

Law in a Sustainable Asia

8th Asian Law Institute Conference

Thursday and Friday, 26 and 27 May 2011, Kyushu, Japan

COVER PAGE FOR PAPER SUBMISSION

Towards the Sustainable Decommissioning of Offshore Installations:
A Regulatory Challenge for ASEAN States

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Towards the Sustainable Decommissioning of Offshore Installations: A Regulatory Challenge for ASEAN States

I. Introduction

In order to meet the needs of the growing economies and populations of the ten Member States comprising the Association of Southeast Asian Nations (ASEAN), it is projected that ASEAN's energy demand will grow at the rate of 4% annually.¹ To meet this demand and ensure the energy security of the region, ASEAN is not only pursuing energy efficiency and conservation but also continuing the search for more alternative energy sources and increasing its energy exploration and development activities. For offshore energy sources, it is projected that the region will develop 241 offshore fields from the period 2010 to 2014.² For this five year period alone, 322 new fixed structures and 22 floating production, storage and offloading vessels (FPSOs) will be needed for the region's expanding offshore oil and gas activities.³ These numbers will add to the existing 1,237 offshore installations in the region right now.⁴

The exploitation of offshore oil and gas resources clearly presents many regulatory challenges for States because it entails enormous safety and security issues for maritime navigation, fishing and environmental conservation. However, much of the regulation and contractual agreements between resource-rich countries and oil companies are focused on the exploration and exploitation phases of an offshore oil and gas project. Little attention is paid to the decommissioning and closure phases as often evidenced by the lack or incomplete regulations on the subject matter.⁵

Decommissioning, a process of deactivating an oil and gas facility from operations, is a crucial decision point at the end of the life cycle of these offshore installations. When they are not properly decommissioned, they pose significant risks to maritime navigation as well as the marine environment. Decommissioning of offshore facilities is even more complex than onshore facilities because of the risk, cost and controversy that come with such undertaking.⁶

In the ASEAN region, decommissioning of offshore installations presents a greater regulatory challenge because of the limited experience it has in the decommissioning process, as will be discussed later in the paper. As some of the offshore installations in the region are nearing or have reached the end of their life spans, the imperative for ASEAN Member States to provide for decommissioning regulations has become all the more urgent.

¹ Institute of Energy Economics, Japan and ASEAN Centre for Energy, *2nd ASEAN Energy Demand Outlook* (March 2009), source: Energy Community, <<http://www.energycommunity.org/documents/SecondASEANEnergyOutlook.pdf>>.

² *Ibid.*

³ Kliewer, Gene, *Asia-Pacific energy demands drives offshore exploration, development*, Offshore (1 May 2010), source: Offshore <http://www.offshore-mag.com/index/article-display/5024375336/articles/offshore/volume-70/issue-50/international-e_p/asia-pacific-energy.html>.

⁴ Twomey, Brian, *Study Assesses Asia-Pacific offshore decommissioning costs*, Oil and Gas Journal (15 Mar 2010).

⁵ Worldbank Stakeholder Initiative, *Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies*, March 2010, source: World Bank <http://siteresources.worldbank.org/EXTOGMC/Resources/336929-1258667423902_decommission_toolkit3_full.pdf>.

⁶ *Ibid.*

II. Why Sustainable Decommissioning of Offshore Installations

The issue of sustainability may not altogether be readily evident in decommissioning of offshore installations, seeing that it comes at the tail-end of a project, as when the resources have already been extracted. It was even said that applying sustainable development to decommissioning of offshore oil and gas installations seems an oxymoron because, while decommissioning is seen as negative period of decline, sustainable development is a positive obligation to balance economic, environmental and social factors present in any decommissioning decision.⁷

But precisely because of the balancing of various social, environmental, and economic considerations should States all the more be guided by the concepts of sustainability.

Decommissioning alternatives generally fall under three categories: (1) removal, (2) disposal at sea, and (3) conversion to other uses. Removal of offshore installations, whether total or partial, is where the structure is brought to the shore for land-filling, reprocessing or recycling. Disposal at sea of offshore installations, whether total or partial, is another option where the structure is dismantled and deposited onto the seabed. It may also be left in the project site, after all the hydrocarbons have been cleaned. Conversion is the option where the structure is converted to other uses such as an artificial reef, as well as for navigation (e.g. aids) and recreational purposes (e.g. as diving platforms).⁸

The total removal option is the most preferred by environmentalists who contend that leaving the structure at sea is hazardous to the marine environment. However, operators of these installations say that removal, especially total removal, is very costly and there is no available technology yet that is cost-effective enough to do so. Added to this, is the cost of dismantling and disposing the structures on land. Land-filling the structure may take up a lot more of scarce landfill space. Reprocessing or recycling the structure, while beneficial because it conserves other resources like steel, also entails energy costs. Likewise, within these on-shore options, social acceptability has to be addressed with because the structure (when treated as waste or scrap) has to be accepted by the community where it will ultimately end up.⁹

For operators, disposal at sea, whether total or partial, is probably the most cost-effective of all options, especially afterwards where they have also transferred liability and monitoring responsibility to the State or another entity. However, such option has

⁷ Morakinyo Adedayo Ayoade, *Disused Offshore Installations and Pipelines: Towards Sustainable Decommissioning*, (Kluwer Law International, Netherlands, 2002). [Ayoade].

⁸ Ekins, Paul, et.al, 'Decommissioning of offshore oil and gas facilities: A comparative assessment of different scenarios', 79 *Journal of Environmental Management* (2006), p. 420.

⁹ Athanassopoulos, et.al, *Offshore Oil Platform Decommissioning: A Comparative Study of Strategies and the Ecological, Regulatory, Political and Economic Issues Involved in Decommissioning Planning*, Paper for the Donald Bren School of Environmental Science and Management, University of California –Santa Barbara, 1999. Also: Lakhali, Salem, et.al, 'An "Olympic" framework for a green decommissioning of an offshore platform', 52 *Ocean and Coastal Management* (2009), p. 113. See also note 12.

to address concerns for environmental impacts and social acceptability. Disposal at sea can pose potential negative consequences to the marine environment, as asserted by environmental groups. It is also an obstruction for safety of maritime navigation as well as the operation of submarine cables. As compared to removal, this option definitely presents a larger cost saving to operators except that there is also a financial cost to the maintenance of structures. In another sense, several projects have demonstrated that when a structure is converted to an artificial reef, not only does it provide habitat for marine resources, it also enhanced fisheries which, in turn, resulted to economic benefits from the area.¹⁰

This balancing of considerations was first crystallized during the 1995 Brent Spar controversy, when public opposition mounted and prevented Shell UK from disposing its oil storage buoy in the North Sea. While scientific and technical analysis showed that deepwater disposal is the “best practicable environmental option,” this singular event has showed that decommissioning decisions may go beyond merely what is financially or technically feasible, that the legitimacy of the decision is also influenced by stakeholder opinion (environmental groups, public in general and users of the same sea).¹¹

Thus, decommissioning decisions become a challenge (and a controversy) because each alternative would have different costs, benefits and risks not only to the environment but also as they are perceived by various stakeholder groups (State, operators, environmental groups, affected communities, users of the sea, other States, etc.)¹² Coming up with a decommissioning decision becomes a process of negotiation between competing users and preferences.

However, while decommissioning may be a negotiation process, it does not mean that such process should not be guided by principles within which that negotiation should be confined. Otherwise, without such guiding principles, decommissioning decisions become arbitrary, depending on which interests may prevail at any given time.

This is where principles of sustainable development should frame and guide the decommissioning process. This paper will focus on the following principles:

1. ***Sustainable use of natural resources*** provides that resources should be used by the present generation as to ensure that future generations may also be able to enjoy them in the future.¹³ In decommissioning of offshore installations, since oil and gas reserves are already depleted, sustainable use may refer to the marine

¹⁰ *Ibid.*

¹¹ Kuszewski, Judy and Crowther, Yasmin, *Brent Spar: Battle that launched modern activism*, Ethical Corporation newsdesk, 5 May 2010.

¹² Schroeder, Donna and Love, Milton, ‘Ecological and political issues surrounding decommissioning of offshore oil facilities in the Southern California Bight’, 47 *Ocean and Coastal Management* (2004), p. 21.

¹³ The concept of sustainable use is based on the idea of sustainable development, that is ensuring that development meets the needs of the present without compromising the ability of future generations to meet their own needs, development in the *Our Common Future: A Report of the World Commission on Environment and Development* (1987), source: UN <<http://www.un-documents.net/ocf-ov.htm#1.2>>.

environment where the project was undertaken as well as to the offshore structure itself.¹⁴ Thus, bearing sustainable use in mind, decommissioning should be made in such a way that it will not devalue the marine environment for future generations. Total removal of the offshore installation is one option because it may restore the marine environment back to its condition before the oil and gas operations. However, partial removal or disposal at sea can be another option because, more often than not, these structures also become a habitat for fishes and marine organisms and total removal will completely destroy these habitats. Considering the environmental and economic cost of steel and other materials used for offshore structures, sustainable use is also promoted when these structures are recycled or reused onshore. Conversion as an artificial reef and for other alternative uses also supports optimal use.¹⁵

2. ***Precautionary approach*** provides that precautionary measures should be taken if an activity raises a reasonable suspicion of harm to human health and environment, even where there is lack of scientific basis to support such suspicion.¹⁶ In the decommissioning of offshore installations, because there is uncertainty as to the environmental impacts of disposing the structure at sea, care should be undertaken in the assessment of decommissioning options and in case, there is doubt as to its hazards, the approach guides decision makers to seek other alternatives instead.
3. ***Polluter's pay principle*** simply provides that the cost of pollution or environmental harm should be borne by those who caused it.¹⁷ Thus, in the case of offshore installations, State companies and contracted operators who have undertaken the offshore oil and gas projects should also bear the responsibility of mitigating the impacts of the decommissioning process, rehabilitating the area and all other externalities.

III. Sustainability and international conventions governing decommissioning of offshore installations

There are two major international conventions that provide the legal framework for coastal States seeking to regulate decommissioning of offshore installations within their jurisdictions. They are the **1982 United Nations Convention on the Law of the**

¹⁴ Ayoade, supra note 7.

¹⁵ Ayoade, supra note 7.

¹⁶ Principle 15, Rio Declaration on Environment and Development (1992) states that "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." Source: UNEP, <<http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163&l=en>>

¹⁷ Principle 16, Rio Declaration on Environment and Development (1992) states that "National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment."

Sea (UNCLOS)¹⁸ and the 1972 Convention on Prevention of Marine Pollution by Dumping and Other Matter (London Convention) with its 1996 Protocol (London Protocol).¹⁹

UNCLOS has granted ASEAN State Parties such as Brunei, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore and Vietnam²⁰ exclusive economic rights over the natural resources in their EEZ and continental shelf.²¹ As such, they are also entitled to construct and regulate the construction, operation and use of “installations and structures” for the purpose of exploring and exploiting, conserving and managing the natural resources in the EEZ and continental shelf.²² Pertinent to the decommissioning of these installations or structures in the EEZ, UNCLOS provides that:

Art. 60 (3) ... Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization. Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States. Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.

As for the continental shelf, UNCLOS provides that the coastal State shall have the exclusive right to authorize and regulate drilling for all purposes.²³ It shall also have the same rights and obligations it has in the EEZ.²⁴

The generally accepted international standards referred to in the above UNCLOS provision is embodied in the **1989 IMO Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone.**²⁵

The IMO Guidelines provides that:

¹⁸ 1982 United Nations Convention on the Law of the Sea, source: UNDOALOS, <http://www.un.org/Depts/los/convention_agreements/texts/unclos/UNCLOS-TOC.htm>

¹⁹ 1972 Convention on Prevention of Marine Pollution by Dumping and Other Matter, source: CIL <<http://cil.nus.edu.sg/1972/1972-convention-on-the-prevention-of-marine-pollution-by-dumping-of-wastes-and-other-matter/>> and 1996 Protocol to the 1972 Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter, source: CIL <<http://cil.nus.edu.sg/1996/1996-protocol-to-the-1972-convention-on-prevention-of-marine-pollution-by-dumping-of-wastes-and-other-matter/>>

²⁰ Status of UNCLOS, source: UN Treaty Collection <http://treaties.un.org/pages/ViewDetailsIII.aspx?&src=UNTSOnline&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&lang=en>

²¹ Art. 56 and Art. 77, UNCLOS.

²² Art. 60 and Art. 80, UNCLOS.

²³ Art. 81, UNCLOS.

²⁴ Art. 80, UNCLOS.

²⁵ IMO Resolution A. 672 (16) adopted on 19 October 1989, source: CIL <<http://cil.nus.edu.sg/1989/1989-guidelines-and-standards-for-the-removal-of-offshore-installations-and-structures-on-the-continental-shelf-and-in-the-exclusive-economic-zone-imo-resolution-a-672-16-adopted-on-19-october-1989/>>.

- 1.1 Abandoned or disused offshore installations or structures on any continental shelf or in any exclusive economic zone are required to be removed, except where non-removal or partial removal is consistent with the following guidelines and standards.

Thus, as a general rule, the IMO Guidelines mandate the total removal of offshore installations. However, it also allows the coastal States to evaluate and decide, on a case-to-case basis, whether such installation or any part thereof may remain on the seabed depending on:

- 2.1 (.1) any potential effect on the safety of surface or subsurface navigation, or of other uses of the sea;
- (.2) the rate of deterioration of the material and its present and possible future effect on the marine environment;
- (.3) the potential effect on the marine environment, including living resources;
- (.4) the risk that the material will shift from its position at some future time;
- (.5) the costs, technical feasibility, and risks of injury to personnel associated with removal of the installation or structure; and
- (.6) the determination of a new use or other reasonable justification for allowing the installation or structure or parts thereof to remain on the seabed.

The IMO Guidelines went further by providing standards that should be taken into account by States when making a decommissioning decision. Briefly, it mandates:

- a. Total removal for all installations standing in less than 75 m of water (100m for those placed on or after 1 January 1998) and weighing less than 4,000 tonnes, excluding the deck and superstructure.
- b. Removal should have no significant adverse effects upon navigation or the marine environment, its living resources, especially threatened or endangered species.
- c. Non-removal, wholly or partially, may be made if the existing installation will serve a new use or can be left there without causing unjustifiable interference with other uses of the sea; the latter not including the installations standing less than 75 m of water (100m) and weighing less than 4,000 tonnes .

- d. Non-removal can be decided upon if it is not technically feasible or would involve extreme cost or an acceptable risk to personnel or the marine environment.

When reading UNCLOS and the IMO Guidelines together, it is clear that the international legal regime mandates total removal of offshore platforms. However, partial or non-removal of offshore installations may be allowed depending on the certain standards and conditions – which essentially focus on the impact of decommissioning to maritime navigation, environmental protection and other uses of the sea. Thus, this regime allows for the balancing of social, environmental and economic concerns in decommissioning decisions. It also gives States the flexibility to find other alternative uses, which preferably should be beneficial, of the offshore installations.

Although disposal at sea is allowed under this regime, it must be noted that because of the potential and perceived harm of such option, UNCLOS has provided for specific State obligations intended to mitigate its impact to the marine environment, when it defined dumping as “any deliberate disposal of vessels, aircraft, platforms or other man-made structures at sea.”²⁶

In doing so, UNCLOS obliges State Parties to adopt laws and regulations to prevent, reduce and control pollution of the marine environment by dumping and to take other measures as may be necessary to prevent, reduce and control such pollution.²⁷ It also mandates that national laws, regulations and measures should be no less effective than the global rules and standards.²⁸ Moreover, UNCLOS forbids dumping within the territorial sea, EEZ or onto the continental shelf unless carried out with the express prior approval of the coastal State, which has the right to permit, regulate and control such dumping after due consideration of the matter with other States which by reason of their geographical situation may be adversely affected thereby.²⁹

From these obligations, it can be said that when a State decides to allow disposal of offshore installations at sea, it is further constrained by its own marine pollution laws which should not be less effective than the rules and standards set internationally (such as the 1972 London Convention and 1996 Protocol which will be discussed later in the paper). Thus, in weighing all other considerations in decommissioning decisions, it can be said that protection of the marine environment not only of the coastal State’s but also of other States, should figure significantly, if not prevail, over other considerations.

²⁶ Art. 5, UNCLOS.

²⁷ Art. 210 (1) (2), UNCLOS.

²⁸ Art. 210 (6), UNCLOS.

²⁹ Art. 210 (5), UNCLOS.

Like UNCLOS, as a general rule, the 1972 London Convention and its 1996 Protocol also prohibit dumping of offshore installations. However, they may permit the disposal of offshore installations at sea under certain conditions. Except for the Philippines, no other ASEAN member country is a State Party to the London Convention. Likewise, none of the ten ASEAN member countries are parties to the London Protocol.³⁰

The London Convention deals with decommissioning through one of its definitions of dumping which is – ‘any deliberate disposal at sea of vessels, aircraft, platforms or other man-made structures.’³¹ The London Protocol also adopts such definition and added another, which is – dumping is “any abandonment or toppling at site of platforms or other man-made structures at sea, for the sole purpose of deliberate disposal.”³²

Both London Convention and London Protocol mandate the issuance of permits for dumping of offshore installations.³³ But the London Protocol is comprehensive in the sense that it provides for clearer obligations on the part of the States Parties to protect and preserve the marine environment as well as establish more environmental safeguards. It requires a waste prevention audit in the initial stages in assessing alternatives to dumping; as well as a consideration of waste management options, which implies an order of increasing environmental impact (from re-use, to off-site recycling, to destruction of hazardous constituents, to treatment to reduce or remove the hazardous constituents, or ultimately, to disposal on land, into air and in water). The Protocol also requires assessment of the potential impacts as a consequence of the disposal option.³⁴

From a sustainability point of view, the Protocol clearly embodies principles of sustainable development. For *sustainable use*, the Protocol mandates that when there are opportunities to re-use, recycle or treat the offshore structure without undue risks to human health or the environment or disproportionate risks, then dumping of offshore installations will not be permitted.

The application of the *precautionary approach* and *polluter pays principle* has been expressly made general obligations of State Parties under the Protocol, to quote:

Article 3. General Obligations

1. In implementing this Protocol, Contracting Parties shall apply a precautionary approach to environmental protection from dumping of wastes or other matter whereby appropriate preventative measures are taken when there is reason to believe that wastes or

³⁰ Status, source: IMO < <http://www.imo.org/About/Conventions/StatusOfConventions/Documents/status-x.xls>>

³¹ Art. III (a) ii), London Convention.

³² Art. I (1.4.1), London Protocol

³³ Art. IV, London Convention and Art. IV, London Protocol.

³⁴ Annex 2, London Convention.

other matter introduced into the marine environment are likely to cause harm even when there is no conclusive evidence to prove a causal relation between inputs and their effects.

2. Taking into account the approach that the polluter should, in principle, bear the cost of pollution, each Contracting Party shall endeavour to promote practices whereby those it has authorized to engage in dumping or incineration at sea bear the cost of meeting the pollution prevention and control requirements for the authorized activities, having due regard to the public interest.
3. In implementing the provisions of this Protocol, Contracting Parties shall act so as not to transfer, directly or indirectly, damage or likelihood of damage from one part of the environment to another or transform one type of pollution into another.

Since the London Convention in 1972 to the London Protocol in 1996 and since UNCLOS in 1982 to the IMO Guidelines in 1989, it can be said that the concept of environmental sustainability has increasingly become a significant part of the legal framework governing decommissioning offshore installations.

IV. Decommissioning Experience of ASEAN Member States

To varying degrees, the ASEAN Member States that have engaged in offshore oil and gas development, namely Brunei, Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Vietnam, have regulatory or contractual measures to govern the decommissioning of offshore oil and gas development in their jurisdictions.³⁵ The decommissioning framework in ASEAN countries can be seen mainly through national legislation, production-sharing contracts and guidelines of national oil companies (NOCs).

Decommissioning regulations in many ASEAN countries is not usually covered by one comprehensive law but spread over several laws. For example, in Malaysia, decommissioning plans will have to comply with at least eight laws: Merchant Shipping Ordinance, Continental Shelf Act, Exclusive Economic Zone Act, Environmental Quality Act, Fisheries Act, Occupational Safety and Health Act, Natural Resources and Environmental Ordinance and Conservation of Environment Enactment.³⁶ In Indonesia, there is Government Regulation 17/1974 concerning the Supervision of Oil and Natural Gas Exploration and Exploitation in Offshore Areas which mandates complete decommissioning but this should be read with Act. No.

³⁵ Because of the lack of available literature on the subject matter, the experience ASEAN countries will not be exhaustively discussed. Instead, significant examples of state practice are chosen for this paper, especially in the case of Malaysia, Indonesia and Thailand which have more offshore installations. More in-depth studies would be needed for this purpose.

³⁶ Khairi, Lily and Chin, Adrienne, *Life After Decommissioning: the Malaysian Rig to Reef Experience*, Paper presented in the 2nd Offshore Decommissioning Summit, 13-14 October 2010, Singapore. [Malaysian Experience].

4/1982 on Basic Provisions for the Management of the Living Environment as well as government regulations on environmental impact assessment.³⁷

National Oil Companies would also have decommissioning guidelines as part of their upstream guidelines. For example, Petronas, the national oil company of Malaysia, would require that all disused structures located in Malaysia be fully decommissioned, except where non-removal or partial removal is allowed by the guidelines. Its decommissioning policy states that it follows standards no less than the established international rules and standards, requiring pre-, during- and post-decommissioning requirements such as a Decommissioning Options Assessment and a Post Environmental Assessment.³⁸

Production-sharing contracts between the States, national oil companies and operators would also have standard provisions on decommissioning. For example, in the Philippines, the contractor is required to include in its development plan a provision for abandonment and payment of abandonment costs. The contractor is made responsible in the proper abandonment and rehabilitation of all sites affected by its petroleum operations while being required to put up a sinking fund to cover the expenses.³⁹ In these contracts, while observance of environmental laws are made part of an operator's obligations, they do not really contain strict or detailed guidelines that operators had to follow, as shown by production-sharing contracts in Indonesia.⁴⁰ Operators still have to resort to other laws on the environment, health and safety, etc. in order to know their other obligations and liabilities in the decommissioning process.

Despite these laws, guidelines and contracts, however, analysts contend that there is still a lack of comprehensive regulatory framework in the region, which is manifested by the limited experience that the region has with decommissioning.⁴¹ So far, only Brunei and Malaysia, as carried out by private operators, have documented experiences in decommissioning a handful of offshore installations and turning them into artificial reefs.⁴² Furthermore, some of the platforms are re-used or retrofitted to extend their lifetimes, thus forgoing decommissioning plans. Constraints such as cost of decommissioning, the lengthy process, lack of facilities, etc. also contribute to the lack of decommissioning activity.⁴³

As for the legislative horizon, Malaysia, after issuing the draft guidelines for contaminated land, is expected to follow it up with decommissioning guidelines for offshore installations.⁴⁴ Thailand is also poised to come up with decommissioning guidelines. What is notable with the Thai guidelines is that it is a result of a long-term project started in 2006, to come up with a more rigorous decommissioning regulation. Noting that neither its law nor concession contracts have instructions on how decommissioning should be conducted as well as the various considerations to be

³⁷ Ayoade, supra note 7. See also: Migas Indonesia, <<http://www.migas-indonesia.com/index.php?module=article&sub=article&act=view&id=2336>>.

³⁸ Malaysian Experience, supra note 35.

³⁹ Model Service Contract, source: DOE, <http://www.doe.gov.ph/PECR2006/Petroleum%20PECR%202007/pdf/Model%20contract.pdf>.

⁴⁰ Ayoade, supra note 7.

⁴¹ Stancich, Rikki, *Malaysia's decommissioning market to ramp up in 24 months*, Decomworld, 9 February 2011, source: <<http://social.decomworld.com/qa/malaysia%E2%80%99s-decommissioning-market-ramp-24-months>>

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ Malaysian Experience, supra note 35.

discussed, the Thai decommissioning regulation contains requirement for a management plan (including decommissioning technique, safety and environmental plan and financial costs). It hopes to manage the scale and timing the decommissioning of over 200 existing hundred platforms in the country, while at the same time implement procedures for stakeholder involvement and release of liability of operators.⁴⁵

V. Conclusion

While Malaysia and Thailand are clearly moving towards improving their regulatory frameworks and incorporating sustainability concepts to them, other ASEAN member states are still at the point of developing and improving their decommissioning regulations. Since decommissioning measures are unevenly implemented across the region and principles of sustainable development have yet to be embedded in decommissioning decisions, the challenge to sustain the marine environment of the ASEAN region- which is known for its rich biodiversity- will definitely be enormous.

The increase of disused and abandoned offshore installations in the near future, clearly presents a regulatory challenge for ASEAN countries. It remains to be seen whether the ASCOPE Decommissioning Guidelines for Oil and Gas Facilities, which the ASEAN Council on Petroleum (ASCOPE) is presently drafting will be effective as the regional decommissioning guidelines for the operations of national oil companies in the region. It is hoped that these guidelines will adhere closely to the framework provided by international law which embodies sustainable decommissioning concepts, and at the same time, will pursue each ASEAN state's role in promoting sustainable development within the law of the sea while balancing the economic, energy and environmental interests of the region.

⁴⁵ Witsarut Thungsuntonkhun, *Thailand Decommissioning of E&P Installations Project*, Paper presented in the 2nd Offshore Decommissioning Summit, 13-14 October 2010, Singapore.