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SOCIAL CONSIDERATIONS IN GEOTHERMAL DEVELOPMENT IN INDONESIA

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ABSTRACT

Social and environmental issues have been growing up, and it has become a concern of geothermal's stakeholders. Mitigations and monitoring of social impact assessment are required to comply with the Government of Indonesia (GOI) and international financial institution. The evaluation of ESIA consists of four phases of geothermal assessment activity, which are a pre-construction stage, construction stage, operational stage and post operational stage. The GOI sets the standard of environmental and social impact assessment (ESIA) and Environmental Audit ("in Bahasa PROPER") prior the project commenced and during the operation stage. This paper focuses on social mitigation in Ulubelu Geothermal Project and Kamojang Operational geothermal field development to determine the necessities of community development near geothermal activity. Geothermal innovation is required to build harmonious relation and community investment around geothermal field development. Proper social approach within the geothermal field development creates a positive effect for running the geothermal organization efficiently and sustainably.

1. INTRODUCTION

1.1 Background

Environmental and social issues have received greater attention globally. Moreover, the stakeholder, financial institution, and public awareness have been becoming more concerned. A tool to assess the impact of environmental and social aspects from geothermal activity sets up both from regulators and the financial institutions.

The stakeholders use the standard and requirement of environmental, social impact assessment (ESIA) as one of the tools for issuing a license to operate or supported funding. Four phases of geothermal assessment activity have been evaluated by the Indonesia government and international financial institution, which were a pre-construction stage, construction stage, and operational stage and post operational stage.

Pertamina Geothermal Energy (PGE) is a subsidiary of a state owned energy company (Pertamina) for developing geothermal in Indonesia. It has the mandate to develop 12 (twelve) working areas, both through own operation (operated by PGE) and partnership (PGE, 2016; Figure 1). In this paper, there

two geothermal activities (own operation) as a sample on how to manage social impact consideration, there are Ulubelu Project (Lampung Province) and Kamojang Operational Field (West Java Province).

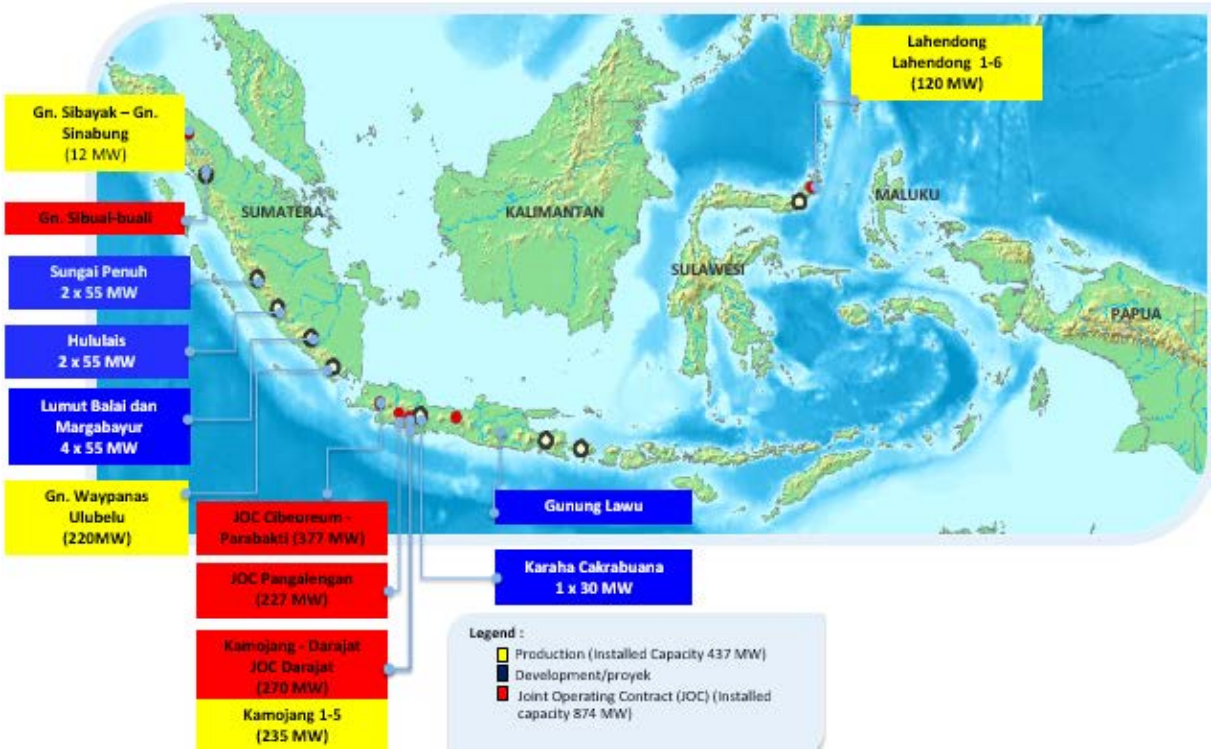

FIGURE 1: PGE working area (retrieved from PGE)

2. SOCIAL AND ENVIRONMENTAL STANDARDS AND SAFEGUARD REQUIREMENTS

The Government of Indonesia (GOI) through the Ministry of Environment and Forestry has given guidance regarding the standards of AMDAL (Environmental and impact assessment), PROPER beyond compliance, and financial institution.

PROPER (*Program Penilaian Peringkat Kinerja Perusahaan dalam Pengelolaan Lingkungan*) is a term from Indonesia language, which is an indicator of company performance for managing social and environmental management (Ministry of Environment and Forestry, 2016).

The following are Indonesian´s legislation in term of social aspect considerations:

- Government Regulation No. 27 of 2012 concerning Environmental Permit (Ministry of Law and Human Rights, 2012);
- Ministry of Environment (MoE) Decree No. 5 of 2012 concerning the types of businesses and/or activities that require AMDAL (Analisis mengenai dampak lingkungan – Environmental Impact Assessment (EIA)) or ESIA;
- MoE Decree No. 17 of 2012 concerning public involvement in the AMDAL and environmental permit process; and
- MoE Decree No. 3 of 2014 concerning PROPER – (Environmental and Social Audit by the Government of Indonesia).

The project activity which is financed by international finance, there are additional requirements to follow according to the safeguard standard (World Bank Group, 2016). In this paper, the World Bank

standard (Operational Policy OP.4.01) and other related Operational Policy applied for the project in Ulubelu Unit-3 and Unit-4.

3. ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

A common social baseline needs to be assessed to identify the background of the project site; for example, demography, ethnicity and religion, poverty and vulnerability, gender and equality and social conflict, economic environment, natural resources and access to health care, education, and electricity (Mott MacDonald, 2014a). Based on ESIA baseline, mitigation and monitoring the impact, social consideration has to be in line with the geothermal program (Mott MacDonald, 2014b). The following are highlighted mitigation of social consideration for the geothermal project, (study case: ESIA for Ulubelu project):

1. Pre-feasibility study
   - To include social aspect into geothermal design;
   - To include contractor´s requirements include Indonesian regulation and international standard (safeguard); and
   - Risk of accessibility of community in geothermal activity (Examples: Providing access across the paddy field, access across agriculture area and provide irrigation channel and water supply).

2. Public consultation
   - Identification list of stakeholders and administrative location;
   - To establish grievance procedure to disclose the contact person, phone number, email;
   - PGE consultation policy;
   - Public hearing and consultation with all stakeholders;
   - Approachment by PGE local employee during consultation; and
   - Local languages used during the public consultation (Example: Sundanese or local Javanese languages).

3. Land acquisition and compensation
   - The land acquisition conducted through willing-seller-willing-buyer;
   - No expropriation has taken place;
   - The provision on compensation entitlement for permanent agricultural land loss, both for tenant and encroachers; and
   - Encourage the seller to consume their money more productively.

4. Employment generation
   - PGE recruitment policy;
   - The requirements are set out in the TOR of contractor as part of its obligation;
   - Be aware of transition stages between construction and operation;
   - To prioritize local worker from the village closest to the village;
   - To coordinate with local village or district;

5. Mobilization and demobilization
   - To inform local village to set up journey plan or traffic management (speed limit, day or night time, weekend or national event);
   - To maintain road condition because of project activity;
   - Minimize traffic hazards within the community;
   - Before main mobilization or demobilization periods; and
   - Plan to be developed by contractor and owner.

6. Community development and CSR (Corporate Social Responsibility)
   - To set up PGE's principle on corporate social responsibility;
   - To set up social mapping;
   - Utilizing geothermal innovation; and
   - Consultation with local government to identify community needs and to prioritize CSR program.

In addition, another form of social impact mitigation have been developing in Kamojang; Kamojang is the oldest geothermal development in Indonesia. It has established for more than 30 years. Over a period of operation, geothermal innovation has developed based on community needs; for example mushroom cultivation, which is using geothermal energy (Figure 2), thermoelectricity and Eagle Conservation. In order to generate the energy for lighting the public road in particular geothermal locations, thermoelectricity utilizes the different temperature gradient between day and night, generates low watt electricity. Eagle Conservation (collaboration with NGO RAIN RAPTOR – Indonesian Forestry Department BKSDA – PGE). Despite Eagle Conservation having focused on environmental concerns, it has created social contribution for the community near Kamojang geothermal field, e.g., local community contributes for supplying the food (prey) for the bird, provide training of quail eggs, livestock for the group of local people and to increase community awareness of wildlife care (Khoirunissa et al., 2015).

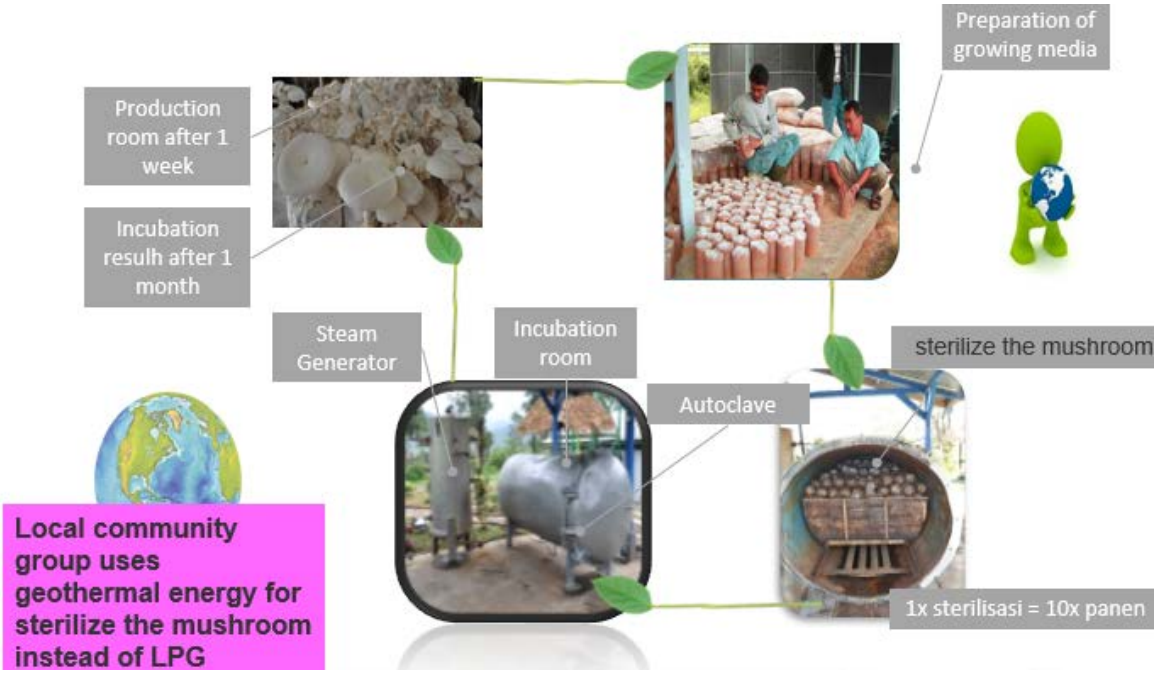

FIGURE 2: Geothermal innovation in Kamojang Geothermal Field
(Mushroom cultivation using geothermal energy)

The Corporate Social Responsibility program has been set up by the company as part of social mitigation. There are education, environment, health, community investment and infrastructure and public facilities (PGE, 2015). Prior implementing the CSR program, the social mapping is required to identify potential program and develop community needs (Figure 3).

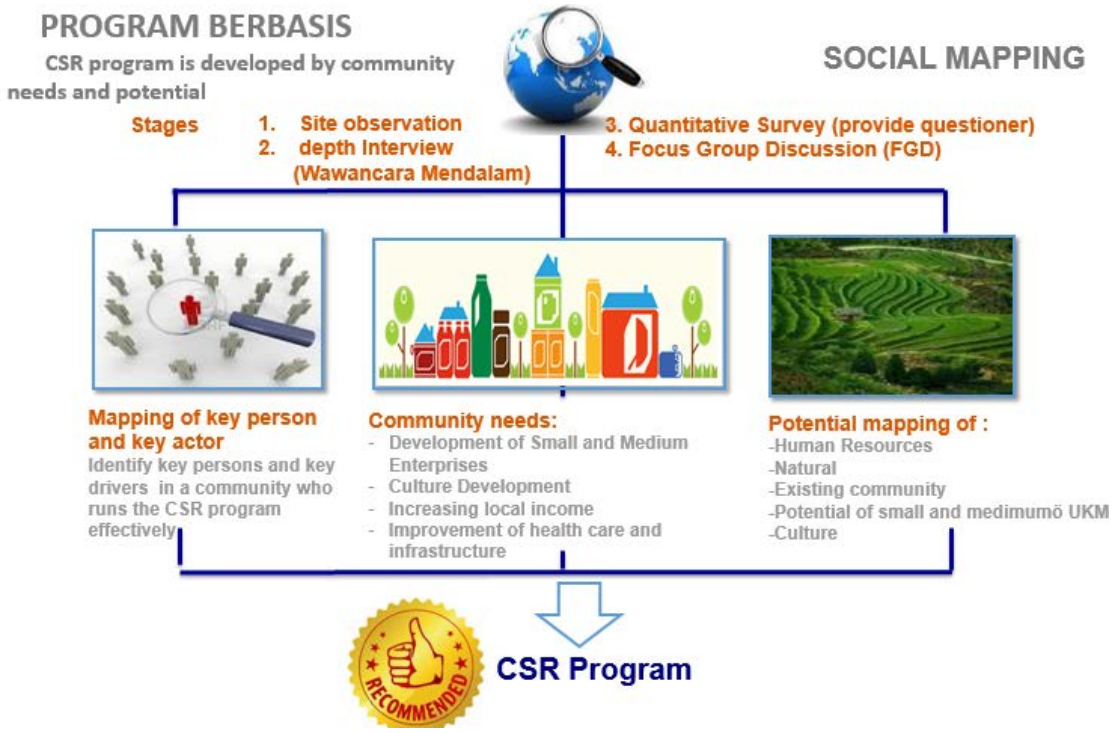

FIGURE 3: Social mapping

4. CONCLUSIONS

The integration of social concerns, regulations, safeguard financial requirements within the strategy of social mitigation programs are a fundamental way of continuity of geothermal project and operation. Developing innovation from geothermal energy resources provide additional value, and it creates a positive effect for running the geothermal organization efficiently and sustainably. CSR become necessary for the strategic decision of the company (Fuente et al., 2017).

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