

**PROSPECT OF SUKUK IN FINANCING DISASTER MITIGATION
DEVELOPMENT PROGRAM: AN INITIAL CONCEPTS OF
INFRASTRUCTURE APPROACH IN PROVIDING SOLUTION
TOWARD SHRIMP FARMER AFFECTED
BY PORONG MUD VOLCANO**

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A major environmental and social disaster has begun on May 29, 2006. A hot hazardous mud and gases has erupted in Porong Sidoarjo in East Java. The disaster not only destroyed infrastructures and buried approximately 600 hectares of land and housing but also the industries within vicinity. The Indonesian Supreme Audit Board (2007) (*BPK-Badan Pemeriksa Keuangan*) calculated the losses of local infrastructure and buried areas at around Rp 32.895.970 million. Appropriate and adequate relief are needs to be conducted. So far, government just concentrated in mitigating the physical effort such as embanked the mud or relocate the public infrastructures. What it's more when the government rebuild the new public infrastructure occur, another problem such as the land owner that their land is proposed as the location of the new infrastructure rejected. The rejection is due to the inappropriate compensation that is offered. Another problem is that the socio economic problems such as disturbed small medium enterprises because of the mud, or the occurring huge number of new unemployment or annoying education process for school age victims.

One reason why such kind of comprehensive programs are not conducted yet, this is because government have limitation budget for financing all the programs. This Writing tries to provide an alternative financing in the mitigation process. First of all, a background to the disaster describes in early section. This section details the events of the disaster and explores the related issues regarding the occurring of the mud disaster in Porong. This section consists of two sub sections: the first sub section describe Sidoarjo condition at a glance. The second sub section describes the origins of the disaster.

Secondly, identification of problems is portrait in the second section. This section details the problems that occurs prior and post the disaster, including the indirect effect of the disaster. This section consists of three sub section; the first sub section describes the socio economic impact of the disaster. The

second sub section describes the physical effects of the disaster and the last sub section portrait the effect of the mud to the fisheries sector in Sidoarjo.

Thirdly, the solution offered in financing the budget constraint faced describes in last section. An alternative Islamic finance schemes are offered. This section divided in to two sub section, each sub section use difference case study in applying Islamic finance schema in mitigation programs.

Lastly is the conclusion, a discussion on the lessons that can be learned from the Islamic Finance and disaster recovery.

A. BACKGROUND TO THE DISASTER

A.1 Sidoarjo at a glance

Based on 2001 census data, Sidoarjo's population was 1,293,111 and had grown to 1,978 million by September 2011 (Abidin, 2011). Sidoarjo's population was 1,293,111 and had grown to 1,978 million by September 2011 much of it originating from taxes. The district is the second richest in East Java Province after Surabaya. In the decade before the mud volcano in Porong first erupted in 2006, Sidoarjo experienced an annual economic growth rate of roughly 5.17 % (The Sidoarjo Statistics Board, 2006). Growth was supported by industrial activities concentrated in three sub districts: Waru, Sidoarjo³⁹¹ and Porong. Porong is located approximately 40 kilometres south of Surabaya. Porong's economic activities were supported by 19 villages, comprising a total of 17, 954 households. In 2006, land use in Porong was distributed as follows: housing: 845.37 hectares, industry: 24.63 hectares, mining: 5.09 hectares, agriculture: 1,287.24 hectares (The Sidoarjo Statistics Board, 2006). However, after the mud volcano commenced, the Sidoarjo economic growth declined significantly and reached a crisis point in 2008 that reached 4.83% before a year later rising again up to 5.17%. In 2011, Sidoarjo was experiencing 5.62 % of economic growth (DPRD Sidoarjo Secretariat, 2011).

Sidoarjo geographic position made this district has significant roles of play in economic, not only just because neighbouring with three most prosperous district in East Java³⁹², but also because the two most dense public transports hubs are located in Sidoarjo, the Purabaya buses port and the Juanda Airport. Besides that, many core infrastructures that very important toward the goods and services distribution for east java, the toll road, the railways, electrics power transmissions and also the gas pipeline that supplies the fertilizer factory in Gresik also through Sidoarjo. (BPK, 2007; McMichael, 2009).

³⁹¹ Sidoarjo district consists of 18 subdistricts with Sidoarjo being one of those subdistricts

³⁹² The three most prosperous district in East Java are Surabaya, Gresik, Pasuruan and Mojokerto

Davis (1998) postulates since the problems have been identified, a private concern has been transformed into a policy issue.

B. IDENTIFICATION OF THE PROBLEMS

In order to achieve comprehensive approaches to the problems encountered, specific contingencies of the situation must be taken in to account (Quareantelli, 1997). More detail Stone (1989) describes three aspects that should be understood in order to establish priorities. Firstly, the actors involved must be identified and their problems understood. Secondly, the multiple effects of the problems must be identified. The last aspect is that clear and well defined policies are urgent to solve the problems that have emerged.

Base on the theory above, following paragraph describes the problems that occur because of the mud volcano.

B.1 Disaster, Pollution Vs Productivity

The Porong Mud Volcano emitted was around 5,000 cubic meters a day at the beginning and increased to around 130,000 cubic meters a day and remains constant up to five years (Williamson, 2007). This has since dropped to a lower level (Kompas, 2011). The disputed and the inadequate mitigation strategies have caused local distress. It is now well established that to date, thousands of hectares of rice fields, plantations and factories have been buried. By 2007 around 15,000 workers had lost jobs, 1,022 farmers were unable to continue farming and 2,299 small and medium business enterprises were bankrupted (BPS, 2008; Hamzirwan, 2007; Tempo January 22, 2007; Williamson, 2007; McMichael, 2009).

What is more, There were at least 20 factories, each consisting of 2,500 employees, have been closed and approximately 1,000 workers were fired due to their factories being buried under the mud (Hamzirwan, 2007). In addition, *Tempo* (22 January 2007) reported that at least 15,000 factory workers lost their jobs. Moreover, the effects of this disaster have the potential to reduce national economic growth by 1.03 %, and reduce the East Java domestic gross product by 10 %³⁹⁵. (*Kompas*, 27 April 2007).

³⁹⁵ McMichael in Rumiya (2007) mentioned that East Java contracted by 4,2% between May 2006 and August 2007

Figure B.1
Buried industrial area in Porong



Source: hotmudflow , wordpress,2006

Source: Farm1, 2006

Based on the Sidoarjo Regency's Department of Small and Medium Business and Cooperation data, approximately 2,299 small businesses and medium sized enterprises have collapsed and become bankrupt, and 80 % of those were small businesses (*Kompas*, 12 January 2007). The indirect economic losses that has been calculated by Supreme Audit board (BPK) approximately Rp 7,407,440 million (AUS \$987,658 thousand) (BPK report, 2007). In more detail, Yahya (2007) states that tourism sector suffered in terms of the reduction in hotel occupancy in Pasuruan and Malang. It was estimated to be between 60-70% before the disaster and fell to 10% after it. Another effect of the disaster is the real estate in the Sidoarjo area suffered from bad publicity and a psychological impact. They are experiencing the fall of house sales by 60% in Sidoarjo.

B.2 The public transportation routes and gas and water installations threatened

The main caused of reducing economic growth in this area is the freeway being buried by mud between the 37 – 39 kilometre mark. Moreover, the freeway's fly over in Porong was cracked by a subsiding effect on the 30 cm depth and therefore had to be demolished on the 28th of December, 2008. The mud also threatened the main road and the railway, disrupting the distribution of goods in East Java province, especially in the Sidoarjo district.

Figure B.2

The buried freeway and threatened railway in Porong



Source: Bromund Volker, 2006



Source: Antara, 2006

Furthermore, this mudflow threatened the gas and water line under Porong Road. The gas pipe line exploded on the 22nd of November, 2006 and killed thirteen people. Moreover, the flattened lands surrounding the mud caused damage in water installations. Since the disaster, the water pipe line has been broken 10 times. (*Kompas*, 1 October, 2007) This has caused the breaking of optic wire used by Indosat (Indonesian Telecommunications Company).

B.3 The effect of the mud to the fisheries sector in Sidoarjo

Based on the Sidoarjo Fisheries and Marines Department (2008), during 2007, the four sub districts fisheries sector centre, Sidoarjo, Tanggulangin, Porong, Jabon sub-districts experienced negative productivity. This is because the four sub district are located near to the rivers that being use as one dumping location of the mud. Sidoarjo sub district had 4, 241, 700 Kg fisheries production in 2007 and become 4,189,600 Kg in 2008. It is reduced 12.3%. Tanggulangin Sub district had 799,100 kg fisheries production in 2007 become 642,200 Kg in 2008; it is reduced 19, 63%. Jabon sub district had 5,647,400 Kg fisheries production in 2007 become 4,445,800 in 2008, It is declined 21.28% and the biggest declining fisheries production was experienced by Porong sub district, this subdistrict experienced negative 25.93% growth of fisheries production from 782,000 Kg in 2007 become 579,200 Kg in 2008. Overall Sidoarjo experienced negative 24.81% of fisheries production growth. This declined production suspected to the occurring of the Mud volcano that erupted in Porong. Beside that another subdistricts where are located around Madura strait such as Buduran Waru and

Another evidence is provided by Antara (2009) that publish the direct effects of the dumping of Porong Mud Volcano to the rivers. There were 200 shrimp farmer protested toward the massive death of their shrimp in the ponds to the BPLS (Mitigation agency that manage the Mud Volcano). Shrimps sector in Sidoarjo district play significant role. Because of that, the shrimp serves as the district emblem. This sector employs approximately 13,978 workers and produced shrimp valued at approximately US\$ 4,877,870 in 2010 (DKP Sidoarjo, 2010; Marines and fisheries in figures 2011).

Economic rationalization and the prohibition of interest are become different issues in Islamic banking. In order to bridging those differential concepts, interests free concept becoming an evolutionary in finance. In Finance there are some concepts that should be considerate in providing funding for such kind of project or proposal. The five key elements a borrower should have to obtain credit: character (integrity), capacity (sufficient cash flow to service the obligation), capital (net worth), collateral (assets to secure the debt), and conditions (of the borrower and the overall economy). Beside those five concepts that should be applied, in Islamic finance must be considered the forbidden things that should be avoid such as Riba, Maisir and Gharar. As the translation of the verse of the Quran Surah Al-Baqorah, 274 says "God hath permitted trade and forbidden usury". Usury means giving loan at high interest. There four principles that should be considerate in generating Islamic finance. Firstly is that is not originate from forbidden consumers goods activities such as, trading pork, alcoholics liquor or illegal drugs trading. Secondly, not originate from activities that led to deterioration to the society, such as a result from corruption or robbery. Thirdly is not originating from object related immoral act such as prostitution or human trafficking. Fourthly is that not originated from gambling activities such as lottery. Underlining all those principles is that Islamic finance has to not originate from activities that against the law.

Q.S Al Maidah article 2, teach Muslims to help each other and to cooperate in goodness not in sin and against the law. This Quran statement is also describe further by Hadist cited by Abu Dawud that explant if Allah prefer help the one who always helping each other. Moreover, another Hadith that cited by Bukhari, Muslim and Abu Daud provide more explanation “Those that meet the needs of his brother, Allah will

fulfil his needs.” Another principles that considerate in using Islamic financing for infrastructure development is that Q.S An Nisa, articles 29, ““O ye who believe, do not eat each other neighbour’s property by way of vanity, except by way of trade applicable to consensual among you”

C.1 Brief descriptions about Sukuk

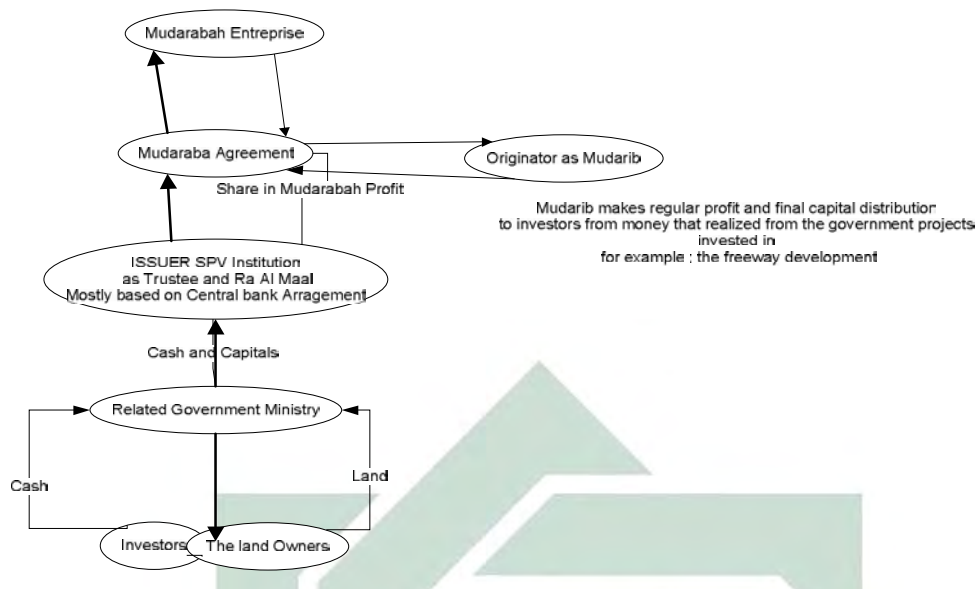
Sukuk has similar characteristics to those of a conventional bond with the major difference being that they are asset backed. Indeed, *Sukuk* represent the proportionate beneficial ownership of the *Sukuk* holders in the underlying tangible assets, usufruct or services. Profits, which depend on the performance of the underlying assets, are periodically paid to the *Sukuk* holders according to their proportionate ownership in the *Sukuk*.

In Indonesian Law, the Sukuk definition is define as a long-term securities based on Islamic principles issued to the holders of the issuer of Islamic bonds require the issuer to pay to the holders of revenue bonds for the Islamic form of margin / fee, and pay back the bond fund at maturity (Indonesian Ulama Council fatwa No. 32/DSN-MUI/IX/2002)

In principle, *Sukuk* are non-recourse asset-backed instruments, i.e. *Sukuk* holders are exposed to losses incurred on the underlying assets which back the *Sukuk*. However, in practice and for commercial reasons, *Sukuk* structures usually include an exit strategy which allows the originator to repurchase the underlying assets in certain circumstances.

In practice, *Sukuk* transactions can be structured by combining *Sukuk* with other types of *Sharia* compliant contracts such as e.g. *musharaka*, *mudaraba*, *ijara*, *istisna'a*, *Salam* and *murabaha*

Development of the Sukuk in Indonesia began with the issuance of Sukuk Mudaraba Indosat Rp 200 billion in 2002. In 2008 the Government issued a Sharia State SUKUK (Surat Berharga Syariah Negara -SBSN) the existence of Sukuk is needed by government and business institutions. For business institutions Sukuk can be used as a counterweight of the balance sheet. There are two functions that benefited the government in practicing Sukuk for supporting the government budget. Firstly Sukuk could broaden the base of the state budget sources of financing; the broaden benefit could be understand as an enrichment of the fiscal financing instruments and expand and diversify expand and diversify its investor base of States Bonds certificate. Secondly, Sukuk could encourage the growth and development of Islamic financial market in the country; the encouragement that aimed is developing alternative investment instruments and benchmarking the Islamic financial market.



The using of Mudarabah term refer to a contractual arrangement between investor and Sukuk issuer institution whereby the investor would contribute specified assets or commodities to the Sukuk issuer institution for spot delivery in the expectation that the Investor would be able to meet its deferred payment obligations under the mudarabah agreement. In redevelopment of new Porong road and Toll way, the land owner who owned the land in which has been use as the road development location has similar right as the investors, who put assets or commodities that expecting a mudarabah profit when the road/freeway is operated

The deferred price would typically include the cost price at which Investors/land owner had purchased the assets/commodities, plus a pre-agreed mark-up representing the profit generated from its involvement in the transaction. The payments of the deferred price from the Agency that issued the Sukuk certificates may be structured as periodical payments on dates specified at the outset, thus creating an income stream for the investor for the term of the transaction.

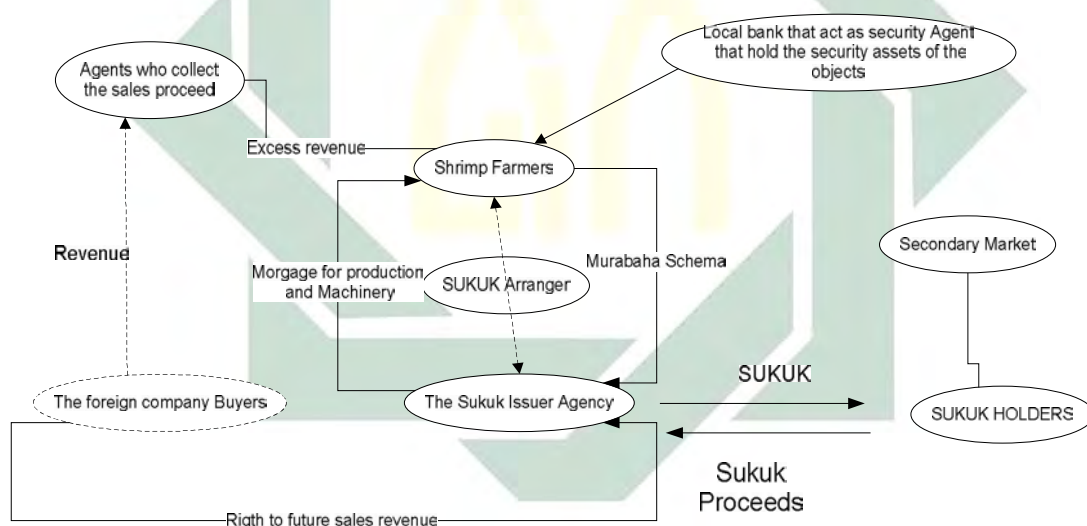
C.2.2 The benefits

There are three benefits in the changing of land ownership to become sukuk certificate ownership. Firstly is that the owner of the land does not loss their land ownership and including the potential benefits. Secondly, could push the land acquisition cost that should prepared by government. Thirdly, it can reduce the land speculation.

threats. The first respond is that the farmers react spontaneously by protesting the BPLS and sought a compensation for their losses. The second respond is that the farmers sold their ponds and changes their business to another sector. The third respond is that the farmer changes their commodity that cultivate from shrimp to another stronger fish. The last responds that identified is that the still cultivate the shrimp but by modifying their technique and practises in cultivate shrimp. The creative one would adopt a new method in shrimp cultivation such create water filtering technique, find new feeding method or discover new treatment in cultivate shrimp that more environmentally friendly. This creativity could escalate opportunity for gaining stable and rising prosperity for advanced economies' community (Benneworth & Jan Hospers, 2006). However, farmer innovation cannot optimum if there is no support both from government and financial institution.

Based on the descriptions above, the Sukuk Murabaha or Sukuk Musyarakah could be implement for supporting the shrimp farmer productivity.

The financial scenario that using Sukuk Murabaha could be depicted on the following chart:



First of all the Special Purpose vehicles have to be created in order to bridging the need of the farmers and the financial institution. For example, one of the SPV functions is that to assist the farmer more bankable. After the clients are bankable, special body that issues Sukuk endorse investors to pay the proceeds to issuer SPV. An then Purchaser (company who acts as farmer buyers) enters into a murabaha agreement with Trustee or the Sukuk issuer (as Seller), pursuant to which Trustee agrees to sell, and Originator agrees to purchase shrimps from Trustee that supplied by the farmers or by farmer association on spot delivery and deferred payment terms. The period for the payment of the deferred price will reflect the maturity of the sukuk. Trustee purchases the Commodities from a third party Commodity Supplier for a Cost Price representing the

The existing practice that occurs among shrimp farmers are, the agency, mostly the association or processing depot supplies all the farmer needs. The association or the depots, sell the trust that they had from farmer to the investor for obtaining fund. The fund is used for supplying all the farmer needs. When the harvest time occurs, the farmer sell their shrimp to the association or the depots that play as the Sukuk arranger. Some times, big depot offering the pond maintenance, pond equipment's and also transportation was also assisted. The shrimp crops are sold to the pengepul that collect the shrimp on behalf the Depot and sent to the sorting warehouse that do sizing, peeling and repacking process of the shrimp. Farmer receives the transaction note and money from the pengepul directly. The pengepul receipt 1-2 weeks payment system from the exporter company.

The benefits from the mechanism is that, the farmer who already has buyer but facing difficulties in supporting their productivity could have financial support through this mechanism.

The using of Islamic finance especially sukuk in redevelopment infrastructure and empowering community is beyond future. This is because of four reasons. The first possibility problems is the Risk of Failure to Pay (Default Risk), is the risk that investors can not obtain payment of funds promised by the issuer at the time of maturity of investment products. Except if there is government body that guaranty the SPV, it reducing the risk (assumed to be risk free). Secondly, Market Risk (Market Risk), is the potential loss to the investor (capital loss) for the retail sukuk sold prior to maturity (when the value goes down). It could be happen when the farmer facing the viral diseases for example, or High water pollution. Thirdly is that Liquidity Risk (Liquidity Risk), is the difficulty in melting, this risk could be due to the tendency of Shariah-hold (do not be traded until maturity), but for the retail sukuk sales agent has guaranteed to buy back the goods sold by the investor . risks that can happen is investors are forced to sell to dealers at a price below market price. if the purchase amount is not large, the

interests are relatively small and can be transferred to the bank is not significant and can be used. The biggest problem of this mechanism is that the moral hazard and the trust.

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