

Impact of Land Disaster to the Change of Spatial Planning and Economic Growth

Setyo ANGGRAINI, Erfan SUSANTO, San P. RUDIANTO, Indonesia

Key words : Lapindo Mud Disaster; Spatial Planning; Landright certification; Land Zonation.

SUMMARY

Sidoarjo is a district located in East Java, Indonesia. This district is in the south of Surabaya, the capital city of East Java, with area 63.438,534 ha or 634,39 km², consist of agricultural land 28.763 Ha, sugarcane plantations 8.164 Ha, aquaculture land 15.729 Ha, and the rest are settlement and industrial land. This district located on the lowland between two great river, Kali Surabaya and Kali Porong, and its impact to the structure of the soil which are Grey Alluvial 6.236,37 Ha, Assosiation of Grey and Brown Alluvial 4.970,23 Ha, Hydromart Alluvial 29.346,95 Ha, and Dark Grey Gromosol 870,70 Ha.

Lapindo mud is an event leaking gas drilling that occurs in Sidoarjo by negligence of PT. Lapindo Brantas. Impact of Lapindo mud is felt by people at three (3) Districts, there are Porong District, Jabon subdistrict, and Tanggulangin District. This proved to some areas near the Lapindo mudflow as: Houses, factories, fields, places of worship, schools and others into a sea of Lapindo mud. These facts indicate that spatial planning changes, also the economic, social life and agricultural.

The first part of this paper contains a preliminary study / literature based on books, papers, internet sources and also field study about the Sidoarjo District such as geographical location, its potential demography, and a bit about its history. In the main chapter the author will show a comparison of land-use change before and after the Lapindo mud disaster, and also impact to the spatial planning and landright certification. At the end chapter, the author describes the development issue that will be carried out to fix the damage and the urgency to increase the economic growth by the land zonation.

RINGKASAN

Sidoarjo adalah kabupaten yang terletak di Jawa Timur, Indonesia. Kabupaten ini berada di selatan Surabaya, ibukota Jawa Timur, dengan luas 63.438,534 ha atau 634,39 km², terdiri dari lahan pertanian 28,763 Ha, perkebunan tebu 8,164 Ha, budidaya tanah 15,729 Ha, dan sisanya adalah penyelesaian dan lahan industri. Kabupaten ini terletak di dataran rendah antara dua sungai besar, Kali Surabaya dan Kali Porong, dan dampaknya terhadap struktur tanah yang abu-abu aluvial 6.236,37 Ha, Assosiation of Grey dan Brown aluvial 4.970,23 Ha, Hydromart Alluvial 29,346, 95 Ha, dan Dark Grey Gromosol 870,70 Ha.

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Lumpur Lapindo merupakan peristiwa bocornya pengeboran gas yang terjadi di Sidoarjo karena kelalaian PT. Lapindo Brantas. Dampak lumpur Lapindo dirasakan oleh orang-orang di tiga (3) Kecamatan, ada Porong Kabupaten, Kecamatan Jabon, dan Tanggulangin Kabupaten. Ini terbukti beberapa daerah dekat semburan lumpur Lapindo sebagai: Rumah, pabrik, bidang, tempat ibadah, sekolah dan lain-lain menjadi lautan lumpur Lapindo. Fakta-fakta ini menunjukkan bahwa perubahan tata ruang, juga ekonomi, kehidupan sosial dan pertanian.

Bagian pertama dari tulisan ini berisi studi / literatur awal berdasarkan buku, jurnal, sumber internet dan juga studi lapangan tentang Kabupaten Sidoarjo seperti lokasi geografis, demografi potensinya, dan sedikit tentang sejarah. Dalam bab utama penulis akan menunjukkan perbandingan perubahan penggunaan lahan sebelum dan sesudah bencana lumpur Lapindo, dan juga berdampak pada perencanaan tata ruang dan sertifikasi hak atas tanah. Pada bab akhir, penulis menguraikan isu pembangunan yang akan dilakukan untuk memperbaiki kerusakan dan urgensi untuk meningkatkan pertumbuhan ekonomi dengan zonasi lahan.

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1. INTRODUCTION

Prior history tells that Sidoarjo known as the center of the Kingdom Jenggala. In the colonial period colonial Dutch East Indies , area Sidoarjo named Sidokare which is part of the district of Surabaya. In the Year 1859, based on Government Decree No. Indies 9/1859 dated January 31, 1859 in Government Gazette No. 6, Surabaya District area is divided into two parts, namely the Surabaya District and District Sidokare. In the same year by the Decree of the Government of the Netherlands East Indies No. 10/1859 dated May 28, 1859 Statute, the name was changed to Sidokare District Sidoarjo. (<http://jawatimuran.wordpress.com/2013/11/24/sejarah-pembentukan-kabupaten-sidoarjo/>).

Formation of Sidoarjo regency is one way to facilitate the supervision of the City of Surabaya. Sidoarjo known as the main buffer Surabaya and including Kertosusila Gate. Everyday language that is used by a large part of its citizens are Javanese and Indonesian. The motto of the government's Sidoarjo is Sidoarjo Permai Clean Heart is an abbreviation of Agriculture Forward, Mainstay Industry, Clean, Neat, Dressage, Green, Healthy, Beautiful and Comfortable.

This means that Sidoarjo regency is a fertile agricultural area as barns, agricultural maintain progress toward self-sufficiency by means of identification using the mechanization of agriculture and appropriate technology, in addition to encouraging the development of industry increases, then both of these should develop harmoniously. In addition, people living with the Sidoarjo district cultured environment clean, neat, harmonious, green, healthy, beautiful and comfortable. (<http://www.sidoarjokab.go.id/index.php>)

1.1 Geographical Location and Potential of Sidoarjo

Sidoarjo is a regency located in East Java, Indonesia. This regency is in the south of Surabaya, the capital city of East Java, located between 112 5 ' and 112 9 ' east longitude and between 7 3 ' and 7 5' South latitude. The northern boundary is Surabaya and Gresik, south is Pasuruan, east is the Madura Strait and the west is Mojokerto.

- Topographic** :
- Plain Delta with a height between 0 s / d 25 m, a height of 0-3 m with an area of 19 006 hectares, covering 29.99 % , a pond area which is in the eastern region
 - Region Central Section freshwater with a height of 3-10 meters above sea level is a residential area , commerce and government, covering 40.81 %.
 - Western Region with a height of 10-25 meters above sea level is an agricultural area . Covering 29.20 %.
- Hydrogeology** : Area ground water, brackish, and saltwater reached broad 16.312.69 Ha. Groundwater depth on average 0-5 m from ground level.
- Hydrology** : Sidoarjo district located between two streams, namely Kali Surabaya and Kali Porong is a branch of the Kali Brantas tipped in Malang district.

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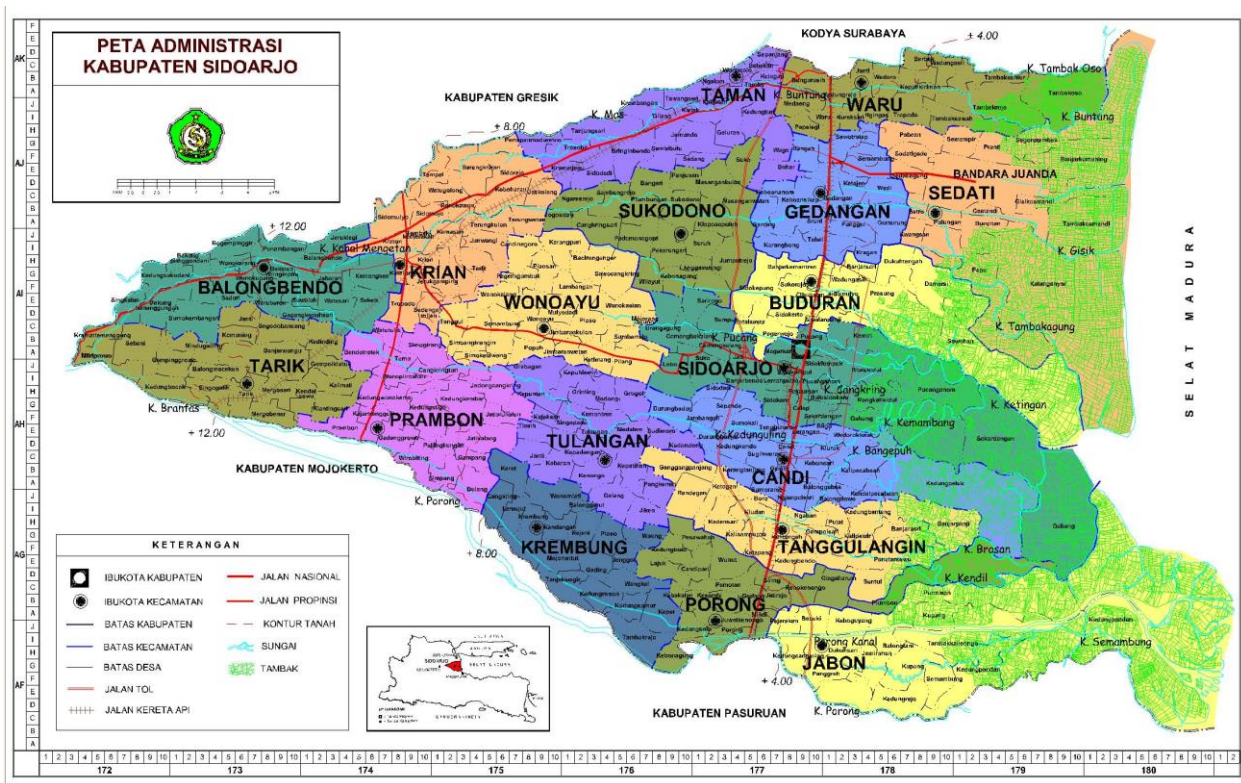
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Climatology : Tropical climate with two seasons, dry season from June to October and the rainy season from November to May.



With area land 63.438,534 ha or 634,39 km², consist of agricultural land 28.763 Ha, sugarcane plantations 8.164 Ha, aquaculture land 15.729 Ha, and the rest are settlement and industrial land. The Sidoarjo Regency was divided into eighteen districts , tabulated below:

No	Name of District	Wide area (km ²)
1	Tarik	61,032
2	Prambon	68,576
3	Krembung	58,336
4	Porong	64,390
5	Jabon	49,567
6	Tanggulangin	83,304
7	Candi	145,155
8	Tulangan	84,582
9	Wonoayu	71,822
10	Sukodono	110,596
11	Sidoarjo	193,469
12	Buduran	91,931
13	Sedati	92,786

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14	Waru	231,309
15	Gedangan	132,971
16	Taman	213,224
17	Krian	131,281
18	Balang Bendo	66,841

(<http://www.sidoarjokab.go.id/index.php>)

Sidoarjo Regency located on the lowland between two great river, Kali Surabaya and Kali Porong, and its impact to the structure of the soil which are Grey Alluvial 6.236,37 Ha, Association of Grey and Brown Alluvial 4.970,23 Ha, Hydromart Alluvial 29.346,95 Ha, and Dark Grey Gromosol 870,70 Ha. (<http://pariwisata.sidoarjokab.go.id/profil.php>)

Alluvial soils are soils formed from river silt that settles in low-lying fertile soil properties and suitable for paddy fields, cultivation, coconut groves, crops and to regional fisheries.

1.2 Lapindo Brantas Inc.

Lapindo Brantas Inc., first established in 1996 after the process of its stake was taken over from a company based in the United States, Huffington Corporation, which at that time had signed an agreement Production Sharing Contract (PSC) with the Brantas block in East Java for a period of 30 years, From 1991 to 1996, LBI conduct seismic surveys and exploration drilling activities are focused on the development of gas field Wunut, which then began production on January 25, 1999. LBI is the first private company in Indonesia which produce gas in the Field Wunut, then joined PT Energi Mega Persada (EMP) in 2004 before it was taken over by Minarak Labuan Co. Ltd. (MLC).

Year 1998, LBI drilling and development wells and build gas production station at the location Wunut - 1, in the village of Kedungboto, Porong , Sidoarjo.

Year 1999, LBI do first gas production on January 25, 1999 by 4 MMSCFD.

Year 2004, Drilling wells Tanggulangin - 3 managed to find crude oil. Gas purchase agreement during the period of 2004-2005 in the amount of 80 MMSCFD.

Year 2005, Lapindo conducting offshore exploration wells Bisma - 1, and managed to find a biogenic gas. Recent studies indicate that the structure there is a lot of diversity Bisma gas reservoir quality, which also indicates a target very interesting delineation wells in the field Bisma - 1.

Year 2008 – 2009, With the discovery of gas in the field Tanggulangin, LBI and PT. Kriya Indogas Dwiguna signed Gas Sales Agreement for Tanggulangin Field on April 14, 2008 with total commitments amounting to 4 BCF of gas volume. This contract expired on July 13, 2013.

2D seismic survey activities in the Madura Strait along the 1,879 km that covers the area of Situbondo, Probolinggo and Pasuruan do Lapindo in September 2008. From this survey acquired seismic data which confirm the content of the prospects coming from the Miocene era, but it was also found that the gas content has gone through the process of mapping good. With the addition of new seismic data, the prospects for oil and gas in these areas so that the overall high potential can increase economic value Brantas Block. In 2008 PGN and LBI back to extend a gas sales contract with a volume of 6.1 MMSCFD and 3.5 MMSCFD in 2009. Workover activities were carried out in

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2009 managed to increase gas production to 13 million cubic feet per day, compared with the initial production about 7 million cubic feet per day. (<http://lapindo-brantas.co.id/id/about/history/>)

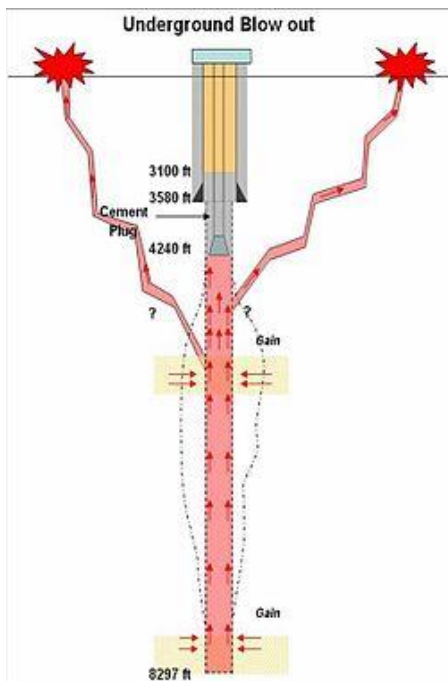
2. LAPINDO'S HOT MUD DISASTER AND THE CHANGE OF SPATIAL PLANNING

This section describes the beginning of the Lapindo hot mudflow, and the change of spatial planning is the impact of the disaster.

For the record Lapindo Brantas Inc. drilling and development wells and build gas production station at the location Wunut-1, in the village of Kedungboto, Porong, Sidoarjo.

On May 29, 2006, exactly on Monday, mud 70C temperature by bringing gases and strong odors, gushes in siring Village, Porong, Sidoarjo regency, East Java. Blowholes point which is about 100 meters from the Banjar Panji-1 owned by PT Lapindo Brantas Inc. According Syahdun, mechanical PT Jaya Mas Season Three, as the drilling contractor said, blowouts caused by the outbreak of the formation of the well drilling depth of 9,000 feet or 2,743 meters from the bowels of the earth. When the drill will be in the lift to replace the circuit, suddenly jammed drill and the gas can not get out through the channel fire pit and gas pressed to the side (look for cracks to the surface). Lapindo had been negligent installing casing, and failing to shut down the wellbore in the event of loss and kick, so that eventually the mud gushed.

Here are examples of bursts of images that happens under the ground around the well BPJ-1.



The gas leak in the form of bursts of white smoke from the ground cracks, soaring about 10 meters. Bursts of gas is accompanied by a discharge of mud and spilling into residents' land and mudflow which eventually form a mud puddle heat.

<https://sekarayuaulia.wordpress.com/2013/09/01/makalah-dampak-lumpur-lapindo-pada-masyarakat-dan-lingkungan/>

<http://catatan->

[risma.blogspot.com/2013/09/penyebab-dan-dampak-lumpur-lapindo-di_5903.html](http://catatan-risma.blogspot.com/2013/09/penyebab-dan-dampak-lumpur-lapindo-di-5903.html)

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The following aerial photos Sidoarjo district before and after the Lapindo hot mudflow disaster :



Before the overflow Lumpur Lapindo, ecosystems and excellent infrastruktur in Sidoarjo, where economic activity is running smoothly. Sidoarjo community environment around arranged in accordance with the provisions of Law No. 23, 1997 on the Environment. Welfare is excellent although the economy is running very slow, but the food self-sufficiency, especially in the field of agribusiness in the area around Sidoarjo Surabaya running smoothly.

Mud overflow impact has devastated livelihoods of local residents and the surrounding areas is not less than 10 mills should be closed, 90 hectares of rice fields and settlements can not be used and occupied again, as well as milkfish ponds and until now has not can also be resolved. Sludge inundated 16 villages in three districts. Originally only inundated four villages with a height of about 6 meters, which makes evacuating local residents to be evacuated and destruction of agricultural areas. Until the month of August 2006, mudflow has inundated several villages / villages in Porong, Jabon, and Tanggulangin, with a total of residents who were evacuated by more than 8,200 lives and 25,000 people displaced. Because of not less 10 426 houses submerged in mud and 77 houses of worship mud.

Land and livestock were recorded affected by the mud until August 2006 include: sugarcane land area of 25.61 ha in Renokenongo, Jatirejo and Kedungcangkring; rice land area of 172.39 ha in Siring, Renokenongo, Jatirejo, Kedungbendo, Sentul, Besuki and Pejarakan Jabon Jabon; and 1,605 birds , 30 goats, two cows and seven tail deer.

Houses / dwellings damaged by mud and damaged as many as 1,683 units. The details : The place to stay 1,810 units (siring 142 units, Jatirejo 480 units, Renokenongo 428 units, Kedungbendo 590 units, Besuki 170 units), 18 schools (7 public schools), office 2 (Koramil Office and Village Jatirejo), 15 factories, mosques and musola 15 units. Environmental damage to the area inundated, including paddy fields.

<http://herman-mamank.blogspot.com/2013/10/makalah-dampak-pencemaran-lumpur-lapindo.html>

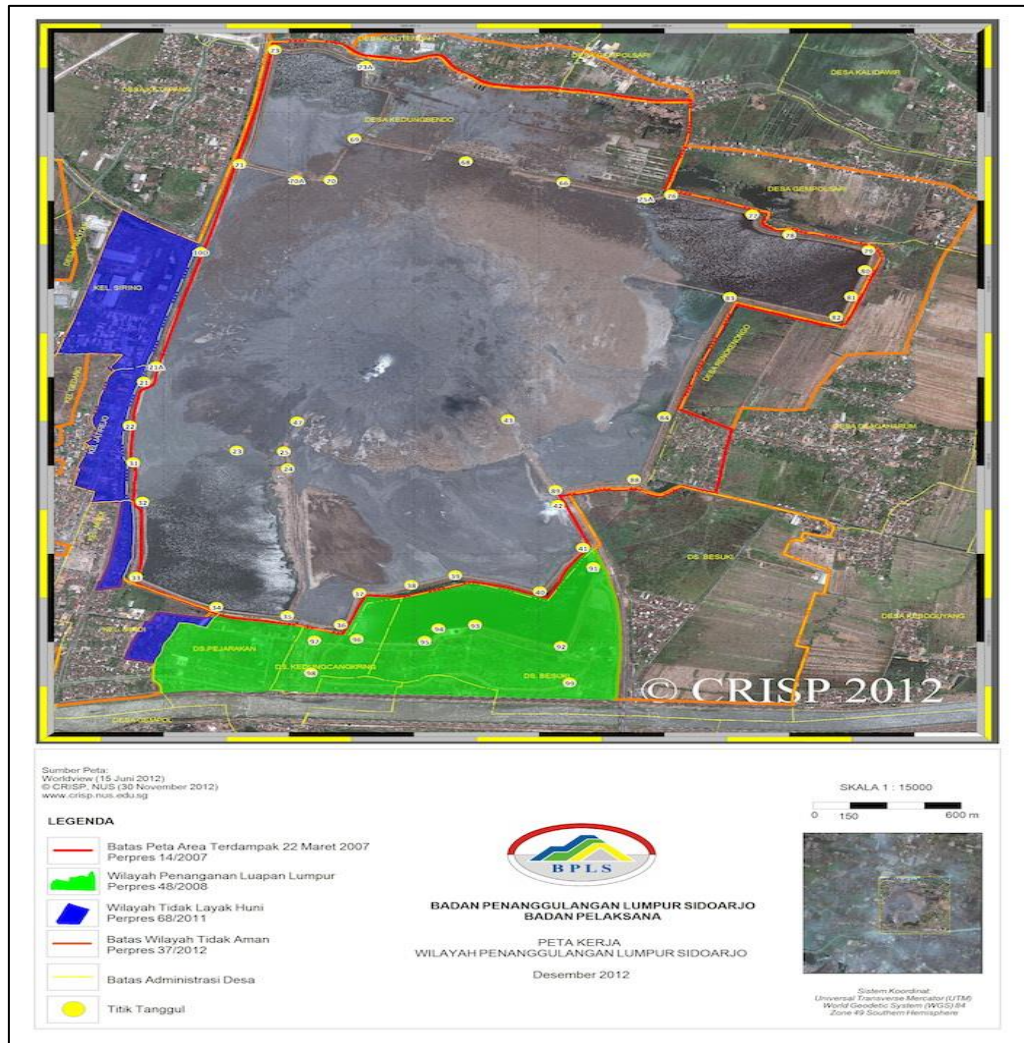
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3. NEXT CHALANGES TO FIX THE DEMAGE

3.1. Impact of Disaster Mud

Lapindo mudflow tragedy occurred on 27 May 2006. This event becomes a tragedy when a mud volcano began to inundate rice fields, residential and industrial areas. This is reasonable considering the volume of sludge is estimated at about 5,000 to 50,000 cubic meters per day (the equivalent of 690 lorry loads full sized container). As a result, the mudflow is brought tremendous impact to the surrounding community as well as for economic activity in East Java: a pool of up to as high as 6 meters in the settlement; total residents who were evacuated more than 8,200 inhabitants; houses / dwellings damaged as many as 1,683 units; agriculture and plantation areas damaged by more than 200 ha; More than 15 factories were inundated halt production and lay off more than 1,873 people; non-functioning of educational facilities; environmental damage inundated areas; destruction of infrastructure facilities; inhibition of toll roads Malang-Surabaya also to activity resulting in the production of Ngoro (Mojokerto) and Pasuruan which during this is one of the main industrial area in East Java.

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As a result of the overflowing Lapindo mudflow great, have an impact on the casualties and inundated 850 hectares of land, 16,300 more housing units, 33 units of school, four government offices, 29 factories, 11 home industry, 11 mosques, 57 small mosque, 3 cottage pesantren, 1 homes and 28 TPQ. Lapindo mud also makes 21 674 heads of family with 36,846 inhabitants became refugees and damage the existing infrastructure such as power lines, telephone, and irrigation. Victims of Lapindo mudflow set by the President to the affected area map (PAT) since March 22, 2007 is now largely waiting commitments remaining payment of 80 percent. They number approximately 14,000 thousand households. 14. But among the 000 heads of families there who have not received a down payment of 20 percent. With the details of as many as 113 heads of families from the village of Renokenongo (minus refugees in Pasar Baru Porong) has not received a down payment of 20 percent, there are 190 owners of existing assets in Kedung Bendo village also has not received a down payment of 20 percent.

In some places like Perumtas there are 45 heads of families have not received a down payment of 20 percent. And dozens of others from the village of siring, Gempolsari, Ketapang, also has not received a down payment of 20 percent. For those who menutut advance payment of 20 percent have not had an adequate system of people's organizations. So that the pattern of management is to use lines brokers. While that has gained 20 percent down payment organize themselves into Lapindo Mud Victims Association (GKLL). However in May 2008 the Principals GKLL make a memorandum of understanding yourself by PT Lapindo Jaya Minarak. Understanding it is to change the scheme of payments to 80 percent of cash (cash) into the form of cash and resettlement. This is done by officials GKLL with background, Minarak PT Lapindo Jaya stated that the land residents who are not certified in the deed of sale can not be traded. The reason, contrary to the Basic Agrarian Law and Government Regulation on the registration and land records. As a result, some members broke away to form Geppres GKLL (Movement Supporters of Presidential Decree No. 14 of 2007). Residents who are members of Geppres demanding advance payments of 80 percent in cash, and rejected the cash and resettlement schemes.

At least there are three aspects that caused the mudflow tersebut. Firstly, is the technical aspect. At the beginning of the tragedy, Lapindo hiding behind tectonic Yogyakarta earthquake that occurred on the same day. This supported the idea that the trigger mudflow (liquefaction) is an earthquake (cyclic sudden shock) Yogya sediments resulting in damage, but this was denied by the experts of the earthquake in Yogyakarta. It was recognized that the blast caused the outbreak Lapindo gas well drilling formations. Secondly, the economic aspect. Lapindo Brantas Inc. is one of the Contractor of Cooperation Contract (PSC) appointed BP-Oil and Gas to carry out the process of drilling for oil and gas. Currently Lapindo has a 50% participating interest in the Brantas Block, East Java. In the case of this hot mudflow, Lapindo allegedly "accidentally save" operational costs by not installing casing. If viewed from an economic perspective, the decision casing mounting impact on the costs incurred by Lapindo. Medco, as one of the shareholders of the Brantas Block region, in a letter numbered MGT-088 / JKT / 06, has warned Lapindo to install casing (casing drilling) in accordance with the standards of the oil and gas drilling operations. However, somehow Lapindo deliberately not put the casing, so that in the event of underground blow-out, the mud that is in the earth gushed out of control. Thirdly, the political aspect. As the legality of the business (exploration or exploitation), Lapindo has pocketed business license production sharing contracts (production sharing contract) from the Government as the authority of the ruler of sovereignty over natural resources. This is the most important point in this case hot mud. The Indonesian government has

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long embraced the neoliberal economic system in a variety of policies. As a result, the full potential of oil and gas mining and natural resources (SDA) "sold" to private / individual (corporate based). Orientation profit making corporation that became the paradigm of corporate management will not pay attention to other matters concerning the environment, improving the living standard of the people, even to the ecosystem catastrophe.

3.2. Restoring economic and social conditions.

Responding to the problems and the negative opinion of the Lapindo victims, the government finally issued a decree establishing a National Team in Sidoarjo Mud Mitigation in November 2006. In the policy, the government ordered Lapindo owner to finance the work team completed the mudflow. However, in April 2007, the government made a new decree. President of forming a new entity called the Sidoarjo Mud Mitigation Agency (BPLS). The President also issued Presidential Regulation No.14 of 2007 which force Lapindo to pay compensation to the villagers in the disaster zone. In June 2008 the government issued Presidential Decree 48 of 2008, which includes three additional villages in the affected zone. But this time indemnity compensation paid by the state budget.

According to Article 33 of Law No. 22 of 2001 on Oil and Gas business activities of oil and gas can not be carried out in the area near the houses, public buildings and areas near the plant . Meanwhile, the location of the Banjar Panji 1 located 600 meters from the residence. But the local government actually passed permission Environmental Management Effort (UKL) and Environmental Monitoring Effort (UPL) the following other license derivatives against these business activities. Supposedly in the UKL/UPL, already estimated how the geographical conditions of the region and design (drilling) what is supposed to be designed to confront the situation. In fact, the government and Lapindo just turn a blind eye to these conditions. As if it was due to natural disasters and Lapindo escape from responsibility.

In handling the social impact, the government, among other things, asked to complete an advance payment of cash and carry 20 per cent of the victims in four villages (siring, Jatirejo, Kedungbendo, and Renokenongo) are included in the map of the impact of mud December 4, 2006. After the finish payments to all citizens who enter the affected mud map March 22, 2007 (citizens Perum TAS I, Desa Gempolsari, Kalitengah, partly Kedungbendo). In regulation is set out in article 15 that for the payment of compensation outside the map of affected paid with money the State Budget.

With the problems as described above, then it should be the government and the parties of the Lapindo mud provide maximum handling in accordance with the existing policy against people who are victims of Lapindo mud. Because of the problems Lapindo mud broad impact in the community, both in terms of economic, social, environmental, and health impacts. Implementation of government policies in combating Lapindo Sidoarjo mud, in this case performed by BPLS is divided into three parts, namely the Field Operations, Social Affairs and Infrastructure. Relating to the payment of compensation, repayment of PT Lapindo mudflow victims purchase the unfinished because of financial condition Bakrie is not sufficient. In handling the Lapindo mud, policy implementation could lead to gains and losses. According to researchers, in financial terms lapindo only deal financing in the affected area map (PAT), here lapindo parties benefit from the policy because of problems outside the affected area map (PAT) is charged to the budget. Meanwhile, the

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injured party is victim of the Lapindo mud because the price of land compensation given is not in accordance with the conditions of the building now.

Lapindo mud policy in terms of policy content calls for changes to the victims of the events of the mudflow. Both in terms of social, infrastructure, and environment that can provide benefits and degree of change for the better again in the future after the occurrence of bursts. Interests are affected by the policy concerning the extent to which the interests of the target groups or disaster victims is contained in the policy content. Interest for the community affected by Lapindo Sidoarjo mud which importance as the fulfillment of the need for certainty of compensation and land assets of their buildings. The degree of change of the policy is to overcome the problems faced by victims, both protection and social recovery. Because it is a body set up to handle the Lapindo mud, then BPLS able to consistently implement without involving many agencies, so there is no overlap. Who implemented here of course is BPLS program which is supported by the presence of adequate resources from internal BPLS. While the Lapindo mud policy context in terms of implementation, Lapindo mud policy determined by the parties who are directly appointed as implementor, namely BPLS. Policy is a strategy in response to the Lapindo mud, strategy or way of implementation to get output that post- disaster recovery of victims. BPLS characteristics consists of the Steering Board and the Executive Agency, which each have different roles and functions, supported by competent human resources and comprehensive. BPLS in the level of compliance and responsiveness, according to researchers BPLS had done its work well, it can be seen from the realization BPLS effort in handling and settle the payment of compensation to the victim. So that the process of implementation of this policy can be said to be successful and have the support of the community. Judging from the content of policy implementation, policy related to the Lapindo mud calls for changes to the residents who are directly become victims of their events. Both in terms of social, infrastructure, and environment that can provide benefits and degree of change for the better again in the future after the occurrence of bursts . Interests are affected by the policy concerning the extent to which the interests of the target groups or disaster victims is contained in the policy content. In this case the government makes BPLS institution that specifically handles Lapindo mud.

Where then was born the president's policies in the form of regulations with the aim of addressing those who are victims. Because the public (citizens) victims who were targeted, then the implementation BPLS doing what the authorities listed in the policy, ranging from compensation, sale and purchase of assets or land and buildings. So that people affected by Lapindo mud immediately resolved properly as it should be. Interest for the community affected by Lapindo Sidoarjo mud which importance as the fulfillment of the need for certainty of compensation and land assets of their buildings. The type of benefits that will be generated concerning what kinds of benefits received by the public that prevention efforts mudflow mudflow handling, handling social problems and infrastructure as a result of mudflow in Sidoarjo. Provide social assistance for people affected by Lapindo Sidoarjo mudflow in this case in order to mitigate the social impact of the emergency, both of which occur due to the impact of bursts and decrease in soil, as well as implementing a precaution as a form of preparedness in case of disaster. So this policy is able to provide collective benefits to the many people who become victims as a target group policy. Changes in the desired degree of this policy is to run the existing procedures and regulations consistently. Protection and social recovery, as well as facilitation and mediation on social problems faced by affected communities, as well as rescue the population, the handling of social problems

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and infrastructure surrounding the disasters caused by the mudflow in Sidoarjo needs to be improved in handling the matter in order to recover back the lives of citizens victims of the Sidoarjo mud volcano. Then the position of policy makers, whether the location of a program / policy is appropriate, in this case BPLS as an institution that deliberately set up to deal specifically due to the emergence of Lapindo mudflow. Because it is the only institution, then BPLS able to consistently implement without involving many agencies, so there is no overlap. Who implemented here of course is BPLS program which is supported by the presence of adequate resources from internal BPLS. Viewed in terms of the context of policy implementation, policy Lapindo mud is determined by the parties who are directly appointed as implementornya, namely BPLS. First in the context of the policy is power, interests and strategies that are owned by the actors involved in policy implementation. Here the policy is a strategy in response to the Lapindo mud, strategy or way of implementation to get the output that the victims of post-disaster recovery. Power is defined by having full authority, the need to resolve compensation then how strategies contained in the presidential decree. Secondly in the context of the policy that is characteristic of institutions and authorities. BPLS characteristics consists of the Steering Board and the Executive Agency, which each have different roles and functions. Policy is the result of a political product that should be implemented. In the process of implementation, then appeared the conflict who gets what. The conflict will show the ruling force, in this case BPLS. Because it is a completion strategy of a problem, the policy must be supported by competent human resources and komprehensif as implementornya. Thus in the realization BPLS capable of handling the Lapindo victims. Steering Committee tasked with providing direction, guidance and supervision over the implementation of prevention efforts mudflow mudflow handling, handling social problems and infrastructure as a result of mudflow in Sidoarjo. Implementing Agency in charge of the response to the mudflow, handle mudflow, addressing social and infrastructure problems due to mudflow in Sidoarjo, taking into account environmental impacts and risks are the smallest. While the latter in the context of a policy that levels of compliance and responsiveness. In an effort BPLS implementation of these policies certainly faced with two things namely the environment (community response) and administration of or compliance implementor. Here the BPLS required to have sensitivity to the target group so that in the implementation process successfully and get support.

3.3. Encourage Economic Growth

According to the economic growth, the overall Indonesian economy describe the encouraging performance during the period 2000-2008 , with the achievement of economic growth is relatively improved. In fact, since 2004 , Indonesia's economy showed significant growth of around 5.05 per cent , and in 2005 the economic growth of Indonesia recorded higher levels again , which is about 5.69 percent . Two years later , in 2006 and 2007 , economic growth reached respectively 5.51 percent and 6.28 percent . And in 2008, Indonesia's economy grew about 6.1 percent , despite being in a range of pressures from external factors such as high oil prices and other world prices for some commodities and slowing global economic growth.

Seeing the growth of Indonesian economy continues to improve , it can be said that in the period 2000 - 2008 Indonesian economic activity went pretty smoothly . Especially when looking at other macro- economic indicators such as inflation , exports and imports , interest rates , and the rupiah. Fourth macroeconomic indicators until the end of the second quarter of 2008 shows that Indonesia's

economy has been in a relatively stable situation , and even tends to strengthen . (Anonymous , 2010)

At Regional Level II Sidoarjo East Java Province , until in 2007 it can be seen that there are three sectors of the economy that is dominant contribution to economic growth in the district, viewed by the numbers distribution percentage of Gross Domestic Product (GDP) at current prices (per cent) note that the manufacturing sector as most major economic sectors in the economy Sidoarjo regency contribution that is equal to 53.30 % , while the second sector is trade amounted to 24.47 % and the third sector , namely transport and communications sector amounted to 8.72% which, besides the three sectors there are some sectors which indeed can be a driving force of economic growth in real terms in Sidoarjo . (CBS, 2007: 157)

As one of the districts in East Java province , where Sidoarjo located near Surabaya, in real terms can be used as one of the pillars of development and the development of the municipality of Surabaya in the implementation of development , but it relates to the distribution of development and improvement in the growth of economy, the Regional level II Sidoarjo regency is an area of considerable potential to be developed , it is supported by the existence of potential areas that support economic development performance . (Anonymous ; 2006)

3.3.1. New Infrastructure Development

The government has relocated residential community on a large scale, but escaped public observation is related to land acquisition for infrastructure relocation. Relocation of infrastructure requires the acquisition of new land for development, and thus marks another phase of forced displacement as a result of the Lapindo mudflow. To relocate the infrastructure (highways and motorways), in July 2007 determined the extent of land required. Determination was poured in East Java Governor Decree No. 188/260/KPTS/013/2007. According to initial plans, the new infrastructure will traverse the region in 15 (fifteen) village which includes 11 (eleven) villages in Sidoarjo and 4 (four) villages in Pasuruan. The land area needed to reach 132.16 ha. However, after calculating the real and some agreements with other agencies, in April 2010 it was agreed that the land needed 'just' 123.77 ha.

Need for land for relocation of the infrastructure (in ha , per nov 2011)				
Location	Land Status	Needs of land	have not agreed	Agreed
Sidoarjo	Land residents	82,03	1,73	80,30
	Ground the village treasury	13,72		13,72
	Land of Fasum	6,43		6,43
Pasuruan	Land residents	18,88	5,93	12,94
	Ground the village treasury	1,96		1,96
	Land of Fasum	0,76		0,76
Total	Land residents	100,90	7,66	93,24

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Need for land for relocation of the infrastructure (in ha , per nov 2011)				
Location	Land Status	Needs of land	have not agreed	Agreed
	Ground the village treasury	15,68		15,68
	Land of Fasum	7,19		7,19
	Total	123,77	7,66	116,11
Source : BP BPLS implementation report (December 2011), pages 60-62				

The reduction was passed Kludan village in Sidoarjo from the land acquisition project . However, some residents in fourteen (14) other villagers had to give up their land and buildings to be replaced with roads and highways (see Map Relocation Infrastructure). Ten villages/villages in Sidoarjo which affected infrastructure relocation is the village of Kali Sampurno, the village of Kali Central, and Ketapang village in District Tanggulangin, Village Wunut, Village Pamotan, Village Kesambi, Village juwet Kenongo, Village Porong, and Kebon Agung in Porong district, sub-district and village Kedungcangkring in Jabon. And four villages in Pasuruan is the village of Carat, Gempol Village, Village Kejapanan and Legok village in District Gempol.

As with any other macro infrastructure development projects, some issues related to the process had recorded the clearing of land and the construction of infrastructure relocation made the BPLS. The most striking is the high value of the compensation requested some residents compared to those offered by the government. Some residents asked for similar compensation 'Lapindo price', which is valid for land and buildings in the Forum 22 March 2007. Some of the other residents, demanding a higher value because their assets situated in the main street. Some of the land ownership status held by many people that led to the internal disputes that complicates the process of awarding compensation. Various issues related to land acquisition impact on the development of road (motorway or arterial) partially. The new infrastructure is built falters in 4 (four) package , and recently became a single unit that can be fully operational in March 2012.

Accelerated development of new infrastructure, replacing old infrastructure that Lapindo mud, based on more by economic motives, which returns the pulse of transport from/to the Port of Tanjung Perak to/from the major industrial areas in East Java, South and East. And in the name of 'public interest' that once again the people have to be sacrificed by means of forced displacement. State, again, was present as the main actor who legitimize a process that would not have happened if only the state never gave permission Lapindo to conduct oil and gas drilling in the area of dense habitation.



3.3.2. Landright certification

Government's role in this case the Ministry of Agrarian and Spatial Planning / National Land Agency in accordance with its function in the task of overcoming the impact of the Sidoarjo mud namely the acceleration of land certification. Mitigation parcels affected by the hot mud is also a challenge in which not all affected land parcels held by the community has certified or mapped in cadastral. Utilization of satellite images before the disaster mud is helpful in mitigating the affected plot of the hot mud. It is associated with the ownership of the data collection either affected land parcels, to ensure that communities are entitled to receive compensation payments made by the government and Lapindo Brantas Inc. On the other hand people can utilize the land certificate to improve access to the banking sector in the improvement effort.

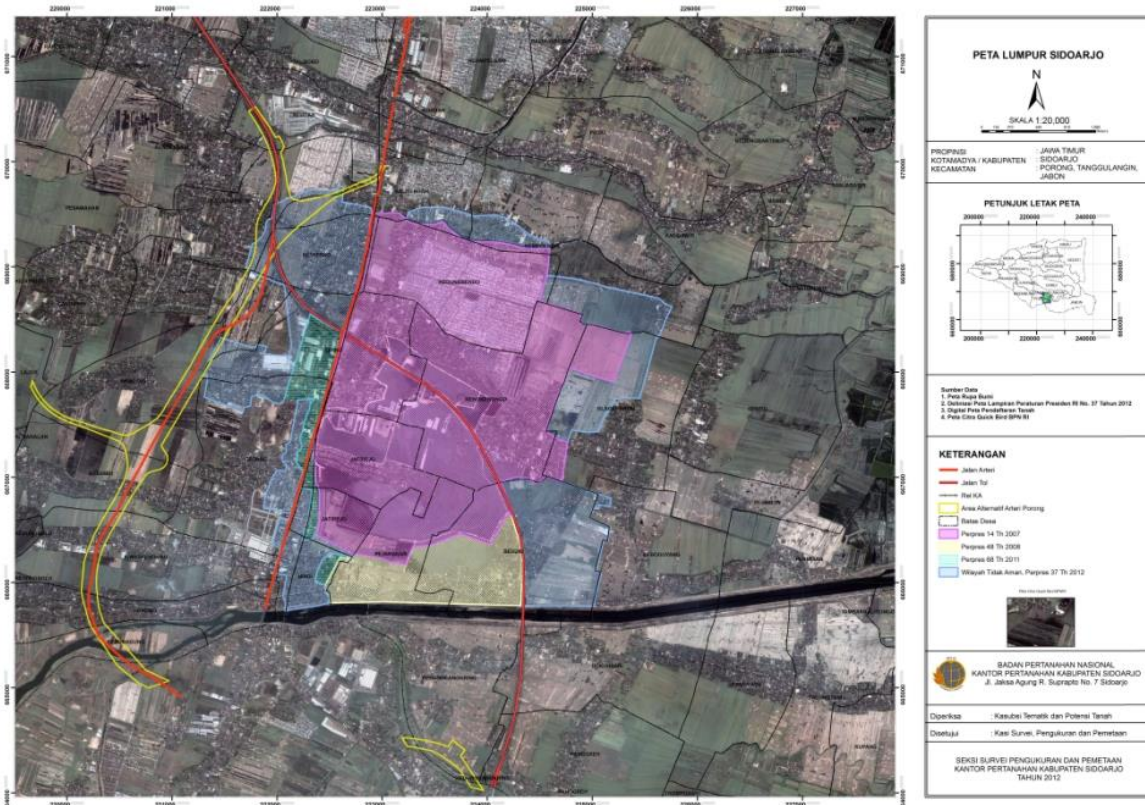
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3.4. Utilization Sidoarjo' Mud

3.4.1 . Geotourism Lusi Island

Lusi island formed from a sedimentary deposit Sidoarjo mud that flowed through the spatula to the Porong River which empties into the Madura Strait and is formed in the lower part or the estuary times. Lusi island formation derived from sedimentation between 2002 and 2011 as follows :



The third part of the Porong river estuary in Madura Strait, along the coastline of the central part has the most attractive conditions. Where there is land that was originally small in 2002 then undergoes significant changes with increasing the land area in 2011. In 2002, the land has an area of 31.9 km² and \pm 791.5 m² circumference. Then in 2011 the changes reflect the addition of the land

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area of $\pm 702.2 \text{ km}^2$ and the length of the circumference of 4.7 km^2 . This means that during the period of 9 years of sedimentation in the mainland amounted to $\pm 702.2 \text{ km}^2$ and in 2011 the land has an area of $\pm 734.1 \text{ km}^2$ and a circumference $\pm 5.5 \text{ km}^2$. As described previously, since the advent of Lapindo mud and sludge removal through Porong cause sedimentation processes in Porong River Delta increased compared to the prior existence of mud. Thus it can be said that during the period of 9 years of sedimentation along the coastline in the Porong River Delta of $\pm 1.260 \text{ km}^2$. And the existence of Lapindo mud into the factors that affect the sedimentation process in that location that causes the formation regions accretion there. (Yudha Arie Wibowo, 2011)

Today the island is managed by the Sidoarjo Mud Mitigation Agency (BPLS). By BPLS already been reorganized environment by planting mangrove and fish cultivation are quite successful. On the island found also a very important ground water because the water is potable. Structuring a good environment can have a positive impact, such as barriers to erosion plants, aquaculture and mud islands can be developed as a Geotourism. Ministry of Maritime Affairs and Fisheries through the program by involving the local community to develop a system wanamina namely the preservation of mangrove vegetation and fish farming island Lusi.



3.4.2 . Mud Raw Materials Industry

Form of empowerment to do to help people take advantage of the Lapindo mud, among other things :

- a. Lapindo mud minerals can be used to manufacture ceramic body with combustion temperatures between $800\text{-}900^{\circ}\text{C}$ and for the manufacture of decorative ceramics with combustion temperature of 1400°C and brick making, brick and tiles;
- b. Lapindo mud minerals can be developed to serve as non-conventional energy resources, namely in the manufacture of batteries such as batteries created by Aji Christian Bani Adam, Oki Prisnawan, Yoga Pratama and Umarudin. These batteries have become the second winner of the competition Youth Technopreneurship 2012. These batteries take advantage of pasta they have generated from Lapindo mud. These batteries will survive for the paste to dry and then the battery will die. These batteries can burn for five hours non-stop.

Experiments have been done to take advantage of the Lapindo mud bricks to be used in the village Mojotamping, sub Ward, Mojokerto. From these first trials produced bricks that are smooth, shiny and strong, unlike other bricks. The mud was nice to materials of brick, because according to Impact of Land Disaster To The Change Of Spatial Planning And Economic Growth (Case Study: Sidoarjo, East Java, Indonesia) (8115)

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laboratory results, no unhealthy ingredients in it. Mud used material for bricks is a kind of mud volcano that comes from the earth. Not only for bricks, Lapindo mud is also powerful enough to be made precarious.

In the pilot, brought the sludge tank to the citizens of brick makers in the village Mojotamping, sub Ward, Mojokerto. The mud of the tank can be used to print 1.500 bricks. This amount is enough to make one house with a medium size.



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Setyo ANGGRAINI completed her Bachelor Degree in Institute Bandung of Technology, Indonesia, majoring Geodesy and Geomatic Engineering, in 2003. five years after, she had an opportunity to continue her Master Degree in University of Indonesia, Jakarta, majoring Master Planning and Public Policy. In January, 2011, after completed her master degree, she was back to her institution, Land National Agency, currently change to Ministry of Agrarian and Spatial Planning/Land National Agency to be young auditor.

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