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Role of Institutional Economics in Minimizing Industrial Waste Water

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ABSTRACT

Objective – Industrial development has a significant contribution on the welfare achievement of Mojokerto. However, these achievements have also brought about the negative impact such as environmental degradation. Nonetheless, new institutional economics have developed a theory for the purpose of solving such environmental conflicts and this is called institutional ecological economics. Since resolving environmental problems is dependent on the quality of institutional structures, this research aims to show the role of institutional economic environment in minimizing negative environmental externalities for example, water pollution, in the Mojokerto Regency.
Methodology/Technique – This research is qualitative in nature. It uses interviews and observations to collect the data required. For the purpose of illustrating water quality, a table is depicted based on biological and chemical parameters used. The research site is set in Watesnegoro Village, a sub district of Ngoro, Mojokerto Regency, making this a case study.
Findings – The findings extracted from this research suggest that (1) Environment governance in the Mojokerto Regency had not effectively reduced water pollution, (2) The internalization of externalities as described in the economic theory was unable to be implemented because of the high transaction cost, (3) There are rent-seeking behaviours in the waste water pollution policy where the corporation and government have a collusion to gain their own interest.
Novelty – The outcome of this research indicates that negative externalities on the environment caused by the industry needs to be further studied so as to understand the relationship of industrial activities on the environment.
Type of Paper: Empirical

Keywords: Water Pollution; Institutional Ecological Economics; Rent-Seeking, Mojokerto Regency; Indonesia.
JEL Classification: O43, O53.

1. Introduction

The institutional structure is a combination of formal rules (constitution and laws), formal constraints (norms of behavior, conventions, code of ethics), and their enforcement characteristics. Institutional factors such as environmental standards, corruption, and democracy may also affect the location and the environmental behavior of companies (North, 2005; Gani & Scrimgeour, 2014). A study conducted by Gani and Scrimgeour (2014) showed that the challenges to water pollution in OECD countries could not be resolved without relevant institutional policy developments.

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This implies that the qualities of institutions have an important influence in determining the quality of the environment as an institutional structure. Undeniably, the quality of an institution is the bridge to the minimization of environmental degradation such as water pollution caused by industrial production activities (Gani & Scrimgeour, 2014). The existence of institutions such as property rights, environmental regulations, and transaction costs need to be adopted by governments so as to be able to solve the problem of negative externalities caused by industries (Bromley, 1991; Paavolaa & Adger, 2005).

Over the years, the development of the manufacturing sector in Indonesia including East Java gets more priorities than anything else. Apparently, the distribution of industries in East Java focuses on a few cities only. In East Java, the regions with the most industrial areas are Gresik, Pasuruan Regency, Sidoarjo Regency, Mojokerto Regency, Malang Regency and Surabaya. The Mojokerto Regency comes under the area of the Gerbangkertosusila Region, which is one regency that was specifically included in the Government Regulations of No. 47/1997 which was listed on the National Spatial Plan. A comparison of these regions indicate that about 1120 large and medium scale industries currently existing can potentially pollute the water, soil, and air of those regions. In addition, it was noted that the type of industry causing such kinds of pollution are those related to paper, textile, sugar, leather tanning, cement, fertilizers, iron and steel, and fish processing (BLH Jawa Timur, 2010).

This implies that despite such industries providing job opportunities to the local residents, they are also causing environmental threats to the people living there. Since there has been little report being written about the pollution and its detrimental effects on resident health, this research aims to identify the role of economic institutions in minimizing industrial waste pollution in the Mojokerto Regency. Based on the phenomenon exists and some previous research about the development of industrial and institutional ecological economics concept, this study was conducted to answer the problem of the existence of environmental degradation due to industrial development through the role of institutional ecological economics.

2. Literature Review

2.1 Internalization of Externalities

Internalizing the social costs of each individual industry is a market solution in overcoming negative externalities. An externality can be internalized if there is a policy that causes market participants to account for the costs of benefits of their actions (Hyman, 2010). However, the economic policies of externalities are sometimes controversial because of the strong disagreements about the original value of the external costs or external benefits.

2.2 Institutional Environment

Institutional environment is a set of political rules or structure; it encompasses social and legal certainty of production, exchange, and distribution (Santosa, 2008). In institutional environment, governance structures are defined as one that adapts to the new circumstances relatively quickly, on an order of years to decades (Montgomery, 2013). Klein (1999) held that the ideology used by an agency can assist agents to resolve complex decisions and this means that the institutional environment have a role to play in mitigating externalities.

Institutional environment creates a framework of human action. For instance, the existence of institutions can reduce uncertainty by providing a structure for daily life (North, 1990; Klein, 1999). In economics, institutions define and limit the range of individual choices. In this regard, institutional constraints include both what individuals are prohibited to do and, sometimes, under what conditions some individuals are allowed to undertake certain activities (Klein, 1999).

2.3 Institutional Ecological Economics

The social-cost approach of externalities was developed more than fifty years within the mainstream, as a part of welfare economics (Baciu & Iacobuţă, 2015). Thus, in the name of social welfare, balance and efficiency, economists have tried to explain how the optimum level of production from a social point of view, which balances costs and benefits, respectively the optimal level of pollution and the right to pollute (Baciu & Iacobuţă,, 2015).

Basically, institutional economics is an alternative view of analysing policy sources. It is also the normative basis for formulating policies. In that regard, the existence of institutional ecological economics has the advantage that is relatively big enough of analyzing the design, implementation and effectiveness of the environmental governance solutions (Paavolaa & Adger, 2005). When implemented, environmental governance should involve the establishment and enforcement of government agencies so as to be able to resolve environmental conflicts. Paavola and Adger (2005) found that institutional ecological economics made four contributions in mitigating environmental challenges today. They are:

1. Institutional approach helps us to examine how the attributes of environmental resources are and how their users create interdependence and the conflict between the two.
2. Institutional ecological economics approach highlights the implementation of a new policy and the factors that influence governance outcomes.
3. The institutional approach has important implications for environmental decisions.
4. Institutional Ecological Economics has some benefits on assess governance solutions and outcomes in the light of governance goals.

3. Method

This study is qualitative in nature. It uses interviews and observations to collect data. The participants involved were those living in the research site of Mokojerto Regency, in particular those living alongside the river concerned. Interviews were conducted on these informants while observations of their behavior were manually recorded throughout the period of the interview. The research interviews were conducted repeatedly on informants until saturation point was reached. This study used cluster sampling as a technique to select the sample. Villagers will be collected based on the type of job and the length of stay in the area. The villagers are used as informants are (1) Watesnegoro villagers who worked as laborers or employees of the tissue factory; (2) residents who has more than 20 years living; and (3) residents of Watenegoro Village who less than 20 years living in the area.

Overall, the study involves 24 informants, consisting of 9 of key informants and 15 supporting informants. Furthermore, key informants comprise the Chairman of the Watesnegoro village, the Manager of the Human Resource Department of a tissue factory, the Investment and Integrated Licensing Service Agency of the Mojokerto Regency, the Environment Agency of the Mojokerto Regency, the Regional Development Planning Agencies of Mojokerto Regency, the Employees of the tissue factory, and the village authorities. The Supporting informants were the citizens whose houses were located around the river.

The qualitative method was chosen so as to gain a deeper understanding of the role of institutional ecological economics in minimizing industrial waste water. This study was conducted over 2 months through interviews and observations. Face-to-face interactions and conversations allowed for a better way of assessing human beings and their feelings and interviews allow the distance between researcher and informants to be narrowed, thereby building up a rapport that enhances interviews as the issue concerned is a difficult one for all parties involved. The tools used to obtain primary data are: questionnaire for the informants, electronic recorders, and notepads.

Analysis of data would be descriptive in nature. For this research, three steps of processing qualitative data were involved: data reduction, data display, drawing conclusion and verification. First, the data obtained from interviews and observations will be reduced as needed. The second is the presentation of data, which

researchers compiled the relevant data so that the information obtained could be concluded and has a particular meaning to answer the research problem. The third is the conclusion and verification, the researchers will search for the meaning of each of the existing symptoms.

This research also used data triangulation to test data credibility. As a case study, this research focuses on one specific location according to the needs of the research. In that regard, the location selected was the village of Watesnegoro, located in the district of Ngoro in the Mojokerto regency. The location was chosen because Watesnegoro Village is an area whereby the river is used for discharging the wastewater of the tissue factory wastewater. In addition, the river in the Watesnegoro village is located in front of the residential area of the citizens.

4. Results

The East Java Governor Regulation 72/2013 has designated that a quality standard of wastewater discharge must be obeyed by all industries in East Java. However, based on the results of research conducted on the residents in the Glatik and Gunungsari areas situated in Watesnegoro village, 17 of 19 informants who lived in front of the river mentioned that there has been water pollution after the tissue factory existed in this area. The factory first began operations in May 1995. The pollution affected the color, taste, and smell of the water wells and rivers. Luluk – one of the residents who live on the river front said, "*Jelas ada bedanya. Soalnya sekarang mulai ada limbah itu warna air jadi keruh, Pokok baunya gak enak. Banyune koyok berminyak ngunu banyune*." (Clearly distinct. Since the presence of wastewater, water wells muddy color, smelly, and then water as oily).

17 of 19 informants who lived in front of the river mentioned that wastewater discharged into the river has caused the water to be muddy, brownish and sometimes even black, and smelly. Yanti – one of the residents who live on the river front said, "*Gak mesti kalo ngeluarkan, gak bisa ditentukan. Pagi, kadang-kadang sore, kadang-kadang tengah malam. Tapi kalo pas hujan turun, terus airnya itu kenceng, airnya itu besar langsung limbah keluar warnanya hitam bukan lagi coklat apa. Hitam pekat itu dan bau*" (We cannot be sure when the factory dump their wastewater. sometimes early, sometimes midnight. But if it rains, the factory definitely dispose of waste water in which the color is brown, even black dark and smelly)

Moreover, Residents in the Gunungsari area also expressed that the river which has been polluted by the waste, had caused their skin to itch when they were in touch with the water. Fauzi – resident of Watesnegoro Village said "*Kalo lewat situ ya gatel mbak. Gatal kakinya"* (everyone who their feet in contact with water river will be itchy). Further to that, addition, the informant also mentioned that sometimes, there are pieces of black or red coal in the river. The coal is an indication of the residual maters of the tissue production process. Darto - one of the residents who live on the river front said, "*Itu banyune sungai kan merah, gatel-gatel, kadang itukan disini air itu lho kayak anu kan ada batu barae. Hitam kecil-kecil itu mbak.kan dampake apa itu dari tisu itu kan ada batu bara. Saya lihat itu kan ada batu bara. Kan bakare itu pake batubara soale*" (The river water is red and cause itching, sometimes found pieces of black coal in the river. It was the impact of the tissue factory. It use coal for the production process)

It has to be explained that the distance between the tissue factory to the Gunungsari area is only ± 100-200 meters while the distance between the area of PT.Sopanusa to the Glatik area is ± 1 km. This implies that the distance is not too long. From the interviews conducted for 2 months, it was found that 15 of the informants from the Glatik and Gunungsari areas had also indicated that all of them source their drinking water from wells for their daily needs. The distance of these wells from river is about 0,5 – 1 km. Most of them claim to use the water for drinking and cooking purposes, as a means to avoid using water from the polluted river. If this cannot be avoided, the informants also mentioned that they would prefer to consume water taken from other areas in their district because the river water is contaminated. The informants added that the water in their area cannot be consumed for drinking and cooking because it contains oil. . Saitu – one of the residents who live on the river front mentioned "Jelas beda jauh dengan dulu yang layak minum dan layak pakai. Kalo sekarang gak berani. Semenjak limbah ini ada sudah gak *dipake* minum. Dimasakpun tetep terasanya gak enak. Semacam

Pliket atau *kentel*. Walaupun dimasak sama saja."(Very different water conditions in the past and present. Before the the factory there, we used well water for drinking and cooking. Since the existence of wastewater, the well water is not used for drinking and cooking. The water is sticky or viscous)

In particular, the impact of the water pollution happening in Watesnegoro village can be further verified through the results of the laboratory tests run in assessing the water quality. This was conducted by the District Health Office of the Mojokerto Regency in 2015. Laboratory tests conducted by district health office to examine the quality of water in the Watesnegoro Village. It was noted that contamination in the water supply consists of the contamination of Fecal Coliform (FC) and Escherichia Coli (EC) as water quality parameters. Regulation No. 492/MENKES/PER/IV/2010 stated by the Health Minister of Indonesia states that the maximum content of Escherichia coli in water should be 0 / ml sample to the amount of per 100 ml sample. This means that it should be completely free of such a contamination. Moreover, the maximum content of Coliform bacteria in the water was also stated to be at 0 / ml sample to the amount of per 100 ml sample. This also means that such a contamination should not be present in the water. To elaborate on the results of the test mentioned, Table 1 is provided.

Table 1. The Test Result Data of Water Quality in The Watesnegoro Village.

Object Name	**E-Coli**		**Total of Caliform**		**Information**
	Max	**Result**	**Max**	**Result**	
Usmoyadi	0	27	0	79	Ineligible
Kholis	0	<1,8	0	79	Ineligible
M.Irfan	0	<1,8	0	17	Ineligible
A.Fauzi	0	<1,8	0	>1600	Ineligible

Source: District Health Office of Mojokerto Regency, 2015

From the results seen, it can be deduced that there are serious problems. Data show that the water quality test results done in Watesnegoro village, whether analysed through the biological or chemical parameter, is ineligible. This means that the water in Watesnegoro Village was heavily polluted and not suitable for consumption. No matter how disheartening the results are, it cannot be denied that the Mojokerto regency has a department called the Environmental Agency which is part of the local government institution that has the responsibility for issuing environmental license, for monitoring wastewater, and for prosecuting offenders. It is noted that the Environmental agency began coordinating with the respective companies situated in the region when they were recommended to acquire a license for disposing of their waste. Head of Control and Environmental Damage – Environmental Agency of Mojokerto Regency said, "*Setelah mengajukan dokumen, dilakukan sidang. Timnya itu dari BLH sendiri kemudian dari Dinas Tenaga Kerja, dari perindustrian, kemudian ditambah lagi sesuai dengan perusahaannya. Setelah dokumen selesai nanti, BLH mengeluarkan ijin lingkungan sini"* (After the company proposes the document, then the Environment Agency held a meeting with other offices. The agencies involved are: the Environment Agency Mojokerto, Department of Labor, Department of Industry, and other agencies aligned with the business. After the discussion of the document, then the Environment Agency will issue an environmental license). In their policies, the Environmental agency requires companies to have a wastewater treatment and to use this before disposing of their wastes into the river. This coordination between the Environmental agency and the respective companies enables the agency concerned to exert their supervision, and control of the respective companies and this coordination is accomplished through a monthly company report detailing the waste quality. In an interview with the Manager of the Human Resource Department of the tissue factory mentioned earlier, it was stated that the company had

completed all environmental licensing, and that it also tested the water waste every month. Manager of the Human Resource Department of a tissue factory said, *"ijin lingkungan juga kita lengkapi, termasuk rutinitas pengujian."* (An environmental permit from the local government has been complete, including waste water quality testing has been conducted by the tissue factory)

4.1 The Process of Waste Disposal license

In looking at the monitoring of the waste products in the Mojokerto Regency, it is noted that the local government is responsible for this portfolio as well as for issuing the license of waste disposal fro respective companies situated in the locality. In the procedure of operations, it appears that the Environmental agency of the Mokojerto Regency has to follow a number of steps. Before the license is issued, the Environmental agency would provide some requirements to the respective companies. These requirements include the following:

1. Companies should have a waste water treatment.
2. Companies should ask permission from the citizens and the local governments around the factory area for discharging their wastewater products.
3. Companies should report on the quality of their wastewater to the environmental agency every month.

Although the requirements seem decent and reasonable, there are other issues. For instance, it was mentioned that the average company requires a long time to obtain the environmental permits from the Environmental agency. This process begins with the Environment agency conducting a number of meetings with the relevant parties for the purpose of discussing waste pollution permit documents. From the interviews conducted for this research, informant also mentioned that the process of obtaining the environmental license can take approximately 10-12 working days. In contrast, even though these permits are for as long as the companies exist, the Chairman of the Environmental agency of Mojokerto Regency said that the company should renew the license or disposing their waste products every three years. It is still implemented currently. This was conducted in order to overcome environmental degradation in Mojokerto Regency.

In the regulations, it was further noted that the local government of the Mojokerto Regency had issued the local regulation of No.4/2007 under the Liquid Waste Disposal License. Section 8 of the regulation mentions that the retribution rate is measured by the quality level of the wastewater. However, the Chairman of the Environmental agency of the Mojokerto Regency had added, during the interview, that the current regulation is no longer applicable. It was removed because the companies are obliged to report on the quality of wastewater into the environment agency regularly. Head of Control and Environmental Damage of Mojokerto regency said, "*Retribusi itu dicabut paling. Sudah ndak ada ini. Dulu memang ada perdanya dari propinsi,tapi sekarang retribusi hanya untuk bayar uji lab saja."* (Retribution on waste water volume has been revoked and no longer exists. There used to be the local regulation of the province, but now retribution is charged only for the cost of laboratory tests of wastewater).

4.2 Transaction Costs and Property Rights Transfer

Transaction costs exist due to asymmetric information. Transaction costs are the costs involved in looking for information, the cost involved for measuring attributes which are exchanged, the cost involved in protecting property rights, and the cost involved in enforcing agreements (North, 1990; Yustika, 2008). Transaction costs exist because there is a transfer of property rights from one party or group to another party or group. In the context of this research, it was noted that the tissue factory concerned was willing to pay the transaction cost so as to take advantage of the property rights in Watesnegoro village. The transaction cost that is involved and provided by the tissue factory includes:

(1) The cost of time and effort to obtain permission from the district administration.
(2) The cost spent on licensing fees, time and effort to negotiate with the chief of Watesnegoro village and the citizens.
(3) The cost spent in paying compensation to the citizens living around the river.

The cost of time and effort to obtain permission from the district administration evidenced by the results of interviews with Hendro – Manager of the Human Resource Department of a tissue factory – He said, "Ya kalo itu (ijin) sekitar 14 hari baru selesai. 14 hari dari pengajuan trs dilengkapi persyaratan, 14 hari selesai." (Applying for licenses to the local government for a tissue factory operations can be completed within 14 days). The time required by the tissue factory (14 days) longer than the average company's application for permission to local government of Mojokerto Regency (10-12 days).

Furthermore, regarding to the cost in paying compensation to the citizens living around the river and the cost spent on licensing fees, time and effort to negotiate with the chief of Watesnegoro village and the citizens, Misdi, Watesnegoro Village Officials said, "*Tiap bulan dari tisu itu sudah ada perjanjian sejak dulu untuk kompensasi untuk kegiatan desa, jadi membangun apapun ya uang dari situ. Satu bulan 300.000 sampai sekarang. Kalo gunung sari mbangun apa saja buat saja proposal nanti tetap saya (perusahaan) bantu."* (Tissue factory to pay compensation to the event village. One month 300,000 until now. Furthermore, the company promised to contribute to the development of village infrastructure through which the proposal presented by the villagers to the company). In addition, Maskur, villagers who live beside the river said, "Dapat THR dari tisu. Tiap rumah beda-beda tergantung jaraknya sama sungai. Kalo gak salah dulu itu yang nomer satu ya itu 250, nomer dua itu 200, yang nomer tiga 150. Beda-beda." (Residents received compensation for each house is different depending on distance from the house to the river Approximately houses closest to the river are 250.000, then 200.000, which is a bit far from the river 150.000).

The informants had also said that the company involved took about 2.5 months or 15 meetings to reach negotiation agreements with the citizens. Negotiations between citizens and the tissue factory resulted in an agreement whereby the company would be allowed to dispose of the waterwaste into the river under the following conditions:

(1) The tissue factory is willing to pay a penalty as compensation for Rp.30.000.000.

(2) The tissue factory is willing to pay a greater penalty if the waste gives harmful impact to the citizens.

The above agreement was described by Suroso, chairman of the negotiating teams in that agreement. In interviews conducted by the researchers, he explained, *"Sekitar tahun 2008-2009 kita rapat, bikin perjanjian dengan perusahaan. Pertama, perusahaan dikenakan denda Rp 30.000.000. Terus mbak, kita bikin perjanjian, dengan tisu, apabila perusahaan ya mengeluarkan limbah lagi di atas batas wajar, kita berhak mendenda tisu."* (Approximately 2008-2009 we had a meeting with the plant tissue, and agreed to make the agreement between the villagers and the company. First, the company paid a penalty of Rp 30,000,000. Then, we make an agreement, with a tissue factory, when company dispose of waste water is more than reasonable limits, the villagers have the right to fine tissue factory)

In addition, the informant also mentioned that the company sometimes provided cash compensations to residents around the river and grants for rural infrastructure development. However, all the supporting informants expressed that the compensation given by the company was not comparable to the loss of the society.

4.3 The Impact of Rent – Seeking on the Environmental Governance

The rent – seeking behavior is more prevalent in the environment sector than other sectors of the government policy (Hepburn, 2010). In this context, rent-seeking behavior is defined as individuals or groups who attempt to to take the opportunity to improve profitability through a government regulation (Yustika, 2008). Rent-seeking behaviors such as lobbying can distort resource allocation and this can result in an inefficient economy to occur. In this regard, a great opportunity for investors through rent-seeking is inadmissible because the implementation of the regulations and law enforcement in Mojokerto regency are weak.

The results gained from this research indicate that the factory tissue had lobbied the local village specifically, so as to be able to influence the government regulations. Misdi is one of the Watesnegoro Village Officials who have influence on society said "*Kalo THR-an aja aku tok yang nerimo parcelan itu lho mbak, lainnya tidak dapat, polae seng sering ketemu pak poloe"* (It was only me who received a gift from the factory, and others do not accept gifts because I was representing the residents to meet and negotiate with the plant tissue). In addition, the informants had stated that the local government had also received a special fee from the company concerned. Here is a statement of Eko Raharjo (pseudonym), one of the tissue factory employee, "*Fee ke pemerintah jelas ada*" (The factory also provides fee to local governments). Because of this discrepancy between informants, companies concerned and the local government, there has been a degradation in the performance of controlling of water pollution in the research site.

4.4 Role of Institutional Ecological Economics in Minimizing Waste Water

According to the institutional ecological economics theory, the environmental governance involving the establishment and enforcement of government institutions should be able to resolve environmental conflicts. However, based on the research done in Watesnegoro village, it was found that the environmental governance and regulatory enforcement of the Mojokerto Regency had not been able to internalize the negative externalities caused by the tissue factory concerned. In this regard, affected citizens had to pay more for the social costs than for the benefits received. This is because the situation that occurred in the Watesnegoro village indicated that the company concerned was unwilling to give higher compensations for the additional social costs. This means that the environmental pollution prevention regulations provided by the Mojokerto Regency government were not efficient. Moreover, such government regulations were also less effective because of the weakness incurred by the control and law enforcement team.

There are two local government regulations related to environmental pollution control: (1) Regulation of the Mojokerto Regency 24/2006 Environmental Pollution Control, and (2) Regulation of the governor of East Java 72/2013 on Waste Water Quality Standard of Industry and/or Other Business Activities. However, despite these two regulations, implementation had been weak. Head of the environmental agency explained that until now, the environmental agency has not been able to crack down on companies that violate environmental rules because the agency consider the fate of the employees of the company if its business license revoked. Environmental agency only gives guidance on companies that violate the rules. Related to Governor Regulation 72/2013 about quality standarts for industrial waste water and/or other activities, Environment Agency show that the waste water quality results reported by the factory tissue has complied the water quality standards. However, factory worker explained that all corporate data is reported to the Environment Agency of Mojokerto Regency has manipulated. Eko Raharjo (pseudonym) – one of the tissue factory employee said, "*banyu lho dimanipulasi semua yang dilaporkan. Laporan tetep ada, dalam arti kirim air kesana, atau kadang pemerintah dateng ke lokasi yo bisa diatur."* (Reports that related to the wastewater factory reported to the local government has been manipulated by the factory)

River pollution has been occurring continuously in residential areas even though the regulations had been set by the government. The primary informants had also expressed that treating wastewater before discharging these into the river requires a huge cost which the company was unable to bear, hence, it can be said that the tissue factory concerned was not optimal in treating its waste products. Based on the results of the above explanation, the following is an illustration of the implementation of the role of institutional ecological economics through government regulations on environmental pollution control.

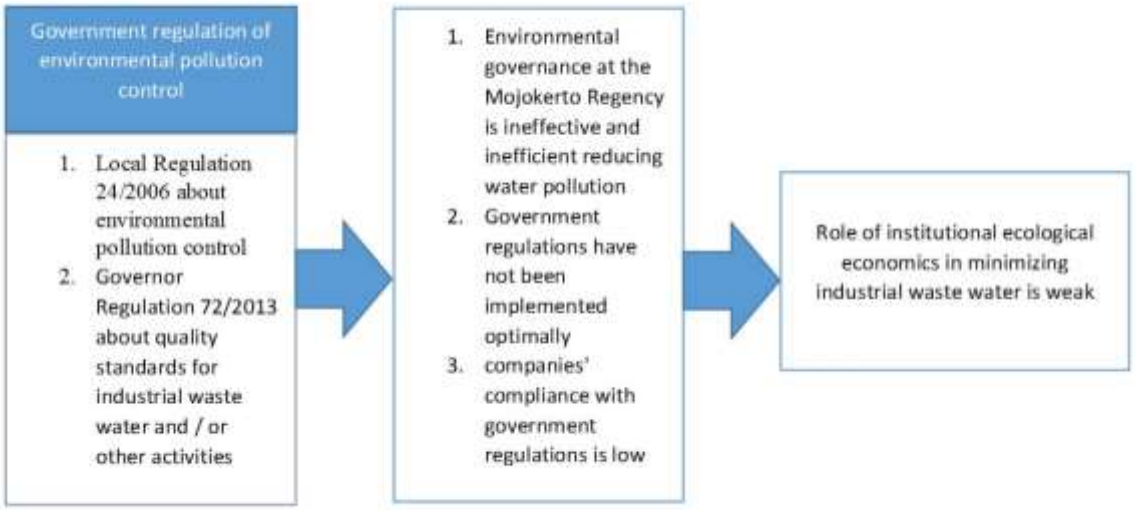

Figure 1. An Overview of the Research Results

5. Conclusion

As mentioned earlier, the existence of externalities can bring benefits to a community whilst also create havoc for the same community and this is clearly seen in the case of the Watesnegoro village. Although the citizens had benefited from the setup of industries in their location therbey leading to a better economic activity, the community is also suffering from the negative impact. In this research, it appears that the Agent (industry) was not aware of its interests which contradicts the environmental resources stated. In addition, the market solution noted to resolve the externalities is for the community concerned to internalize the social costs of each individual. This has not been easy for the local governments creating the regulations, the agents providing the economic activity and the citizens who are the end receivers of the negative impact are at loggerheads with each other due to a lack of coordination. Thus, from the results gained from this research conducted in the Watesnegoro Village, there are a number of conclusions to be drawn.

First, the environment governance of the Mojokerto Regency had not effectively reduced water pollution. Although stipulated, the government regulations have not been implemented optimally. This is attributed to the weakness in the control and law enforcement of the local government.

Second, the internalization of externalities according to the economic theory cannot be implemented because of the high transaction costs involved. In this study, it appears that transaction costs are inefficient because the company concerned had to pay high transaction costs to transfer property rights. In addition, the social costs involved also appeared to be greater than the benefit costs in the context of the Watesnegoro Village. This caused the company to be unable to provide additional compensations and so the citizens suffer while the environment becomes negatively affected. Linked to this is the certainty of property rights granted by government to the company which is unable to internalize the waste water pollution.

Third, there are rent-seeking activities in the waste water pollution policy where the corporation and government have a collusion to gain their own interest. In this regard, rent-seeking has distorted the government regulations. Moreover, rent-seeking behavior not only changes the allocation of economic resources but also causes economic inefficiency.

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