

## STRENGTHENING THE IMPLEMENTATION EOR (ENHANCED OIL RECOVERY) MODEL REGULATION AS A JUSTICE OIL PUBLIC POLICY

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### ABSTRACT

*This study aims to find arguments and evidence regarding the denial of national energy regulations in protecting people's rights to energy against the value of social justice and the dangers of liberalizing the economical price of fuel for fuel energy fulfillment, which leads to efforts to reconstruct the national energy regulation. The results of this study are expected to contribute to broadening alternative understanding of national energy regulations in protecting people's rights to fuel energy. Qualitative-constructivism method with a socio-legal approach is used in this study. Data tracing follows the flow of hermeneutic and phenomenological research used to collect, reduce, and verify and present data. This study concludes that the current implementation of national energy regulations tends to deny the value of social justice and is pegged to liberalism as a reference for energy management and implementation of national energy regulations in an effort to protect people's rights to energy is constrained by the absence of a clear interpretation of Article 33 (4) of the Constitution. NRI 145 raises multiple interpretations and biases, the absence of a comprehensive energy law, the practice of liberalizing the economic price of fuel energy endangers people's access to energy.*

Keywords: Energy Regulation, Liberalization, EOR.

### INTRODUCTION

Increasing oil production is a must now that Indonesia is on the verge of an energy crisis. Symptoms of the spike in fuel consumption needs are not balanced with the depletion of domestic fuel reserves, this condition encourages the Government to import fuel oil amidst volatile oil price fluctuations in the free market, totaling up to 96,038,997 Barrels (Edi As'Adi, 2015). Therefore, efforts to increase oil production need to be intensified because production is decreasing over time due to decreasing oil reserves. The solution to the above problems, in addition to discovering new reserves, efforts to increase oil production can also be done by applying advanced techniques to remove oil or commonly called Enhanced Oil Recovery (EOR). With this technology, "residual" oil that could not previously be produced through the primary and secondary production phases can be lifted to the surface.

In general, exploitation activities are divided into three phases, namely primary, secondary and tertiary. The primary phase is the phase in which a new field is developed. When production begins to decline with decreasing pressure, exploitation activities enter a secondary phase. In this phase, water or gas injection is carried out to provide additional energy into the reservoir and encourage oil to flow into production wells. After the secondary phase, exploitation activities enter the tertiary phase. Usually in this phase EOR is applied. In certain cases, EOR activities can be directly implemented without going through primary or secondary phases, for example Duri Field which has a very thick oil content. In Indonesia, EOR is not a "new thing". Currently, EOR has been implemented in the Duri Field with the operator PT Chevron Pacific Indonesia. With EOR technology, this field is capable of producing oil up to 296 thousand barrels per day. In addition, EOR trials were also carried out in Minas, Kaji, Tanjung, Widuri and Limau fields. Of the five fields, Minas and Kaji Fields have the potential to produce oil through EOR activities. Duri Field is indeed recorded as a success story of EOR implementation in Indonesia. However, it is necessary to accelerate the application of EOR so that the results can be maximized. Acceleration is needed because as many as 497 fields in Indonesia or around 94 percent have been depleted, where oil reserves in the primary layer have started to run low. Only 137 fields or around six percent are relatively new. This is why national oil production continues to fall (Buletin BUMI, Maret 2014).

Fields that are already in production continue to be drilled, but new field discoveries are not too significant. Through EOR acceleration, existing oil reserves can be maximized. Based on data from SKK Migas, the overall oil reserves in Indonesia are estimated at 27 billion barrels and there are 3.3 billion barrels remaining. From the remainder, 46 million barrels are expected to be removed using EOR technology. However, the remaining oil content in each field is not the same. Based on data on the status of Indonesia's oil reserves, there are 53 fields with reserves of between 100-200 million barrels or as much as 21 percent. The remaining reserves of between 200-500 million barrels or as much as 39 percent are in 42 fields (Buletin BUMI, Maret 2014).

PT. Chevron Pacific Indonesia in the Minas Field estimates that with EOR there will be additional oil production of up to 100 thousand barrels per day (bpd) in 2022. The method used is chemical injection with surfactant-polymer stage 2 (SFT-2). In addition, Chevron is developing oil in Duri Utara Area 13 or NDD-13 with steam injection which can increase production up to 17 thousand bpd. Following the success of Duri Utara Area 12 which was completed in 2009 and was able to increase production up to 40 thousand bpd with the same steam injection. With technology and investment approaches, Chevron can extend the life of the Duri Field and be able to increase the amount of oil produced. In fact, the Duri Field is one of the largest oil-injected oil fields in the world, which has been able to produce two billion barrels of oil since the technology was implemented. Currently Pertamina has also formed partnerships with various companies and institutions that are experienced in the field of EOR internationally. Among them is Pertamina's cooperation with Belorusneft in the form of a Polymer Joint Study at the Jirak Field owned by PT Pertamina EP Asset 2 Pendopo Field. Belorusneft is a Belarusian oil and gas company that has experience in polymer injection in

its field and has succeeded in increasing oil production in the country. For this reason, Pertamina wants to implement this polymer flooding in the Jirak Field, reflecting the success of the Belarusian oil and gas company.

Director General of Oil and Gas at the Ministry of Energy and Mineral Resources (ESDM), Edy Hermantoro, said studies on reservoir characteristics should be a requirement when SKK Migas submits a plan of development (POD). Armed with studies that have been carried out from the start, EOR can be applied once oil production in one field has decreased. If the EOR study is only carried out when the production of a field has decreased, a lot of time is wasted. This is because, since the trial was carried out until the oil was produced through EOR, it took a long time (Bulletin BUMI, March 2014). Even worse, if the type of surfactant used does not match the characteristics of the rock in an area, the surfactant will react with the rock, the oil does not come out, even clots, even damages the rock structure, this needs regulatory anticipation so that environmental damage does not occur due to trials. which is being intensively carried out by certain individuals.

Based on SKK Migas data in 2017, from scanning of 49 fields from a total of more than 160 fields managed by Pertamina, the application of the compatibility of the EOR method used is (1) chemical flooding of 33% (16 fields), (2) Miscible CO<sub>2</sub> flooding of 31% (15 Field), (3) Immiscible CO<sub>2</sub> flooding 34% (17 fields), and (4) Steamflooding 2% (1 field). As a result, for PSC Contractors, the application of EOR is a necessity to maintain production and requires a conducive investment climate for the industrial world. The investment value until 2012 in the Upstream Oil and Gas Industry has decreased slightly due to world oil prices still in the range of 50-60 USD per barrel, while the production costs if applying EOR technology is around 60 USD per barrel, meaning that there is a need for a scientific breakthrough in developing the application of technology. EOR so that production costs are below the world oil price.

In recent years, the debate regarding the need for environmentally friendly energy has become a trend of debate issue among academics, government and other stakeholders in an effort to anticipate national energy security in the future. However, in the field, problems arise in building a regulatory model for the optimization of petroleum exploitation with Enhanced Oil Recovery (EOR) technology to realize national energy security. To anticipate injustice in society, a regulatory model for energy security and environmental protection is required for the application of Enhanced Oil Recovery technology. EOR). This surge in demand for energy has been circumvented by the Government, which encourages EOR activities through Presidential Instruction No. 02 of 2012 concerning Increasing National Oil and Gas Production and Permen No. 06/2010 concerning Policy Guidelines for Increasing Oil and Gas Production.

The management of the oil and gas sector (oil and gas) requires legal certainty. Law Number 22 of 2001 concerning Oil and Gas, which has been the guide for policy makers in this sector, is considered to be inappropriate. Since it was ratified in 2001, the Constitutional Court (MK) has been recorded as having canceled and revised a number of articles three times. The revision of the Oil and Gas Law has been awaited by many, especially the business world. The revision that was initiated by the DPR since 2011 has actually been included in the national legislation program (Prolegnas) every year. However, the fate of the completion of the Oil and Gas Bill is still a question mark. The unclear revision process has an impact on legal uncertainty in the oil and gas sector and has implications for a number of indicators in the upstream oil and gas sector. Starting from the decline in the value of investment, the work area that is devoid of enthusiasts, to the number of drilling that has decreased in recent years. This condition also affects the position of the national oil and gas reserves, which currently only remains at 3.3 billion barrels. It is believed that the revision of the Oil and Gas Law will determine the future of the upstream oil and gas industry activities (National Resources Governance Institute, 2017).

Studies on the politics of national energy law in protecting people's rights to energy should remain based on the value of social justice (EdiAs'Adi: 2015) and its relationship with economic growth accompanied by growth in the level of public consumption of energy and its impact on environmental sustainability has been carried out by several researchers (Edi As'Adi, I Gusti Ayu K Rahmi Handayani et.al: 2017), from their research results show that there are obstacles in preventing or minimizing the increase in excessive energy demand by the community, as a result excessive natural exploration tends to damage the environment. The fact is that the environment in Porong Sidoarjo has been damaged (Edi as'Adi, et.al: 2017). The imbalance between supply and demand for energy can be a parameter of the existence of a symptom of the gap between the state's objectives in controlling and managing all the natural potentials contained in the Indonesian soil in the form of water, and the natural resources contained therein for the greatest prosperity of the people tend to be the opposite with the orientation of industrialization and liberalization of energy sources by business actors.

The control and management of energy production sources by the state tends to be hampered by adequate capital capacity, technological progress and competence in human resources. This weakness is relatively easy for the government to involve the national private sector and foreign private sector to explore energy production sources based on neo-liberal principles. As it is known that basically the neo-liberal principles tend to conflict with the political principles of Indonesian economic democracy law based on Pancasila. This is confirmed in Article 33 Paragraph (1), (2), (3) and (4) of the 1945 Constitution of the Republic of Indonesia and by maintaining a balance between progress and national economic unity.

Starting from the mandate of the constitution, it can be understood that the state is the sole authority over the land, water and natural resources that exist throughout the territory of the Republic of Indonesia, from Sabang to Merauke. This means that the function of the state in protecting the people's right to energy is under the authority of the government as the holder of state power, as well as the right to control over land, water and natural resources including the management of energy sources and other natural resources that have an impact on environmental sustainability. In a hermeneutic perspective, the meaning of being controlled by the state over production sources that are important to the state and controlling the life of the people which is used for the greatest prosperity of the people is the state's authority to manage and regulate the exploitation of natural wealth from upstream to downstream.

## RESULTS AND DISCUSSIONS

By definition, Norman J. Hyne (1991) in the Dictionary of Petroleum Exploration, Drilling & Production says that EOR is a method to obtain more oil after decreasing the primary production process (naturally) using natural energy from the reservoir itself (natural reservoir drive). A slightly different opinion comes from Larry W. Lake, Professor of the Department of Petroleum and Ecosystems University of Texas at Austin in the book Enhanced Oil Recovery (1989) which states that EOR is the acquisition of oil by injecting materials originating from outside the reservoir. Meanwhile, the US Department of Energy said there were three main techniques for implementing EOR, namely through thermal recovery, gas injection and chemical injection. The thermal and gas miscible injection methods were chosen to change the characteristics of the fluid. Meanwhile, chemical injection can change the characteristics of fluid and rock. Thermal injection makes thick oil thinner. Miscible gas injection (CO<sub>2</sub>), which when mixed in an oil solution under certain conditions will change the characteristics of the oil so that its density drops and it is easy to flow to production wells. In addition, EOR can also be done by injecting chemicals (chemical injection). There are two types of chemicals used. First, surfactants that can release the oil stuck to the rock. Second, the polymer which functions to make the water thicker so that it can better push oil into the production wells.

The latest technology has offered a new breakthrough called Nanoflooding or Nanoinjection, which is a development of chemical injection techniques using various types of nanomaterials (materials with dimensions <100 nm) as the base material. Silica dioxide, for example (SiO<sub>2</sub>), has been used to increase oil recovery ratios. To study the efficiency of silica particles under different conditions, Skauge et al. (2010) conducted an experiment on hydrophilic silica nanoparticles and compared the results with polystyrene nanoparticles. The results showed that the silica particles have low differential pressure and small permeability reduction. Hendraningrat et al., (2010) also studied the efficiency of glass nanoparticles and microchips. It was found that 0.1% by weight of silica particles achieved a higher oil recovery ratio compared to the brine control group. Researchers Ogolo et al., (2012) also tried other zero-dimensional nanoparticles instead of silica to increase oil recovery by testing nanoparticles other than silicon dioxide, such as aluminum oxide and magnesium oxide, with different solvents. In this experiment, aluminum oxide with distilled water achieved the most oil yield. This solution provides 12.5% more oil recovery ratio than water injection.

Chandran (2013) also conducted a research study on the potential use of Multiwall Carbon Nanotubes (MWNT) fluid as an EOR agent for high-pressure reservoirs. The research was carried out in two different ways, firstly in the absence and then in the presence of electromagnetic waves. The results of the first type test showed 36% oil recovery after injection of MWNT nanofluid. The electromagnetic field assistance in the second type of test almost doubles the recovery. The higher yield is directly related to the reduction in oil viscosity associated with the electromagnetic field. In addition, the application of these nanotubes has been reported to increase the efficiency of drilling fluids. Graphene and Graphene Oxide are carbon-based nanosheets. Kim et al. (2010) reported that graphene oxide sheets were amphiphilic in 2010. The amphiphilic properties were caused by groups of carboxylate compounds on the edges and surface of hydrophobic basalt. By changing the pH value and the variation of carboxylate dissociation will produce amphiphilic characteristics that can be changed. Luo et al., (2016) have successfully modified graphene oxide and reported an increase in the oil ratio of 15.2%. By applying the modified graphene to the oil and water interface a strong elasticity interface film is produced which exhibits the special properties of graphene oxide.

Regarding the problem of applying nanomaterials, Research Member 1 has competence in the synthesis of nanomaterials, especially Carbonnanotubes and Graphene Oxide and is competent in the study of the environmental impact of the use of these two types of nanomaterials. Nanomaterial toxicity studies of several plant species can illustrate the environmental impact of exposure to nanomaterials to the vegetation environment (Ikhtiari et al., 2012, 2013 and 2014). Some of the studies reported are; multiwalled carbonnanotubes (Ikhtiari et al., 2013), graphene and graphene oxide (Ikhtiari et al., 2011) have toxic properties at high concentrations against several plant species. Apart from being influenced by the concentration factor, the toxicity is also influenced by the size, type and dimensions of the nanoparticles and the chemical conjugation in the nanoparticle structure. It has also been studied previously about bionteraction between living cells and nanomaterials (Ikhtiari et al., 2013). Nanoparticle silica (SiO<sub>2</sub>) is not a toxic nanomaterial. So that the process of synthesis and application of nanoparticles (SiO<sub>2</sub>) is thought to be safe for the body and the environment. Research Member 1 already has sufficient knowledge of nanoparticle silica (SiO<sub>2</sub>), Carbonnanotubes and Graphene Oxide, as well as fundamental principles in research on the synthesis and characterization of nanomaterials, because researchers are supported by an educational background in chemistry and research experience in the field of nanomaterials during 5 years at Hokkaido University Japan.

Efforts to increase petroleum energy production require strategies related to the technology regulation of Enhanced Oil Recovery (EOR) to achieve national energy security, and development research to ensure the development and sustainability of production. The strategy must accommodate economic interests (production), energy security and community capacity building. The focus of this research is to obtain Enhanced Oil Recovery (EOR) techniques that can increase the production of oil energy that is efficient, effective and environmentally friendly. The goals of the state as stated in Alenia IV of the Preamble of the 1945 Constitution of the Republic of Indonesia, especially in protecting people's rights to energy based on the principle of equitable efficiency, are the lofty ideals of the founders of the state which should always be seeded in the implementation of the national energy law to realize the greatest prosperity of the people in Indonesia's prismatic or integralistic economic democracy, although the dynamics and pressures of economic globalization tend to be shifted by the agenda of legal standardization and practice of liberalizing energy prices for the economy (Edi As'Adi, 2015).

Oil and Gas (oil and gas) as fossil energy are the national natural resources of a nation. This is stated in the United Nations resolution Number 1803 of 1962 concerning Permanent Sovereignty Over Natural Resources, that the population and the nation have permanent sovereignty over their wealth and natural resources. In addition, the preamble to Law No. 22/2001 on Oil and Gas (Migas) states that oil and gas is a strategic non-renewable natural resource controlled by the state and is a vital commodity that controls the lives of many people and is used to provide prosperity for the people. Therefore, its management must be in accordance with the national development interests of the population of the State concerned. The management of oil and gas must be a reflection of the declaration of national sovereignty which must be maintained and maintained, and must not be exploited simply to fulfill the economic needs controlled by certain parties. In addition, oil and gas is included as a natural resource which is a natural endowment, which in order to make it an economic dynamic mode requires exploitation, so that natural wealth turns into

natural resources, and then from natural resources cultivated into one of the capital. welfare and prosperity of the people as well as nation building to realize national ideals.

This is confirmed in the Indonesian constitution Article 33 UUD 1945 Paragraph (3) which reads: Earth and water and natural resources contained therein are controlled by the state and used for the greatest welfare of the people. The principle of state control or state sovereignty over oil and gas as stipulated in the 1945 Constitution is then spelled out in the legislation in the oil and gas sector. But in reality, the management of oil and gas in Indonesia is still unable to have a positive impact on the Indonesian people. Even though Law no. 22/2001 regulates the management of oil and natural gas by BP Migas, with the hope of regaining the country's sovereignty in managing its own oil and gas. However, Law no. 22 of 2001 does not allow the state to process its own crude oil at home, then export it abroad. The reality that has happened so far is that Indonesia only sells crude oil which is then processed abroad. Furthermore, Indonesia buys the oil, which is actually its own oil at world oil prices. That, too, sales and purchases through intermediaries.

As a result, Law Number 22 Year 2001 concerning Oil and Natural Gas has undermined state sovereignty and the nation's economic sovereignty. The Oil and Gas Law has a systemic impact on people's lives and can harm state finances. This is because the Oil and Gas Law opens the liberalization of oil and gas management which is very dominated by foreign parties because the Indonesian oil sector is controlled by foreign companies up to 89 percent. Dr. Fahmi Radhi, said that Law number 22 of 2001 as the implementation of the 1945 Constitution opens opportunities for liberalization and foreign control over Indonesia's oil fields. Oil and gas, which should be used as a strategic commodity, is referred to in this law as a market commodity. As stated by Dr. Syaiful Bakhri stated that, the formation of the Oil and Gas Law contained international pressure to carry out reforms in the energy sector, particularly oil and gas. "Energy reform does not only focus on efforts to remove subsidies for fuel oil (BBM), but is intended to provide big opportunities for international corporations to explore the oil and gas business in Indonesia.

Therefore, as an effort to restore Indonesia's sovereignty in the oil and gas sector, the Constitutional Court as a State institution has taken progressive steps in its decision No. 36 / PUU-X / 2012 concerning the dissolution of BP Migas. The legal politics of the Constitutional Court decision is the right step. The legal politics of the Constitutional Court have been on the way of the correct constitution, realizing the ideals of a legal and democratic state for the sake of a dignified national and state life. The legal politics of the Constitutional Court decision is a wise choice and a step forward in the field of law, especially the protection of the human rights of the Indonesian people. Protection of human rights is a constitutional mandate as well as a necessity in its protection and fulfillment. Because Indonesia is a country of law. The characteristic of the rule of law concept is the protection of human rights (HAM).

Constitutional Law Policy or Politics No. 36 / PUU-X / 2012 concerning the Disbandment of BP MIGAS is a political law shown to achieve the ideals and goals of the nation and the State, namely a just and prosperous society based on Pancasila. One of them is to respect and protect the rights of the Indonesian people. Therefore, the legal policy / policy of the Constitutional Court is based on the fact that the Executive Agency for Upstream Oil and Gas Business Activities or BP Migas contradicts the 1945 Constitution, aka unconstitutional. The Constitutional Court (MK) assesses that BP Migas as regulated in Law Number 22 Year 2001 (concerning Oil and Gas) is contrary to the 1945 Constitution and has no legal force so it must be dissolved. Contrary to the constitution, the management of BP Migas cannot be used for the maximum welfare of the people. This is not in accordance with Article 33 of the 1945 Constitution. Article 33 of the 1945 Constitution clearly states that "the earth, water and natural resources contained therein are controlled by the state and used for the greatest prosperity of the people". Meanwhile in the BP Migas Law, all the wishes of Article 33 of the 1945 Constitution cannot be fulfilled. Moreover, BP Migas is considered to be more pro-foreign.

In fact, the main objective of the provisions of Article 33 paragraph (3) of the 1945 Constitution is the management of natural resources "for the greatest prosperity of the people" so that its implementation in state and government organizing must lead to the achievement of this goal. Considerations in the legal politics of the Constitutional Court No. 36 / PUU-X / 2012 argues that Article 33 of the 1945 Constitution requires that state control must have the greatest possible impact on the welfare of the people. In this case, the meaning of "controlled by the state" cannot be separated from the meaning of "the greatest prosperity of the people" which is the objective of Article 33 of the 1945 Constitution. The Court considers that, "... with the clause" is used for the greatest possible prosperity. the people "then the greatest prosperity of the people is the measure for the state in determining actions to manage, regulate, or manage the land, water and natural resources contained therein ..." If state control is not linked directly and as one unit to the -the great welfare of the people, it can give an incorrect constitutional meaning. This means that it is very possible for the state to fully control natural resources but not to provide the greatest benefits for the people's welfare. On the one hand the state can show sovereignty over natural resources, but on the other hand the people do not necessarily get the greatest prosperity over natural resources.

Therefore, according to the Court, the constitutional criteria to measure the constitutional meaning of state control are found in the phrase "for the greatest prosperity of the people". However, in reality, the management of BP Migas has caused many losses, both loss of State finances and neglect of people's welfare and rights. The existence of BP Migas has the potential for inefficiency and it is suspected, in practice, to have opened up opportunities for abuse of power, according to the Court the existence of BP Migas is unconstitutional, contrary to the state's objectives regarding natural resource management in government organization. Therefore every formation of a state organization and all its units must be arranged based on the rationality of the bureaucracy that is efficient and does not create opportunities for inefficiency and abuse of power. In addition, the Constitutional Court also assessed that the Oil and Gas Law opened the liberalization of oil and gas management because it was heavily influenced by foreign parties. The unbundling pattern that separates upstream and downstream activities is suspected to be an attempt by foreign parties to divide the national oil and gas industry so as to facilitate control. The impact of oil and gas governance liberalization is the opening of free competition that provides the widest possible opportunity for oil and gas players, both national and foreign companies, in managing oil and gas in Indonesia. In this competition, BUMN oil and gas are treated the same as private oil and gas business actors so that BUMN must compete in every tender for obtaining oil and gas management permits, both in the upstream and downstream sectors.

Ironically, the government tends to side with foreign companies more than BUMN in this competition. The government's support for foreign companies always comes to the fore whenever there is a struggle for oil and gas fields between Pertamina and foreign companies such as the Cepu Block, Madura Block, Siak Block and Mahakam Block. Government siding with foreign

companies has weakened the role of BUMN in managing oil and gas fields in their own country. Another important thing in the law politics of the Constitutional Court No. 36 / PUU-X / 2012 concerning the Dissolution of BP MIGAS, it is clear that the existence of BP Migas has caused losses to the state finances. Because BP Migas is not an operator (business entity) but only in the form of a State-Owned Legal Entity (BHMN), its position cannot be directly involved in oil and gas exploration and production activities. BP Migas does not have wells, refineries, tankers, transport trucks, and gas stations, and cannot sell the state's share of oil so it cannot guarantee the security of domestic fuel / BGG supplies. This proves that the presence of BP Migas prevents Article 33 paragraph (2) and paragraph (3) of the 1945 Constitution and makes the meaning of "controlled by the state" which has been interpreted and decided by the Court to become blurred because the elements of state control are not fulfilled, namely including the function of regulating, managing, managing, , and overseeing the whole, is only a constitutional illusion. The position of BP Migas, which represents the government in mining rights, does not have a commissioner / supervisor. Even though BP Migas is a State-Owned Legal Entity (BHMN), obviously this has an impact on the running of unlimited power because this institutional structure becomes flawed. This has an impact on "cost recovery" that does not have a clear threshold. This enormous power will tend to be corrupt, proven when data from the audit results of the Supreme Audit Agency show that during 2000-2008 the potential for state financial losses due to the imposition of "cost recovery" in the oil and gas sector which is not appropriate to reach IDR 345,996 trillion rupiah per year or 1.7 billion per day.

It is clear that the management and regulation of Oil and Gas have a systemic impact on people's lives and is detrimental to state finances. This is because the Oil and Gas Law opens up the liberalization of oil and gas management which is very much dominated by foreign parties because the Indonesian oil sector is controlled by foreign companies up to 88 percent. Data from SKK Migas 2012 shows that 88% of oil and gas fields are controlled by foreign companies, 8% are national BUMS and BUMN, and 4% are consortiums involving foreign companies. The domination of foreign companies over oil and gas fields causes the state to lose control in oil and gas management. The government is no longer able to control the volume of oil produced, the set cost of production, and the proposed cost of recovery. It is not surprising that anomalies arise related to the amount of cost of recovery and lifting. Data shows that the amount of cost of recovery budgeted for in the APBN tends to increase every year, but lifting is actually decreasing. The decision of the Constitutional Court (MK) Number 36 / PUU / 2012 related to the Testing of the Oil and Gas Law is an important constitutional victory for state control over natural resources. The results of the decision of the Constitutional Court which canceled Article 1 number 23, Article 4 paragraph (3), Article 41 paragraph (2), Article 44, Article 45, Article 48 paragraph (1), Article 59 letter a, Article 61, and Article 63 which implies the dissolution of BP Migas is a step of the state in restoring state sovereignty over oil and gas.

Then, in the efforts of the State in restoring State sovereignty in the oil and gas sector, the government formed Presidential Regulation No. 95 of 2012 concerning the Transfer of the Implementation of Duties and Functions of the Upstream Oil and Gas Business Activities which in essence determines, Article 1, the implementation of duties, functions and organizations of the Upstream Oil and Gas Business Activities Executive Agency, until the issuance of new regulations. Article 2, All Cooperation Contracts signed between the Executive Agency for Upstream Oil and Gas Business Activities and Business Entities or Permanent Establishments, remain valid until their validity period ends, Article 3, The entire process of managing upstream oil and gas business activities is continued by minister who holds government affairs in the oil and natural gas sector. In addition to the Presidential Regulation, the Minister of Energy and Mineral Resources Decree No. 3135 K / 08 / MEM / 2012 which principally regulates the transfer of Tasks, Functions and Organizations in the Implementation of Upstream Oil and Gas Business Activities and forms a Temporary Work Unit for Upstream Oil and Gas Business activities. The functions and duties of the Oil and Gas Implementing Agency are carried out by the government, c.q the Ministry of Energy and Mineral Resources, until the enactment of a new law, which regulates this matter. The abuse of power in the oil and gas sector has resulted in losses to the State, especially the suffering of the Indonesian people. The abundant wealth of Indonesia's oil and natural gas products that should have been managed properly by the government and then returned for the welfare of the Indonesian people could not be realized properly. As a result, the Indonesian people experience suffering, poverty and ignorance. This is clearly against the rights of the Indonesian people (HAM).

The powerlessness of the government in managing national oil and gas has clearly resulted in the under-welfare of the Indonesian people, which has resulted in poverty and misery, this is certainly a violation of the human rights of the Indonesian people. Therefore, it is clear that when the sovereignty of the Indonesian State in the field of BP Migas is undermined by other countries, this has violated human rights which should be the state's obligation to fulfill it. The neglect of the fulfillment of the human rights of the Indonesian people, especially in relation to BP Migas, is a form of denial of international conventions in the field of economic, social and cultural, or what is known as ECOSOB rights. Oil and gas in Indonesia is a natural resource category, in which SDA is included in the international convention in the ECOSOB sector. The state's concern in protecting the human rights of its citizens, especially in the context of oil and gas, can be seen how big the inability of the state to provide legal instruments on human rights issues is at least measured by the number of regulations on human rights, both in the form of laws, government regulations and in the form of court decisions.

## **CONCLUSION**

Various efforts to increase national oil recovery have been and are being carried out by all stakeholders of the national upstream oil and gas industry. Government through Presidential Instruction No. 2/2012 concerning the Increase of National Petroleum Production has given instructions to the upstream oil and gas business activity implementing authority (SKKMigas) to increase efforts to optimize production fields and develop fields using EOR technology. EOR is various attempts to inject a substance or other means that change the physical properties of fluid or rock-fluid interaction both physically and chemically in such a way that the oil flow mechanism can be repaired or increased (any attempt normally by injecting substances into reservoirs or by other means that changes the fluid properties or rock-fluid interactions either physically or chemically so that the oil flow mechanism is enhanced). Of the many EOR methods that can be applied in Indonesia, CO<sub>2</sub>-EOR and Smart Water-EOR have a very high level 2 possibility of application. The characteristics of Indonesian oil reservoirs that have low pressure and high temperature meet the screening criteria for the two EOR methods. Two examples of oil fields, namely Meruap Field and Langgak Field, as well as one

other field example, namely Sukananti Field, all of which are typical Indonesian reservoirs, can meet these screening criteria for CO<sub>2</sub>-EOR and Smart Water-EOR implementation respectively.

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