

Gap Analysis on Existing Condition of *Pantura* Industry Management, East Java

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Abstract

The purpose of this study is to overview the gap between the theory and the existing condition towards Eco Industrial Park in the North Coast Region, East Java Province. We used gap analysis method. The result shows that industrial area on the north coast region has been in appropriate with the spatial aspects on spatial planning documents of East Java Province. We still found a few industries that still have no waste water management (IPAL). We suggest immediate IPAL installation for industry that have no IPAL yet, and maintenance efforts for the industry that already has IPAL to optimize the function.

Keywords: Eco-Industrial Park, environmental pollution, factors of production processes, Gap Analysis

1. Introduction

As the development of the industrial area in the western part of the northern coast of East Java, causing varies problems: environmental degradation of surrounding area, the occurrence of claims and conflicts between industry and public related to the welfare gap and potential environmental pollution (liquid, gas/air and solids) due to industrial activity and technical issues related to the source limitations of raw process water, energy generation and industrial waste management controls that affect the industry sustainability.

Eco-Industrial Parks (EIPs) is defined as a manufacturing community and service businesses located together on a common property. Members looking for a business, economic, social and environmental enhanced through collaboration in managing environmental issues and resources. The business community working together for greater collective benefit than the individual one, and each company would realize by only optimizing the performance of the individual. The goal of EIPs is to improve economic performance of the participating companies while minimizing their environmental impact. Components of this approach include green design infrastructure and parks, cleaner production, pollution prevention, energy efficiency, and partnership between companies. EIPs also seek benefits for local communities to ensure the net impact of positive development (Lowe, 2001).

Industrial ecology is often promoted as a practice to reduce the negative effects of industrial production and reduce waste, using better resources and prevent the excessive use of raw materials. While EIPs is a spatial concentration businesses that is use byproducts of one process, as an input to another industry. So in EIPs theory, we should consider the ecosystem balance in industrial area. We also should pay attention to the principles of industrial ecology itself (Gibbs *et al.*, 2008).

The success of the countries that use the concept of EIPs are increasing in number from year to year. In Bulgaria, the perspective of *eco cluster* was first studied by giving the motivation of EIPs approach and with the support of local government. The success of EIPs in Bulgaria emphasized on the managerial aspects to evaluate the factors from existing industries (Dimitrova *et al.*, 2007). In China, the concept of EIPs applied by the former State Environmental Protection Administration (SEPA), the first national organization that use the standard EIPs. The organization managed to convince the government that the indicator of EIPs can be a success in applying ecological dimensions of sustainable development and help the EIPs itself (Geng *et al.*, 2008). China who facing the economic cycle, EIPs are a new planning topic that needs to be improved so that the arise problems will

anticipated soon (Juan *et al.*, 2007) .

In Italy, the concept of EIPs developed into Regional Ecological Industrial Model (APEA) which has an important role to consolidate and attract businesses with high technology. In the other hand, APEA contrast the situation area of productive work based on logistics and heavy industry, which have low added value and large environmental impact. APEA is an expression, selective quality policy for government settlement policy for the production which is based on adequate environment and equity compensation policy. APEA model is aimed on production innovations development, strengthening research and development that has been done by the region leading companies, focusing on the use of available resources for energy saving and renewable energy sources as the innovation opportunities that are related not only to energy field, but also the production process, civil and transport sectors (Gallos *et al.*, 2011).

North Coast Region of East Java is a strategic region and has the highest economic growth compared to other regions in Indonesia. The strategic value that makes this area should be developed in a well planned focus and organization to maintain its strategic role regard to environmental aspects. The region has huge potential to accommodate the development activities to support regional development and utilization of natural resources particularly the burgeoning industrial activity in East Java. The condition can be seen from the increasing number of land-use change in the northern coastal region that is aimed to support the industrial activities and support local government district that provides development opportunities in industrial activities of regional development policy. Policy support from the government is one way to improve economy of related area as a consequence of the regional autonomy policy.

Although development of industrial activities is a positive impact on economic growth and regional development, it can also be a negative impact on the environment. Therefore, it is necessary to study the policies, plans, and government programs related to industrial activities in the northern coast region that has the potential of natural resources and potential support for development of industrial activities. The assessment is required to provide advice and suggestion to the provincial government policy and local government in developing industrial activities to minimize the impact, especially to environment.

Eco Industrial Parks is a form of industrial areas that seem more appropriate to be applied in the developed and developing countries. Sustainable development is a complex process, involving multiple stakeholders and economic consideration, social and environmental. The first basis factor for EIPs is a placement, i.e. the company's willingness to work together actively, correct combination and structure of the company. Basic industries can then be enhanced and improved, with the right support structure. Developing countries should not only beneficiaries from the experience of developed countries, but a pioneer in industry. The central government plays an important role in supporting and EIPs must be implemented correctly in order to gain greater global benefit (Florina *et al.*, 2006).

Background in East Java and the success of the EIPs concept in some countries, the purpose of this study is to analyze the existing conditions and gaps in the management of industry in the region of north coast of East Java towards EIPs, in order to provide benefits to the local government in implementing EIPs.

2. Material and Method

This study used a qualitative approach, with data collection method of field observation and structured interviews. While the method of analysis using gap analysis.

2.1 Study Area

Research on EIPs or environmentally sound industry is located in the North Coast region (Pantura), East Java. The selection of location was based on consideration of the increasing number of even one of the orientation coast into a new industrial site in East Java. Selected Pantura location includes Gresik, Lamongan and Tuban (Fig. 1).

Table 1. GAP Analysis of Management of Industrial Estate in Western North Coast Industrial Area, East Java

EIP INDICATOR	EXISTING CONDITION	IDEAL	GAP
OPERATIONAL BASIS OF OPERATION AREA			
The location selection for the development of industrial zones	<ul style="list-style-type: none"> - industrial area compatible to the spatial and regional development plans - Development of new industries outside area 	Optimizing the utilization of industrial area	<ul style="list-style-type: none"> - The areas have not been utilized optimally - Development of new areas can increase conversion of productive land - inappropriate industrial area land use
Environmental Conservation Activities	<ul style="list-style-type: none"> - Land conversion of protected coast Java Sea surround areas, i.e. mangrove forest - Lack of green space - High dependence on fossil-based energy 	Suitability and protection on ecological processes and life support systems in the region	<ul style="list-style-type: none"> - Increasing of built area and significantly reduced green space - Reduced watersheds and mangrove forest area - High pollution due to fossil-based energy burning
Cooperation between industries in the management area	<ul style="list-style-type: none"> - Products use based on the needs - Waste management is done individually 	Region cooperation between industries arranged in the form of a memorandum of understanding	There has been no cooperation between industries in use of products and integrated waste management
Active participation of local communities in the industrial area	<ul style="list-style-type: none"> - Regional development planning is mostly done in a <i>top down</i> concept - Public participation in supervision and control of pollution are still lacking 	Community involvement in the planning of area development and the environmental protection supervision	<ul style="list-style-type: none"> - People's aspiration are less accommodated and lead to social action - environmental degradation tends to increase
PRODUCTION PROCESS FACTOR IN EIP			
Efficient usage of resources	The company has been efficient in resource usage but generated useful waste still more widely used by the industry outside the region	Valuable waste also used by other industries inside region	Unfair competition between industries within and outside the region on the economic waste usage that tends to cause social jealousy
Sustainable competitive advantage	There are industries that have not implemented environmental protection standards yet such as ISO 14001	Performance of environmental management and easiness in the global economy competition	Limited access of global economic competition because of low environmental management performance
IMPACT FACTOR OF AREA'S ACTIVITIES			
Minimization of environmental pollution	Minimization of environmental pollution have been made but not optimal yet	Level of environmental pollution associated with environmental quality standards	Physical-chemical environmental parameters that were above standards will cause environmental pollution
Economic improvement and positive welfare for surround community	The impact of increased welfare around the region is not equal yet	Evaluation of social welfare level on related industrial activities	Gap prosperity within the community with the industrial community
Harmonious social relations with companies	<ul style="list-style-type: none"> - Recruitment of local labor does not meet the people's aspirations - Society's development via CSR is not run optimally 	Compliance the community's needs by company	<ul style="list-style-type: none"> - The emergence of social jealousy for workers against workers from outside the region - CSR Fund is still relatively small and not well targeted

(Based on Adequacy Criteria of Eco-industrial Park)

3.1 Operation Basis Criteria of Eco Industrial Park Operation

3.1.1 Site selection

Development of an area into an industrial area such as on the western north coast of East Java at least have the support of government policies, such as spatial policies zone which accommodates local industrial estate location.

It was confirmed on the Decree of President to establish an industrial development area to area that subsequently followed up by the under agencies, i.e. Decree of the Minister of Industry and Trade and Decision of the Department of National Land. Location aspect is one of the considered requirements in determination of an area into an industrial area because not only related to the ease marketing process, but also may encourage the improvement of community's welfare and environmental protection.

Karaev (2006) stated several considerations in site selection in the construction of industrial estates, i.e. the distance to the settlement is 12 km, the road network, electricity and telecommunications, transport infrastructure such as available seaports, topographic maximum of 15°, the distance towards river up to 5 km and underserved, land usage (non-farm, non-residential and non-conservation), the availability of at least 25 ha of land, site orientation to markets, raw materials and labor.

Deutz *et al.* (2004) stated that the government can determine an area into an industrial area with a local policy that takes the principles of industrial ecology into consideration. It's support the environment sustainability. Nonetheless, the policy that set by the government as much as possible for investors who want to build industry in the region so that economic development achieved. Thus, we required more in-depth study of the potential usefulness of an industrial area harmonious with the existing local policy. Gallo *et al.* (2011) also stated that the EIPs criteria related to environment and the location is strategic location of the natural disaster, integrated to the land and building structure that has architecture's value, and availability of the waste disposal from the industry itself.

Based on the mentioned criteria above, the determination of the Industrial Zone in Pantura of East Java Industry has occupied the mentioned requirements above. It is indicated from the industrial park area's width, which is wider than 25 ha, but the area of industrial land use is still not optimal, e.g. there are still unsold areas. This area has been equipped by adequate roads, easy access, telecommunications facilities, and high-capacity power lines. It means that all necessary electrical energy to run the industrial activity can be met properly. On the other hand the area is also close to the sea port to facilitate the products marketing out of industrial estate beside Pantura of East Java. However, result of the rapid industrial development in the region led to a large population growth, especially migrants who are job seeker. This will cause great land use pressure that lead to land use conflicts.

Perspectives of site selection are different among companies. Important factors which are considered in the industrial park site selection is the availability of labor (mostly men), accessibility to ports, ease transportation to highway system, ease communication (telecommunications), and also safe guarantees (Woham *et al.*, 2010).

3.1.2 Environment conservation activities

Environmental conservation activities regards to the establishment of an area into an industrial area, that every user area basically has an obligation to conserve the environment. It is aimed so that the environments – where users can develop their business – are well maintained. Meanwhile, every industry (companies) can succeed the global economy competition, especially in the ease of getting access to product marketing, then every industry needs to follow the rules that have been set globally. These rules are not only seen of the high productivity, good product's quality, compliance with consumer tastes, comfort, obtained convenience, and accuracy and speed of delivery, but also how the industry can exist demanded to environmental protection. Therefore, industry can gain access and ease in product marketing exported to another country. Then the industry needs to improve the performance of environmental management system based on established standards with continuing the environment conservation.

During this time, the industry has shown a very tight global competition in terms of waste reduction and improvement in the production process through the implementation of various policies such as *total quality management* (TQM), *integrated supply chain management*. In the last decade, the competition has shifted to issues involving the environment, in the form of *environmentally responsible manufacturing* (ERM) that incorporate environmental aspects into product quality. The main advantage in the production process that considered environment are cheaper production costs – reduced waste management costs, decreasing fines for polluting the environment, increasing the feasibility of future production (Porter, 1998).

There are also external pressures of environment aspects that becomes very important, the applicable legislation, i.e. the provisions of ISO 14000 international standard for emphasizing on environment aspect, and the increasing of user demand for goods and services produced in an environmentally friendly manner. The pressure is more pronounced with the implementation of *eco-labeling* program on industrial products.

International standards on environmental management systems such as ISO 14001 can be a tool to ensure the

performance of the environmental management system. By implementing an environmental management system according to ISO 14001, it is expected a change in attitude and culture of the company to become more sensitive to the same environment along with production schedules and product design. Implementation of the environmental management system of ISO 14001 is voluntary; it is possible for an environmentally sustainable industry through audit and assessment process.

Gallo *et al.* (2011) stated that the EIPs criteria in terms of environmental conservation is as follows: the infrastructure and systems support a coordinated network to handle the problem of air, water and soil pollution, and the instruments to make a continuous emissions monitoring. The industrial area is also located on completely safe geological and environmental conditions, has a system to maximize the efficiency of existing energy, the availability of data resources, sewage and water utilization management systems, and system of energy between the production and distribution of production itself.

Government has obligation on every industry to improve environmental performance. Each industry also must fulfilled requirements of ISO certification ownership – in particular ISO 14001 –, to improve environmental management system. It implemented in conservation activities where the industry operated. Thus, the presence of industries in Western Pantura of East Java should continue to implement efforts to improve well maintained environment. Nevertheless, based on the analysis of several parameters such as the conversion of incompatible land allotment, uncontrolled decreasing green space and physical - chemical parameters that are still above the environmental quality standards . This suggests that conservation efforts specifically related to improving the environment quality by industry groups in Western Pantura of East Java has not run optimally.

Environmental regulations would have a very important role in solving all environmental problems. Alternatives in land use, pollution reduction and sustainable development continue to be proposed and debated. One good considered solution for pollution reduction, or even prevention, is the concept of eco-industrial development. Eco-Industry describe the industrial cycle where the resulting material or product returned to the manufacturing process, either used by other facilities, or as a raw material for the production of other products. Qonsequently, environmental conservation activities should regulated in principle environmental regulations issued by the government with regard inspiration from various parties (Jeanne, 2003).

3.1.3 Cooperation within region industries

Cooperation between industries in the region is also one requirement that must be to establish EIPs. Cooperation between the industry defined from the products and by-products' internal usage by other industries inside region. It is intended so that the industry can easily market the resulting products with lower operational costs. On the other hand, every industry in the region is expected to be mutualism symbiosis by utilizing the products. As the industrial community, they are expected to optimize the use of all material generated within the industrial area and out off areas for products that cannot be used by other industries in the community.

Cooperation between industries in the region is not only in terms of the products' use with a mutual need, but also in terms of reduce the use of toxic materials and handling with the generated toxic materials (waste). Similarly, in terms of development of supporting infrastructure, expect a good cooperation among all industrial symbiosis.

In recent years, the concept of industrial clustering has become a powerful tool to change the balance of market power in favor of local producers and traders, and entered the global market economy. The group consists of geographical agglomeration that produces the same product or service related to creating a network of providers and manufacturers component. The network is work together to improve business efficiency in service/supplier relations, which allow all members to compete in the global cluster rather than the local market (UNEP - TEAP, 2004). From the point of view of sustainable development, the most important type of industrial cluster is "eco - clusters " (or eco- industrial park or industrial symbiosis) in which business groups are geographically separated, but still work together to minimize the impact on the environment . In other words, eco - cluster is "eco -system" made. This concept is based on the "industrial ecology" - taking the natural ecosystem as a pattern. The idea of industrial ecology is to change the linear - production process (raw materials are transformed into products, by products and waste) to the used products. Byproducts and waste from one process is used as another resource instead natural resources ecosystem (Jacobsen, 2006).

Dimitrova (2007) in his paper stated that the EIPs approach tries to meet the needs of the factory, which prefers economic benefits but also still maintaining the sustainability of the environment. Cooperation between companies that located in the industrial area could be beneficial in terms of development/processing waste

together, development of infrastructure and efforts to preserve the environment around the company's industrial area.

Based on previous discussion, industrial area of Pantura of East Java has not well cooperated yet in the use of the product. Exception for a few industries that can benefit from each other's products and is limited to certain products because most industrial products cannot be used by other industries, it should be marketed outside the region. In terms of provision of infrastructure like roads – especially roads of residential areas – seen have good cooperation among the existing industry, but the provision of infrastructure procurement of IPAL was performed only within each industry.

3.1.4 The active participation of local communities

Observed from the level of local communities' participation especially in labor, it showed great interest in the community to work on the existing industry. However, due to limited knowledge and skills of the existing workforce, the company received more local workers as regular employees, while high skills and experience requirement jobs recruited from outside area. Related to participation of local communities in the planning, implementation and evaluation of regional development – including monitoring and control of environmental pollution – is still very low. Therefore we need the active participation of communities with full consciousness to be involved in any decision-making regards to the development of the area and voluntarily participate in the monitoring and control of environmental pollution. It's applicable to the competent authorities that accommodate their aspirations. It was intend so that the planning process can be done in *bottom up* concepts. The supervision and control of environmental pollution can implemented in any time through mutual aid activities, both individually and through social institutions that have formed together.

In Romania, the concept of EIPs aims to provide economic and environmental benefits for the community around the industrial area. To achieve these goals, they were continuously empowering communities around the industrial area to foster a sense of belonging and awareness in protecting the environment. Romanian government believes if people actively participate in the development and management of the industrial area, then sustainable development needs to takes three aspects – social, economic and environmental (Florina *et al.*, 2006).

3.2 Production Process of Eco Industrial Park

3.2.1 Efficient use of resources

One concept for assessing the performance of a company, both managerial and organizational performance is the efficiency and effectiveness in resource use. Efficiency defined as the ability of the company to minimize the resources use in achieving organizational goals. Otherwise, effectiveness is defined as the ability of the company to determine the goals and to do it properly to achieve that goal. Efficient use of resources in a company will be impossible if it is not effective in determining the goals. This means that the effectiveness is a key to the success of a company. In other words, before the company conducts its activities in the efficient use of resources, they required to make sure to find the right thing to do.

Rules of sustainable development in daily industrial practice have led to the formulation of the industrial ecosystem concept which adapts natural ecosystems, since about fourteen years ago. The essence of industrial ecology is industrial ecosystem models has become a framework for studying the interaction of society with a modern technology along with environment. Strategies for the creation of an industrial ecosystem are a system where the consumption of energy and materials is optimized, waste generation is minimized and waste from one process becomes the raw material for another process. Industrial ecosystem concept is based on the flow of material through the life cycle, otherwise known as industrial symbiosis. To achieve these objectives we need efficient and effective industry itself, such as reducing the distance between the different companies, reducing waste treatment costs, reduce maintenance costs and reduce region maintenance costs (Mamoune *et al.*, 2011).

The existence of the company (industry) in the western Pantura industrial area can effectively determine the objectives by producing the desired product and the product is expected to result in resource use efficiencies occurs both natural resources (raw materials), human resource, technology and capital.

3.2.2 Productivity

Company's resource of raw materials, human resources, capital, technology and so forth is needed to be

optimally utilized to improve the productivity of the company. Optimization of resource use by the company is shown by the increased corporate profits and minimal negative impact (waste).

Productivity is the key concept of EIPs, where if an industry wants to get the maximum economic benefit by then they should optimize the productivity. Economic cycles in the industrial area became elements that must be considered with regard on aspects of efficiency and effectiveness in the production processing (Zhijun, 2007).

3.2.3 Sustainable competitive advantage

Competitive sustainable advantage in the application of EIPs in an industrial area were seen of the industry's interest to take over in the global economy competition in a sustainable manner. To win the global economic competition, every industry are required to improve its environmental management performance. For the company (industry) that has a good environmental management systems usually have access to a wider global market compared to companies that do not have a strong commitment to improve the environment. It was proved by the certificates from certification agency such as ISO 14001.

Eco-Industrial chain build economic activities into the processing of renewable resource products, feedback processes based on ecological law, improvement of resource utilization, reduce emissions, and improve the quality of economic and environmental benefits. Relationship of trust and cooperation between companies of the eco-industrial chain is the prerequisite and basis for the running system of industrial ecology. Mechanisms of trust between the company, the system of incentives and penalties, and legal systems and industrial policies must be established to the success of industrial ecology. Government should play a good role of guidance and coordination. There is an ongoing relationship between the upstream and downstream of the industry, so that sustainable competitive advantage over industrial ecology system can be achieved (Guo *et al.*, 2010).

Some industries have viewed indifferent to the existence of ISO 14001. But other industries realize that without ISO 14001, the company will lose the opportunity to try and compete in the free market in this era of globalization. Therefore keep and maintain global market is one of the company's benefits and can be achieved if the company has been certified on ISO 14001. Most Pantura industrial area is has less awareness on environmental.

3.3 Impact Factor of Eco Industrial Park

3.3.1 Minimize environmental pollution

Efforts to minimize environmental pollution applied the concept of net production. Net production is an efficiency act of raw material usage, water, energy, and pollution prevention, with goal of increasing productivity and minimizes waste generation. The term is often used for the pollution prevention with same intent in terms of net (clean) production. Pattern of net production approach is prevention of pollutants, by evaluated production process and life cycle of a product. Pollution management begins with review the source of waste generation from raw materials, production processes, and transportation products to the consumer and the product becomes waste. Approach to environmental management – by applying the concept of net production through increased efficiency – is an approach pattern that can be applied to improve competitiveness.

According to UNEP, net production is integrated environmental impact prevention strategies, which are applied continuously in process, product, services to increase overall efficiency and reduce risks to humans and environment (UNEP, 1994 in Purwanto, 2004). Net production, according to the Ministry of Environment, is defined as: Strategy of preventive environmental management integrated and continuously applied on any activities ranging from upstream to downstream relate to production process. Products and services to improve the efficient use of natural resources prevent environmental pollution and reduces the formation of waste at source to minimize the risks to human health and safety as well as environmental damage (KLH, 2003 in Purwanto, 2005).

Problems of environmental pollution, water, air and soil pollution in general is a major problem in the management of an area into an industrial area. One requirement towards EIPs is how the industry in a region can minimize the generated pollution. But keep in mind that the requirements of environmental pollution minimization are not only conducted in the region that developed into EIPs but also for industries that wants to take over global economic competition. Commitment to environmental protection is also a key requirement to implement environmental management systems like ISO 14001 as evidence that the industry has a high attention to environment.

Industrial waste may in form of gas, liquid or solid as a byproduct of the activities in the production process. Based on the monitoring data that has been applied to both air and water quality in the industrial area of western Pantura, some quality parameters of waste is above the environmental quality standards such as temperature, TDS, In situ pH, levels of $\text{NH}_3\text{-N}$, BOD_5 levels, levels of COD (effluent), HC and dust levels, TDS, total hardness, chloride content, sodium (Na), Sulfate (SO_4) (underground water), brightness (in situ), pH (in situ), total ammonia (NH_3), and zinc (Zn) (sea water).

Control of water pollution can be done in non-technical and technical way. Non-technical way; control efforts of water pollution through legislation creation that can plan, organize, and supervise the activities of the industry related to the generated waste as the Government Regulation No. 82, 2001 on the Management of Water Quality and Water Pollution Control (IPAL). While technical way, is any control geared to make the firm IPAL in an integrated built of management area.

Industrial ecology is often translated as practice for closing excess industrial production and reduces waste, for making better use of resources and prevents the excessive use of raw materials. Eco Industrial Park is the spatial concentration of businesses that use byproducts from one process as the input to another industry. Both of these practices are based on the use of natural resources. EIPs are emphases on industries as members of an area can minimize the negative impacts of the production process (Gibbs *et al.*, 2008).

Basics of sustainable design and construction are applied to minimize environmental pollution from the development, planning, design, construction, operation, and deconstruction. Aspects to be considered include energy resources, water, raw materials, and land. The principles used include: conservation, reuse, renewable/recyclable, environmental protection, non-toxic and fusion (Purwanto, 2005).

3.3.2 Increased economy

Development of Pantura as an industrial area into Eco Industrial Park is expected to spur economic growth in the region without ignoring environmental conditions. Looking at the position of the location, it has a strategic position to be developed as an industrial area. This is consistent with the Provincial Spatial Plan of East Java (RTRWP) that put Pantura as an industrial area. As an industrial area, Pantura is still excellent for investors to develop industry. The fact is that hundreds of large and small-scale industries were located in Pantura both local and foreign industrial industries.

The high interest of investors to invest in Pantura cannot be separated from the availability of adequate supporting infrastructure. The existence of a number of ports either general or specific ports and the existence of the electrical energy development are supporting sustainability factor in Pantura. On the other hand the presence of arterial roads and railway line that connects the area with a number of cities in Java Island is a complement to the availability of capital transportation for Pantura.

To encourage investors to invest in Pantura, the government continues to pursue a number of programs to improve infrastructure, including the construction of Toll Road Tuban-Gresik-Lamongan planned to be an alternative way despite the presence of an increasingly dense Pantura that connects the district of Tuban, Lamongan and Gresik. Construction of this highway is completeness infrastructure that must be provided for the businesses development in Pantura industrial area and expected to provide a *multiplier effect* to community. It will certainly affect the increase in the regional economy.

3.3.3 Harmonious social relationship with the company

Good relationship between the company (industry) can be well established when the company properly accommodate the interests of the surrounding community. This can be seen in terms of recruitment, guarantee the protection of the environment, and fostering community-building such as in business development, and the provision of social assistance made by the company in the form of *Community Development* (Corporate Social Responsibility/CSR).

In terms of hiring labor to work in the industrial area, the general public expects the local labor became more preferred and accepted compared to workers from outside the region proportionally. In some cases the company experienced disharmony with community due to recruitment issues that more labor is recruited from outside the region. The tendency of companies to receive labor from outside the region due to lack skill labors within the region than those that come from outside. However, recruitment of local labor should also be a major consideration, especially to avoid social conflicts between communities and companies appropriate to possessed

skill.

Another thing that can cause disharmony relationship with the community is environmental issues that experienced loss of quality due to company's activities. Aquatic environment is commonly used by communities in fish farming or consumption needs. Nevertheless, because the companies use the same water and cause pollution lead to disrupted community's activities. Therefore, it is obligation for the company to maintain the quality of these resources.

For a company that managed to keep the environment by improving the performance of environmental management, it is not only a well-established harmony between communities and companies, but also the company's image will be better. In contrast, companies that cannot properly look after the environment, then it is possible to obtain the pressures of society.

Other business that may be made by the company in making a good relationship with the community is to foster or provide social assistance activities that managed through *Community Development (Corporate Social Responsibility/CSR)*. CSR is a concept that organizations – especially companies – have a responsibility to customers, employees, shareholders, communities and environment in all aspects of company's operations.

4. Conclusion

Development of the industrial area in Pantura (Gresik, Lamongan and Tuban) is appropriate with the spatial aspects of the spatial planning documents (RTRW) of East Java Province. Infrastructure and transport has been quite accommodating the process of industrial activity in West Pantura. The presence of the industry in this region caused a positive *multiplier effect* for other sectors, although it also caused negative impacts. Positive impacts are local employment, local economic and standard of living development around the region.

We still found a few industries that still have not coined waste management (IPAL). So it is necessary for them to install IPAL. Maintenance efforts also a need for an industry that already has a IPAL to be functioned optimally.

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