009 on Environmental Protection and Management SEA is to address the weaknesses of EIA. SEA is analytical, systematic, comprehensive and participatory studies to ensure that sustainable development principles have been based and integrated on a local, regional and

national policy, plan and program. This is parallel with Hegazy's thought (2015: 132) that SEA is designed to help countries to make their policies, plans and programs more sustainable. In this concern, the basic aim of the SEA is to ensure that environmental considerations are fully integrated into a decision-making process at the earliest possible stages (Di Ludovico and Fabietti, 2018).

Article 15 (2), Act 32 of 2009 states that the government, provincial and local governments are obliged to conduct SEA for formulating or evaluating spatial planning and policy, plans and or programs potentially create environmental impacts and environmental risks. SEA consists of the assessment of environmental carrying capacity and environmental carrying capability, ecosystem performance, efficient utilization of natural resources, degree of vulnerability and adaptation capacity to climate change and degree of resilience and potential of biodiversity, in addition to the prediction of environmental impacts and risks.

SEA should be conducted by involving people and relevant stakeholders (Rozas-Vásquez *et al.* 2017). Victor and Agamuthu (2014:66) recognized its novelty as an initiative declaring that SEA implementation in Indonesia has provisions for public participation and consider the carrying capacity of the environment which is the capacity of the of the environment to support human kind and other living things and is a component of ecological footprint as formulated by Wackernagel and Rees (1996:9). Victor and Agamuthu (2014:66) also noted that the requirements of SEA are currently being stream lined through regulations and guiding documents. This act is further elaborated with Government Regulation (GG) no 46 of 2016 on the management of conducting SEA. Article 7 of that GG stipulates that the assessment of policies, plans and programs for the existing environmental conditions must follow this procedure: (1) identification of sustainable development issues related to ecological, economic and social issues (Art 8-9), (2) identification of the content of policy, plan and program (Art 10-11), (3) analysis of point 1 and 2 (Art 12 and 13), (4) formulation of alternative, and (5) recommendation for the improvement of policy, program and project improvement.

Research Method

The type of research is descriptive analysis. This study focuses on reviewing the process of SEA, the problems occurred during the identification of

issues and during the determination of natural karst landscape for conservation. The data collection techniques included literature review, physical and social observation and informal interviews. The data were analyzed qualitatively.

RESULTS AND DISCUSSION

All levels of the Indonesian government generally have conducted SEA for their spatial planning and long-and medium-term development plans as required by Act 32 of 2009. However, SEA has been applied following the traditional EIA pattern in which policy, planning and programs have been ready then to be reviewed through SEA. This was similar the findings of Lobos and Partidario (2014:44) who reviewed 100 SEA studies from various countries and concluded that SEA inherited routine process of EIA by extending the environmental assessment concept to the upper levels of decision making. According to the authors, the perception of most practitioners reveals an expectation that SEA will do for plans and programs what EIA does for projects.

In line with this objective, Noble & Nwanekezie (2017:166) noted that the practice of SEA that has been developed throughout the 1990s and early 2000s deeply entrenched in the traditional project-based EIA principles and methodology of EIA. Slunge & Tran (2014:56) studied the challenge in institutionalizing SEAs in Vietnam and found that many SEA practitioners have a strong background in environmental assessment at the project level, and often get mired in a too-detailed level of analysis that is in appropriate for strategic planning. They also found that SEAs are often not conducted simultaneously with strategic planning, but rather very late in the process, long after decisions have been made. Stakeholder consultation is often poorly conducted in the form of seminars or written comments and is often conducted after the SEA has already been almost completed.

When SEA was first introduced in Indonesia in 2009, relevant agencies were reluctant to implement SEA because they felt that EIA already remains problematic. Victor & Agamuthu (2014) identified two problems in the implementation of SEA in Indonesia: (1) the efficacy of the newly formulated SEA legislation in the policy planning process and (2) the perception of the planning agencies and stakeholders that SEA may potentially burden and delay the authorization process of policies, planning

and programs.

President Jokowi recommended SEA for North Kendeng Mountains area as whole (an ecosystem). The SEA's maker is coordinated by the Ministry for Environment and Forestry and the SEA's reviewer is under the supervision of the Office of President Secretariat, Republic of Indonesia. The first meeting between the proponents (State Ministry of Environment and Forestry, and Office of the President's Staff), SEA's maker and reviewer Team with governors of Central Java and East Java along with the Head of Regencies of Grobogan, Pati, Blora, Rembang, Tuban, Lamongan and Bojonegoro was held in November 15, 2016 at Central Java Governor's Office. Governors and heads of regencies conveyed their visions on North Kendeng Mountains, the problems encountered at their areas and their expectation on North Kendeng Mountains as limestone resource. All agreed with President Jokowi's instruction to conduct SEA for North Kendeng as an eco-system. At the beginning of the studies, provincial and local governments were reluctant to become involved with SEA studies, because they claimed that they have already completed spatial planning with SEA as required by the law.

Provincial and Local Government Policies

Local and provincial governments tend to orient toward investor interest by allocating karst area for mining use. The spatial planning of Central Java revealed that part of the Sukolilo karst area has been determined for mining use. Similarly, CAT or ground water basin of Watuputih and its vicinity at Rembang Zone have been allocated for mining use. Twenty-one mining permits have been issued by local and provincial governments. JMPPK took the case for the environmental permit for cement company issued in June 7, 2012 to court. Finally, on October 9, 2016 the Supreme Court instructed the Governor of Central Java to revoke the environmental permit. On January 16, 2017 the Governor obeyed the Supreme Court's instruction to revoke the environmental permit. However, he provided the cement company with the opportunity to improve their EIA through Addendum EIA, with following requirements (1) to improve mining practice management (2) to maintain the aquifer system (3) to provide alternatives for potable water required by local residents, and (4) to provide alternatives for irrigation water required by the local farmers. The governor argued that his decision is a

discretion taken based on consideration that the cement company had invested more than 4 trillion rupiahs in building factory and other infrastructures. In addition, Addendum EIA was provided given that the mining area had been narrowed from 571 hectares to be 291 hectares. The Central Java EIA Commission then approved Addendum EIA and the Governor issued a new environmental permit on February 23, 2017.

When the Governor issued an environmental permit, SEA phase I was still underway and the preliminary findings showed that CAT Watuputih meets the criteria for KBAK: (a) scientific function (b) acts as water recharge (c) acts as water storage (d) permanent source of spring water and (e) has cavesforming underground rivers. Among the five indicators, only the fifth indicator remains unverified. This conclusion was submitted to the Ministry of Environment and Forestry for forwarding to the Central Java Governor as a basis for his response to Supreme Court instructions. The Governor responded by providing the cement company with the opportunity to improve EIA. The Governor of Central Java supposed to wait for the result of SEA because it will recommend which area will be conserved and which area will be mined.

Existing Condition of the Watuputih Area

As mentioned earlier, twenty-one mining companies have exploited limestone resources at Watuputih. This condition was used as rationale for the government to issue a permit to the cement company. The government also argued that mining activities have existed around the area since 1998 and thus far local residents have not filed any complaints about the water scarcity.

According to the National Spatial Planning of 2008, CAT Watuputih is allocated for other uses meaning that legally the area could be allocated for any suitable use. Watuputih comprises 380 hectare of forest production and 270 hectares of limited forest production. Provincial Regulation (*Perda Provinsi*) number 6 of 2010 on Spatial Planning states that CAT Watuputih as protected area is categorized as a geological conservation area given its characteristics as recharge area. This *Perda Provinsi* recommends that spring areas such as Watuputih must be conserved. However, this *Perda Provinsi* also determines that North Kendeng mountain area including CAT Watuputih is allocated for cultivation. Moreover, the Watuputih area is mined for minerals metals and non-metals, stones and coal,

although its spatial pattern map is not completed. The Rembang Regency stipulated at *Perda Kabupaten* (Regency Regulation) number 14 of 2011 for Watuputih is allocated for conservation as a recharge area. However, the attachment of this regulation stipulates that Watuputih area is allocated for mining use. This inconsistency of regulation is also caused by inadequate national regulation which does not elaborate in detail the use of CAT, recharge area and geological conservation areas.

Public Consultation

Phase 1 SEA studies for CAT Watuputih included public consultation through various forums such as meetings, Focus Group Discussions (FGDs), workshops, seminars, informal discussions. Formal public consultation was not conducted given the tension of conflict between the supporters and of the opponents of the cement plant.

An initial consultation was held to disseminate information about Kendeng's SEA to two governors (Central Java and East Java), four Heads of Regency in Central Java and three others from East Java. The second consultation was conducted on January 10, 2017 with the expert team from the cement company, head of the relevant offices of the Central Java government, experts from Gadjahmada University, UPN (University of Pembangunan Nasional), JMPPK and NGOs. In this forum, each party conveyed their perspective and research findings on the spring-water, recharge area, location of caves and biodiversity of CAT Watuputih.

The pressure for influencing SEA studies came from supporters and opponents of the cement factory. Opposition from academician across Indonesia universities responded in two things. First, they conducted a press conference on the necessity of social justice. Second, they mobilized academician from various universities to sign a petition for the conservation of CAT Watuputih. Two former Ministers of Environment, Prof Emil Salim (Minister of Environment 1978-1988) and Dr. Sonny Keraf (Minister of Environment 2000-2002) appealed through social media for the conservation of CAT Watuputih. Prof Emil Salim pointed out that human could live without cement but not without water. Supporters who campaigned that Watuputih is not KBAK, including the Head of Mineral Resource and Energy and the Head of Rembang Regency pointed out that no environmental problems have developed despite the numerous

mining in the area since 1998. Given the limited time and conflict situation, ambiguous data such as the spatial planning of Central Java and Rembang Regency remained unverified by the relevant provincial and local governments agencies.

Formulation of Alternatives

SEA studies concluded that (1) CAT Watuputih meets the criteria conserved area based on Government Regulation no 26 of 2008 on Spatial Planning. (2) CAT Watuputih has strong indications as a KBAK. The studies recommended that CAT Watuputih needs to be determined as conserved area parallel with National Spatial Planning and to be processed as KBAK. This recommendation has the following implications: (1) mining companies currently operating at Watuputih must conduct environmental audits to identify their environmental performance and to improve their performance until the permit is terminated; (2) cement company that hold an environmental permit but is not yet operating must conduct mining activities at other places, such as the districts of Bulu, Pamotan and Sedan parallel with a revised spatial planning; (3) no mining activities are allowed until the status of CAT Watuputih is determined; (4) illegal mining needs to be stopped; and (5) no other mining permits will be issued.

The report was presented on April 12, 2017 at a forum led by the Head of Office of Presidential Staff and attended by the Ministry of Environment and Forestry, Deputy of State-Owned Company Ministry, Head of Geological Agency representing The Ministry of Energy and Natural Resources, President Director of cement company, Governor of Central Java and the Head of Rembang Regency. Although the SEA studies did not specifically deal with the cement company and the existing mining activities, the questions raised revolved around the location of the mining activities of the cement company and whether existing mining operations are still allowed. The Head of Presidential Staff concluded that all participants of the meeting accept, in principle, the result of SEA studies. The Head of Geological Agency, Ministry for Energy and Mineral Resources stated that SEA studies will be used as reference for further investigation. On June 10, 2017 Vice Minister of Energy and Mineral Resource led the meeting as a follow up to the SEA Phase 1 report and presented a methodology of the comprehensive analysis of the hydro-geology of CAT Watuputih. This meeting was a part of

transparent and open process to invite and allow all stakeholders convey their information and data related to CAT Watuputih.

On April 13, 2017 printed and online mass media released SEA studies news on the results of the SEA study. Many appreciated the SEA results. In Central Java where the mining activities are located, the Suara Merdeka Daily Newspaper published a front-page article entitled "Rembang is not allowed to be mined". This newspaper comprehensively covered and quoted the online report from the Ministry of Environment and Forestry. On April 16, 2017 the same newspaper published another front-page article with the headline "Provincial government of Central Java refuses the recommendation of SEA studies". The refusal is related to the on-going mining activities at CAT Watuputih that should have been stopped during further research by Geological Agency. The Head of the Office of Mineral Resource and Energy of Central Java feel that this is not mentioned at Presidential Staff Office Meeting. The limitation of SEA studies dealing with open public consultation and specific alternative mining locations is similar to that of SEA in China. Li *et al.*, (2016:56) noted that among the issues of SEA implementation in China revolves around the inadequacy of third-party participation and inadequate consideration of alternative analyses.

The problems of mediating the interests among parties as found in previous studies (Debrah *et al.* 2018; Fraser, 2018; Cape *et al.*, 2018; Di Ludovico and Fabietti, 2018) still dominated the application of this SEA. The integration with spatial plans is also not easy because in fact, inconsistencies of spatial policy, particularly the allocation of mining use, occurred in the three levels of spatial planning, that is, national, provincial and regency levels. According to SEA purpose that is to evaluate and, if possible, to revise the existing spatial plans (see George 1999), the resulted SEA should be useful as an input for evaluation and revision of the spatial plans in each level. Because Indonesian spatial plans are designed for 20 years and evaluated every five years, an effective implementation of SEA by integrating it with spatial planning process as stated by Hegazy (2015); Lechner *et al.* (2017), and Rozas-Vásquez *et al.* (2018) can be realized.

Conclusion and Recommendations

The demand for SEA studies on the ecosystem of North Kendeng Mountain Area was stimulated by the inadequate methodology and results of previous

SEAs and EIAs for proposed projects at the area. From the perspective of local residents, the inadequacy of previous SEAs and EIAs has created injustice. The phase 1SEA of CAT Watuputih faced obstacle in obtaining some secondary data from the governments and from supporters of the cement company. In identifying strategic issues, SEA studies could not provide open public consultations given the tension between the supporters and opponents of cement company. The result of SEA studies was not fully accepted by those who support the cement factory, specifically the ones dealing with the existing mining at CAT Watuputih and alternative mining locations without adequate information regarding the potential limestone resources. Related provincials and local governments in areas like North Kendeng Mountains should collaborate on SEA and follow the principles of open and transparent participation.

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