LEGAL AND INSTITUTIONAL FRAMEWORK ON DECOMMISSIONING OF UPSTREAM PETROLEUM INSTALLATIONS AND PROTECTION OF MARINE ECOSYSTEMS IN TANZANIA

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Abstract

This article examines the effectiveness of Tanzania's legislative and institutional framework governing decommissioning of petroleum projects in protecting marine ecosystems. The data used in this article were collected using semi-structured interviews and content analysis of laws, reports, and academic works. The findings show that Tanzania's legal and institutional frameworks are inadequate and ineffective in addressing decommissioning as a whole. The article unveils that the law and practice in Tanzania lack effective mechanisms to ensure that decommissioning in petroleum projects results in positive outcomes for the protection of marine ecosystems. The legal regime imposes no mandatory obligation to the license holder to conduct an assessment to guide on the choice of decommissioning alternative. The article, therefore, suggests reform in the legal regime governing decommissioning of petroleum projects with a special focus on the protection of marine ecosystems.

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1.0. INTRODUCTION

Decommissioning has been one of the increasingly important concerns in petroleum projects.[1]It is a critical step of upstream petroleum operations.[2] It is worthy noting that upstream petroleum platforms are not infinite.[3] They have a definite life span which they can operate while making profit. At some point, the plantforms will reach a period when the cost of operations will surpass the income from production hence the platforms no longer be an asset but rather an economic burden.[4]At this time, the platforms will cease to be used for production of hydrocarbons purposes and hence become obsolete. Since obsolete or unused offshore petroleum platforms may pose threat to navigation and harm to marine environment, decommissioning of these facilities become inexorable.[5]This entails that, the rationale behind decommissioning of the offshore obsolete petroleum platforms is to protect marine ecosystems and other users of the sea.[6] Decommissioning of offshore petroleum platforms is important because leaving the installations with crude oil residuals may be a serious threat to the marine

1 Osmundsen, P and Tveterâs, R. "Decommissioning of Petroleum Installations Major Policy Issues, 31(15) Energy Policy, 2003, p 1579 at p. 1585.

2 Torabi, F., & Nejad, SM., "Legal Regime of Residual Liability in Decommissioning: The Importance of Role of States" 133(15) Marine Policy, 2021, p. 1 at p. 2.

3 Anchustegui H and others, Understanding Decommissioning of Offshore Infrastructures: A Legal and Economic Appetizer ,2021, (Online). Available at SSRN: https://ssrn.com/abstract=3882821 or http://dx.doi.org/10.2139/ssrn.3882821, p. 1 at p. 5.

4 Kaiser MJ., & Pulsipher, AG., Rigs-to-Reef Programs in the Gulf of Mexico. 36(2) Ocean Development & International Law, 2005, 36(2), p. 119 at p. 119.

5 Trevisanut S, Decommissioning of Offshore Installations: a Fragmented and Ineffective International Regulatory Framework, in Banet C (Ed.), The Law of the Seabed: Access, Uses, and Protection of Seabed Resources, Boston : Brill Nijhoff, 2020, p. 431 at p. 432.

6 Anchustegui H. and others, Understanding Decommissioning of Offshore Infrastructures, above note 3 at p. 6.

ecosystem.[7] Yet, is irrefutable that marine ecosystems provide invaluable benefits to human life.[8]Therefore, a well undertaken decommissioning is crucial and a useful mechanism for protection marine ecosystem especially when the upstream petroleum operations were conducted offshore.

Decommissioning involves deactivating the production-related installations or platforms when they are no longer commercially feasible.[9] It is the end of the project's life.[10] Decommissioning in the petroleum industry can take place either onshore for the onshore petroleum projects or offshore for offshore or deep sea operations. Onshore decommissioning essentially entails removing outdated infrastructure and preparing land for new uses.[11] On the other hand, offshore decommissioning is a 'process of ending offshore petroleum operations at an offshore platform and returning the ocean and seafloor to its pre-lease condition'.[12]It is a technological and intricate process due to its location and the level of technology it requires.[13] It is a complex and challenging process compared to onshore decommissioning.[14] Shaw and

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7 Schönfeldt K., Germany's position on decommissioning oil platforms in the North Sea: Brent Spar Revisited? (online), available at https://gpil.jura.uni-bonn.de/2020/05/germanys-position-on-decommissioning-oil-platforms-in-the-north-sea-brent-spar-revisited/ accessed on 21 July 2023.

8 Long R. & Charles A & Stephenson R, "Key Principles of Ecosystem-based Management: The fishermen's perspective" 18 Fish and Fisheries, 2017, p. 244 at p. 245.

9 Martins ID. and others, "A Review of the Multicriteria Decision Analysis Applied to Oil and Gas Decommissioning Problems" 184 Ocean and Coastal Management, 2020, p 1 at p.1.

10 The Fourth Schedule of the The Environmental Management (Environmental Impact Assessment and Audit) Regulations, GN No. 349 of 2004 as amended in 2018.

11 Martins ID. and others, "A Review of the Multicriteria, above note 9 at p. 1.

12 Bureau of Safety and Environmental Enforcement (BSEE), Promoting Safety, Protecting the Environment and Conserving Offshore Resources https://www.bsee.gov/what-is-decommissioning-of-offshore-platforms accessed on 16th October, 2022. See also Anyatang B. and Kooffreh B., "Abandonment/Decommissioning under Nigerian Legal Regimes: A Comparative Analysis" 23(2) Environmental Law Review pp 110-127, at p. 110.

13 Ibid.

14 Torabi F. and Nejad SM., "Legal Regime of Residual Liability inDecommissioning, above note 2, at p.2.

others note that better knowledge about effects of decommissioning of offshore facilities is a priority for multiple marine sectors.[15] This is because, in the absence of the better knowledge, decisions by the operationg companies and the government will only base on precautionary approach which may increase the costs of operations.[16]

Decommissioning of petroleum projects may take an option of complete removal, partial removal or leave-in-place (*in situ)* decommissioning.[17] Some literature categorises the options into disposing at land, topping on site, disposing of in deep water, leaving on site, artificial reef and reuse.[18] The options apply to both onshore and offshore decommissioning. Offshore decommissioning can also take the form of recovery, deep sea disposal, shallow sea disposal, or reuse of the installations.[19] The other choices, besides disposal, can be summed up as reuse, recycling, or repurposing of the obsolete hydrocarbon infrastructure.[20]

In the *Brent Spar incident* which is the landmark incident that brought decommissioning to the general public's attention in 1995, options for decommissioning were illustrated. The incident influenced changing of the government policy on marine disposal of waste and application of

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15 Shaw JL., Seares P., Newman SJ., (2018) Decommissioning offshore infrastructure: a review of stakeholder views and science priorities. WAMSI, Perth, Western Australia. (Online) available at www.wamsi.org.au/decommissioning-offshore-infrastructure-review-stakeholder-views-and-science-priorities pdf. p. 1 at p. 1

16 Ibid.

17 Yiallourides C. and Gordon GW., 'Decommissioning of (Abandoned or Disused) Offshore Installations' in Roggenkamp; MM, de Graff KJ and Fleming RC (Eds.), Elgar Encyclopedia of Environmental Law, Edward Elgar Publishing Limited, 2021, p. 277 at p. 278.

18 Australian Offshore Oil and Gas Decommissioning Decision Making Guidelines of 2016.

19 Zawawi A., Liew M. & Na K., "Decommissioning of Offshore Platform: A Sustainable Framework" (paper presented at 2012 IEEE Colloquium on Humanities, Science & Engineering Research (CHUSER 2012)) Malaysia, 3-4 December 2012) at p.27.

20 Norton Rose Fulbright, "Decommissioning, Abandonment, Rehabilitation and End of Life Strategies" available at https://www.nortonrosefulbright.com/en/knowledge/publications/ 6c03f5e1/decommissioning-abandonment-rehabilitation-and-end-of-life-strategies, accessed on January 3, 2023.

the precautionary principle of environmental protection during decommissioning.[21]It is also noted to have triggered changes in the international legal regime on decommissioning of offshore petroleum installations.[22]

The incident involved decommissioning of the oil storage facility which was operated by Shell UK. The oil storage facility became obsolete since 1989 and Shell decided to decommission it in 1992. However, before conducting decommissioning several scientific studies were conducted to guide the decision on how to decommission the facility. Studies came up with two options which are the most common options to decommission offshore petroleum facilities to date. These are, deep sea disposal and onshore dismantling. Findings suggested that deep sea disposal was less costful compared to onshore dismantling. Shell decided to go for deep sea disposal to which was cost effective. However, public and environmental conservationists protest against the decision influenced change of the decision from deep sea disposal to onshore dismantling. Among the key grounds for protest were the impacts of deep-sea disposal on the marine environment. However, later on the Greenpeace later admitted to have overestimated the impacts during its assessment and apologised.

This case sets a precedent on the two options of decommissioning offshore facility which are; deep sea disposal and onshore dismantling. In Tanzania, both options re permitted under the law.[23]

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21 Huxham M. and Sumner AD., Emotion, Science and Rationality: The Case of the Brent, 8 (3) Environmental Values , 1999, p. 349 at pp 349 & 358.

22 Schönfeldt K, Germany's position on decommissioning oil platforms in the North Sea: Brent Spar Revisited? (online), available at https://gpil.jura.uni-bonn.de/2020/05/germanys-position-on-decommissioning-oil-platforms-in-the-north-sea-brent-spar-revisited/ accessed on 21 July 2023.

23 Under the Petroleum Act, No. 21 of 2015, s. 3.

In many jurisdictions currently, before selecting a decommissioning option to undertake, a critical assessment is mandatory.[24] It may be risk assessment, benefit assessment, feasibility assessment and or comparative assessment. Environmental considerations in decommissioning like biodiversity, biomass production, conservation, connectivity, energy consumption and carbon footprint, direct physical disturbance and dispersal of contaminants are taken on board.[25]

Studies on decommissioning of upstream petroleum infrastructure have concentrated on developed countries. Little attention has been given to the developing countries. The rationale might be the fact that the petroleum industry in general and decommissioning in particular is still in its infant stage. For instance in Tanzania to date, no any oil and gas operating company has undergone decommissioning.[26]

Effective decommissioning of upstream petroleum installations calls for effective laws and regulations with penalties for non-compliance to address the complex challenges emerging from it.[27]The legislative framework provides a guide for the choice of decommissioning option including a mandatory assessment to determine the best option in a specific installation area.[28] This article analyses the legal framework governing decommissioning of upstream petroleum installations in Tanzania and the extent to which it promotes the protection of marine

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24 For example Australia, Norway and the United States of America, see Techera E. & Chandler J., "Offshore Installations, Decommissioning and Artificial reefs: Do Current Legal Frameworks best serve the Marine Environment?" 59 Marine Policy, 2015 p. 53 at p. 57-58.

25 Sommer B. and others, "Decommissioning of Offshore Oil and Gas Structures Environmental Opportunities and Challenges" 658(10) Science of the Total Environment, 2019 p. 973 at p. 974.

26 Controller and Auditor General(CAG), the Annual General Report of the Controller and Auditor General on the Audit of Public Authorities and other Bodies for the Financial Year 2015/2016, Dar es Salaam, 2016, at p. 110.

27 Enemo I., Alozie O., Ukaoma C & Nwafor E., "Proposing a Legal Framework for Decommissioning of Oil and Gas Installation in Nigeria" 45(2) Commonwealth Law Bulletin, 2019, p. 1 at p. 1.

28 Ibid.

ecology. The analysis articulates on legal regime relevant to decommissioning focusing on international and regional instruments that Tanzania has ratified and domesticated to become part of its national legal regime. Further, a domestic legal regime has been analyzed including laws, policies, and regulations as well as Model Production Sharing Agreements (MPSAs) which are also part of the legal framework governing decommissioning of petroleum projects. This article highlights the legal gaps and suggests reforms which may be useful in the protection of marine ecosystems during the decommissioning process.

Data used in this article were obtained from semi-structured interviews and content analysis of laws, reports, and academic works. The interview involved government officials from the National Environment Management Council (NEMC), Petroleum Upstream Regulatory Authority (PURA), Tanzania Petroleum Development Corporation (TPDC) and Marine Parks Reserves Unit (MPRU). It also involved Health Safety and Environment officers, environmental engineers, petroleum engineers as well as legal officers from oil and gas companies operating in Tanzania. In data analysis, qualitative content analysis was employed using thematic analysis.

2.0. DECOMMISSIONING OF OFFSHORE PETROLEUM PROJECTS AND THE PROTECTION OF MARINE ECOSYSTEM: THE NEXUS

The possible effects of decommissioning on the marine ecosystem are among the main environmental concerns associated with petroleum operations, especially offshore operations.[29] This has prompted the scholarly discussion of decommissioning alternatives and their potential effects on marine ecosystems. According to Schroeder and Love, factors

29 Martins ID. and others, "A Review of the Multicriteria, above note 9 at p. 2.

contributing to the debate surrounding upstream petroleum installations decommissioning, especially offshore decommissioning are twofold; first is the lack of clarity regarding the effects of converting rigs into artificial reefs for the protection of marine ecosystem and second is the high cost of the decommissioning procedure.[30]

Literature shows that the process of decommissioning upstream petroleum installations may have positive or destructive impacts on marine ecosystems depending on the decommissioning alternative to be opted for.[31]Various environmental impacts resulting from the removal process include; a substantial carbon footprint, waste generation and potential release of contaminants.[32] These are some of the negative impacts. On the other hand, *in situ,* decommissioning of offshore petroleum installations may create artificial reefs which support marine ecosystems.[33]

It is clear that when upstream petroleum installations are removed during decommissioning, most marine lives are destroyed especially when a complete removal is an option.[34] Most marine life is devastated during demolition or plug-out of the infrastructure at the time of decommissioning.[35] This is because the installations that remain for a long time in the marine produce habitats for marine *fauna* and *flora* which

30 Schroeder D and Love M, "Ecological and Political Issues Surrounding Decommissioning of Offshore Oil Facilities in the Southern California Bight" 47 Ocean and Coastal Management, 2004, p. 21 at p. 21.

31 Techera E. & Chandler J., "Offshore Installations, Decommissioning and Artificial reefs: Do Current Legal Frameworks best serve the MarineEnvironment?" 59 Marine Policy, 2015 p. 53 at p. 59.

32 Fowler A., Macreadie P., Jones D. & Booth D., "A Multi-Criteria Decision Approach to Decommissioning of Offshore Oil and Gas Infrastructure" 87 Ocean and Coastal Management, 2014, p. 20 at p. 20.

33 Todd V., Williamson L., Cox S., Todd I. and Macreadie P., "Characterizing the First Wave of Fish and Invertebrate Colonization on a new Offshore Petroleum Platform" 77(3) ICES Journal of Marine Science, 2020, p. 1127 at p. 1127.

34 Meyer-Gutbrod E., and others,"Forecasting the Legacy of Offshore Oil and Gas Platforms on Fish Community Structure and Productivity" 30(8) Ecological Application, 2020, p.1 at p.1 & 13.

35 Ibid.

have to be taken into consideration to ensure their protection during decommissioning.[36]In this regard, leaving the installations in place becomes more ecologically advantageous than removing or relocating them.[37]

3.0. AN OVERVIEW OF THE INTERNATIONAL LEGAL REGIME ON DECOMMISSIONING AND PROTECTION OF MARINE ECOSYSTEM

The first International Convention to address decommissioning (referring to decommissioning as abandonment) was the Geneva Convention of 1958. This Convention was the outcome of the first United Nations Conference on the Law of the Sea, which was held in Geneva in 1958.[38] The Convention provides for the requirement of the entire removal of unused installations.[39] The rationale behind the strict unqualified obligation to conduct total removal in this Convention was perhaps the technological development of the time as oil and gas projects were still onshore which were easily removable.[40] With the technological advancements, the total removal of the installations especially for offshore petroleum projects is not preferable.[41] Studies affirm that since its inception, there has been a departure through its implementation by local laws to accommodate offshore technologies which are highly expensive to perform entire removal.[42] Indeed, with the development of

36 Shaw P., 'Decommissioning and Remediation Challenges for the Petroleum Industry' 57(2) The APPEA Journal, 2017, p. 546 at p. 546.

37 Todd V., Williamson, L., Cox, S., Todd, I., and Macreadie, P., "Characterizing the First Wave of Fish, above at p. 1127.

38 Treves T., 1958 Geneva Convention on the Law of the Sea, available at https://legal.un.org/avl/pdf/ha/gclos/gclos_e.pdf accessed on 2 May 2023.

39 Art. 5 of the 1958 Geneva Convention on the La of the Sea.

40 Hammerson M., Upstream Oil and Gas: Cases, Materials and Commentary, London: Globe Business Publishing Ltd, 2011, at p.440-441.

41 Ibid.

42 Ibid.

offshore technologies, strict rule could not suffice. It has also been noted that Geneva Convention does not put a strict requirement on the removal of pipelines for the protection of marine ecosystems.[43]

The later adopted Conventions departed from the strict unqualified rule of total removal and permitted partial removal. For example, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters of 1972 which Tanzania acceded in 2008, requires the removal of unused man-made structures at the sea through the prohibition of the dumping of wastes.[44] According to this Convention, dumping include unused man-made structures at the sea.[45] The Convention permits partial removal when the circumstances so require.[46] It is thus, an optional aspect to remove man-made structures arising from oil and gas development operations.

Further, the United Nations Convention on the Law of the Sea (UNCLOS) of 1982[47] brought the qualified rule on removal of installation which copes with the deep sea technologies.[48] It requires the removal of the installations and unused structures for the safety of navigation but such removal should take into consideration the protection of the marine environment among other things.[49] The 1982 UNCLOS allows partial decommissioning however, it requires publicity of the installations and structures not entirely removed.[50]It has been

43 Martin AT., "Decommissioning of International Petroleum Facilities Evolving Standards and Key Issues", 5 Oil, Gas and Energy Law (OGEL), 2003, p. 1 at p. 2.

44 Art. 4 of the Convention.

45 Art. 3 id.

46 Art. 4 id.

47 Tanzania ratified this Convention in 1985 and domesticated it through an Act of Parliament, i.e. The Territorial Seas and Exclusive Economic Zones Act, No. 3 of 1989.

48 Art. 60 of the UNCLOS.

49 Art. 60(3) of the UNCLOS.

50 Art. 60(3) of the UNCLOS.

shown that the UNCLOS does not have a provision for the mandatory removal of pipelines as part of installations for the protection of marine ecosystems.[51] It is also to be noted that UNCLOS allows partial decommissioning, but it does not contain a clause on circumstances where partial decommissioning is allowed. It further does not contain standards for decommissioning which necessitated the International Maritime Organization (IMO) guidelines to fill the gap as internationally accepted standards made by the competent international organization.

The IMO Guidelines of 1989 address the removal of unused or abandoned offshore installations and structures to ensure maritime safety and control of marine pollution thus addressing environmental protection.[52] They reiterate Article 60 of the UNCLOS which requires decommissioning to be done according to the accepted international standards made by the competent international organization.[53]As a general rule, the guidelines provide for total decommissioning i.e. an absolute removal of the abandoned or unused offshore installations.[54] However, they offer an exception for the absolute obligation of the entire removal when it will involve extreme costs, unacceptable risk to personnel or marine environment or when it is for the interest of enhancement of marine living resources.[55]The Guidelines allow partial decommissioning under the specified circumstances to be considered by the coastal state including the effects of the remaining installations. The decision should base on a case-by-case evaluation by the coastal state considering circumstances including the effects of the remaining

51 Martin AT., "Decommissioning of International Petroleum Facilities, above note 43, at p. 5.

52 Preamble to the The International Maritime Organization Guidelines of 1989.

53 Preamble to the IMO Guidelines and Standards for Removal of Offshore Installations and Structures of the Continental Shelf and in Export Economic Zones, adopted on 19 October 1989.

54 Para 1 of the IMO Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone, 1989.

55 Para 3 ibid.

installations on the marine environment, absence of endangered species, fishery resources and pollution.

They also require that the state with installations to take care of the deterioration of the material and its present and potential impacts on the marine environment and marine living resources. However, the room for partial decommissioning does not preclude the coastal state from having stringent unqualified removal requirements.[56] Under these Guidelines, total removal is a default option.[57] However, it permits partial removal where; one there is authorization and two is the monitoring of the impacts.[58] They further provide for the factors to consider to allow *in-situ* decommissioning including the rate of deterioration of the material and its present and possible future effect on the marine environment and the potential effect on the marine environment, including living resources.[59] It is worth noting that these Guidelines are merely recommendations as they do not have the status of international law.[60]

At the regional level, the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern Africa Region (1985) is a regional instrument relevant to the management of marine resources in the Western Indian Ocean. Tanzania, being one of the coastal states in the Western Indian Ocean is a party to the Convention. Although the Convention has no express clause on decommissioning or abandonment, it provides for the prevention and control of pollution by dumping of wastes and other matters including manmade structures at sea.[61] The phrase 'manmade

56 Art. 1.4 ibid.

57 Para 1.1 ibid.

58 Para 2 ibid.

59 Ibid.

60 Martin AT., "Decommissioning of International Petroleum Facilities, above note 43, p. 2.

61 See Art. 6 of the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern Africa Region of 1985 as Amended in 2010.

structures at the sea" includes offshore petroleum installations. Hence, the provision on pollution prevention from seabed activities implicitly may cater for decommissioning. The Convention further requires the Contracting Parties to take all appropriate measures to prevent, reduce and combat pollution resulting directly or indirectly from exploration and exploitation of the seabed and its subsoil.[62] This provision entails that all activities which relate to the development of upstream oil and gas operations are amenable to adhere to these precautionary measures.

Admittedly, the absence of an express provision on the requirement of decommissioning gives laxity in the enforcement of the obligation at the regional level. Other jurisdictions have included an express provision on mandatory decommissioning and site rehabilitation to curb the challenge of laxity. Drawing examples from other Regional Sea Conventions; for instance, the Malabo Protocol on Environmental Standards and Guidelines for Offshore Oil and Gas Activities which is an additional protocol to Abidjan Convention, contains a specific obligation to conduct decommissioning.[63] This is useful in simplifying the implementation of the obligation.

Notably, in the international legal regime complete removal is a default option for decommissioning. The international instruments have room for permitting partial decommissioning.[64] However, still, the international legal regime is not comprehensive on the circumstances where partial decommissioning is allowed and other issues related to the left installations to be used as artificial reefs. It has also been noted in other literature that the international legal regime is still inadequate in

62 Art. 8 ibid.

63 Art. 22 of the Malabo Protocol on Environmental Standards and Guidelines for Offshore Oil and Gas Activities of 2019.

64 Torabi, F., & Nejad, SM, "Legal Regime of Residual Liability in Decommissioning, above note 2, at p. 2.

addressing decommissioning hence calling for comprehensive national laws.[65]

4.0. LEGAL FRAMEWORK GOVERNING DECOMMISSIONING OF PETROLEUM PROJECTS IN UPSTREAM PETROLEUM PROJECTS IN TANZANIA

The primary legislation governing petroleum projects in Tanzania is the Petroleum Act which was enacted in 2015. This Act consolidated the Petroleum (Exploration and Production) Act of 1980 and the Petroleum Act, of 2008.[66]The Petroleum Act, 2015 was enacted due to the lack of comprehensive legal and institutional frameworks for the management of the Oil and Gas sector in the country.[67]Decommissioning is an obligatory duty under the Act at the expiry of the project.[68] The Petroleum Act defines decommissioning to include full or partial removal, disposal as well as abandonment. It also covers continued use of the facilities for petroleum activities.[69]Section 3 of the Act The Petroleum Act states that "decommissioning" involves additional use of the facility in upstream or production activities, use of the facility for other purposes, such as gas storage, total or partial removal, as well as disposal or abandonment. This implies that although *insitu* decommissioning or artificial reefing is not expressly mentioned, the definition may extend to those aspects.

The Act establishes several institutions including Petroleum Upstream Regulatory Authority (PURA) to regulate and monitor the petroleum

65 Hamzah, BA., 'International Rules on Decommissioning of Offshore Installations: Some Observations' 27(4) Marine Policy, 2003, p.339 at p. 348.

66 The Petroleum (Exploration and Production) Act, No 27 of 1980 and the Petroleum Act No.4 of 2008 and the Natural Gas Act which was enacted to implement the National Natural Gas Policy of 2013.

67 See the Long Title to the Act.

68 S. 187 of the Petroleum Act, 2015.

69 S. 187(2) of the Petroleum Act, 2015.

upstream subsector.[70] PURA has also the responsibility to advise the Government on decommissioning of petroleum installations.[71]It is mandated to monitor the implementation of decommissioning plan and issue directions on the disposal of decommissioned facilities.[72] In particular, the Act enjoins the holder of a licence to mandatorily inform PURA on the cessation of the facility when the use of such intended to be permanently terminated.[73] Indeed, the receipt of decommissioning plan and notification on the intended cessation of the use of petroleum facilities to PURA are important steps towards addressing marine degradation aspects in Tanzania.

The Petroleum Act empowers the Minister responsible for energy to make regulations.[74]In compliance with this provision, several regulations have been made, to wit; the Upstream Petroleum Regulatory Authority (Annual Fees & Charges) Regulations of 2019, The Petroleum (Natural Gas Pricing) Regulations of 2021, the Petroleum (Local Content) Regulations of 2017 and the Petroleum (General) Regulations of 2011. Most of these regulations have no detailed provisions on decommissioning. They mention decommissioning in defining petroleum operations and others have the provision on EIA which within decommissioning is covered. It is to be noted that to date, there are no specific regulations on decommissioning of petroleum projects have been made.[75] This is the discrepancy even though currently there are various oil and gas operations in Tanzania both onshore and offshore. Hence, detailed regulations are necessary for better

70 S. 11(1) of the Petroleum Act, 2015.

71 S. 12 of the Petroleum Act, 2015.

72 S. 187 and 190 of the Petroleum Act, 2015 respectively.

73 See s. 189 of the Petroleum Act, 2015.

74 S. 258 of the Petroleum Act, 2015.

75 An interview from the Legal Officers from PURA conducted in Dar es Salaam on 9th June 2022 revealed that the draft is still in the process of being promulgated. However, he acknowledged the need to fasttrack the process due to necessity of these regulations in ensuring marine resources protection in upstream petroleum operation areas.

implementation of the provisions relating to decommissioning as part and parcel of the petroleum legislative framework.

Another important piece of legislation is The Environmental Management Act of 2004 which is a framework environmental legislation in Tanzania which prevails in case of conflict with any other legislation on environmental matters.[76] This Act provides for the mandatory requirement of undertaking decommissioning, site rehabilitation and ecosystem restoration at the expiry of petroleum projects.[77] As a general rule, the cost of decommissioning in Tanzania is borne by the license holder. During the submission of the Environmental Impact Statement (EIS), the project proponent is obliged to include the decommissioning plan showing how decommissioning will be done and how the environment will be rehabilitated after the expiry of the petroleum project. The EIS which is submitted to NEMC must contain a decommissioning plan as part of the project. Notably, EIS is submitted before the commencement of petroleum operations. It serves as a precautionary measure in ensuring that petroleum operations adhere to sustainable environmental management standards.

Several regulations have been made under this Act including those with bearing to decommissioning. Specifically, the Environmental Management (Environmental Impact Assessment and Audit) Regulations of 2005 as amended in 2018 are the pertinent regulations governing the conduct of EIA in all projects which are likely to have adverse impacts on the environment. Under these Regulations, all petroleum projects have to be preceded by EIA.[78] The Regulations,

76 S. 232 of the Environmental Management Act, 2004.

77 S. 102 of the Environment Management Act, 2004.

78 Regulation 6 to be read with First Schedule to the Environmental Management (EIA and Audit) Regulations, 2005 as amended in 2018.

therefore, cover decommissioning as the last step for EIA.[79] They refer to decommissioning as the end of the project's life.[80] The Regulations require the decommissioning plan to be included while submitting the project brief to NEMC for screening and while writing a scoping report.[81] The Regulations also require the submission of a decommissioning report to NEMC either as a part of the EIS or as an independent report.[82] According to the regulations, decommissioning report indicates how the impacts will be handled as well as mitigation measures related to costs.[83] It is NEMC which monitors the implementation of the decommissioning plan under these Regulations.[84]

Commendably, the inclusion of aspects of decommissioning in oil and gas vide exercising the EIA in the framework law is evidence of the progressive nature of the legislative framework. Such cognizance sets a solid foundation for the enforcement of the decommissioning issues by the regulatory authorities.

Moreover, the Territorial Sea and Exclusive Economic Zone Act is an Act that was enacted to provide for establishing the territorial sea and exclusive economic zone and exercise of the sovereign rights over the resources thereto.[85] The Act domesticates the UNCLOS and governs the exploration, exploitation, conservation and management of marine resources.[86]

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79 Regulation 15 to be read with the Fourth Schedule of The Environmental Management (Environmental Impact Assessment and Audit) Regulations, GN No. 349 of 2004 as amended in 2018.

80 Ibid.

81 Refer to Form no. 2 and 4 in the Environmental Management (EIA & Audit) Regulations, 2005 as amended in 2018.

82 The Fourth Schedule of the The Environmental Management (Environmental Impact Assessment and Audit) Regulations, GN No. 349 of 2004 as amended in 2018.

83 Ibid.

84 Ibid.

85 See the Long Title of the Territorial Sea and Exclusive Economic Zone Act, No. 3 of 1989.

86 Ibid.

Notably, the Territorial Sea and Exclusive Economic Zone Act recognise the mandate of the Government of the United Republic of Tanzania in respect of all activities taking place in both the territorial sea and the exclusive economic zones. The law exclusively vests jurisdiction on the Government to jurisdiction on exploration and exploitation, conservation and management of natural resources in the seabed and its subsoil; establishment of artificial islands, installation and structures, marine scientific research and the protection and preservation of the marine environment as well as all other rights in the two zones that are recognised by the international law.[87] As a result, any activity in the territorial sea and exclusive economic zones can only be undertaken only if there is in existence an agreement between the Government and a person carrying out such activity including exploring or exploiting any resources; and drill in, or construct, maintain or operate any structure or device.[88] Under these provisions, the United Republic of Tanzania as a sovereign State have a mandate to oversee sustainable exploration and exploitation of petroleum offshore. That being the case, environmental matters are also taken on board as they form part of the regulatory framework for oil and gas operations.

Although the Territorial Sea and Exclusive Economic Zone Act does not contain any provision related to decommissioning it is useful given the fact that it domesticates UNCLOS which provides for decommissioning. Hence, by domesticating that Convention it makes it part of the national legal laws and all provisions relevant to decommissioning therein can be enforced.

Generally, the legal regime in Tanzania has made significant progress in addressing decommissioning of petroleum projects as;

87 S. 9 (1) and (2) of the Territorial Sea and Exclusive Economic Zone Act, 1989.

88 S. 10(1) ibid.

First, it has included a mandatory requirement for conducting decommissioning at the expiry of petroleum projects.[89] In defining petroleum operations, the legal regime includes decommissioning as the last phase of petroleum operations. This makes it mandatory that every petroleum operation should go through decommissioning at the time of cessation of the activity. It is also worth noting that, the legal regime provides for the mandatory requirement for conducting Strategic Social and Environmental Impact Assessments before commencement of petroleum operations.[90]Decommissioning is one of the components covered in EIA.[91]

Also, the legal regime provides for the requirement of submission of the decommissioning plan which covers the facets of how decommissioning will be undertaken at the expiry of the project.[92] It dictates that license holders submit a decommissioning plan to PURA per the regulations.[93] However, to date, there are no regulations on decommissioning in place. Accordingly, there exists only a draft of these regulations which has been prepared and other procedures are currently underway.[94] It is some eight years since 2015 when the Petroleum Act was enacted. The absence of regulations on decommissioning is a disservice to the development of the oil and gas industry thus impairing its smooth implementation.

To ensure its effectiveness, the law requires the decommissioning plan to be submitted to PURA at a minimum period of five years before the expiry of the project.[95] The exceptions to the norm, however, are up to

89 S. 105 of the Environmental Management Act, 2004.

90 S. 33(3)(b) & 67 (k) of the Petroleum Act, 2015. See also s. 81 and 105 of the Environmental Management Act, 2004.

91 The Fourth Schedule of the The Environmental Management (Environmental Impact Assessment and Audit) Regulations, GN No. 349 of 2004 as amended in 2018.

92 S. 187 of the Petroleum Act, 2015.

93 S. 187 (8) of the Petroleum Act, 2015.

94 Interview by Author (10 June 2022, PURA, Dar es Salaam).

95 S. 187 of the Petroleum Act, 2015.

PURA's discretion. PURA is mandated to review the plan and order amendment or additional information from the license holder if deems fit.[96] The license holder also must update the plan to cope with the timely technology, costs and substantial changes made to the facility if any so that it can be realistic.[97]According to the Act, the license holder is required to notify PURA when the facility is expected to expire. PURA is also mandated to issue directions relating to the disposal of decommissioned facilities and the time limit for implementation of the direction.[98]

It is not to be emphasized that implementation of the decommissioning plan is costly, especially for offshore upstream petroleum projects.[99] For example, in the United Kingdom, it has been estimated that between 2021 and 2066 the cost of decommissioning upstream petroleum infrastructure will be £48 billion.[100] It is also to be noted that the law requires that it is the project proponent or developer who bears the cost of decommissioning. On the other hand, decommissioning is the last phase of the project which is undertaken when the project's income is low or there is less profit.[101] To curb the financial challenge which is likely to be faced at the time of implementing the decommissioning plan, the law has included a requirement for establishing a decommissioning fund which is both mandatory and necessary.[102] The contribution to the fund

96 S. 187 of the Petroleum Act, 2015.

97 S.187(7) of the Petroleum Act, 2015.

98 S. 190 of the Petroleum Act, 2015.

99 Osmundsen P. and Tveterås R., ' Decommissioning of Petroleum Installations Major Policy Issues 31(15) Energy Policy 2003, p.1579 at p. 1579.

100 North Sea Transition Authority, Estimates of the Remaining Exchequer Cost of Decommissioning UK Upstream Oil and Gas Infrastructure (March 2022) available at https://www.nstauthority.co.uk/media/8038/estimates-of-the remaining-exchequer-cost-of-decommissioning-uk-upstream-oil-and-gasinfrastructure-march-2022 accessible.pdf.

101 Lei G., Stanko M. and Silva T., 'Formulations for Automatic Optimization of Decommissioning Timing in Offshore Oil and Gas field Development Planning' (165) Computers and Chemical Engineering, 2022, p. 1 at p. https://doi.org/10.1016/j.compchemeng.2022.107910

102 S. 188 of the Petroleum Act, 2015 and Art. 22 of the Model ProductionSharing Agreement (MPSA), 2013.

will commence when petroleum production reaches fifty per cent (50%) of the total recoverable reserves, five years after production began, or rather, upon notice of surrender, whichever comes sooner.[103] It is worth noting that the license holders are entitled to the deduction of the decommissioning contribution made to the decommissioning fund in calculating the income for the year of income as per section 65N.[104] Thus, money dedicated to decommissioning processes is regarded as part of project costs to the licensee or oil and gas operator. This makes such decommissioning payment not subjected to payment of tax as it is an expense for facilitating the oil and gas operations.

The Tanzania legal regime further covers residual responsibility and liability for the left installations. In Tanzania, the law requires that the future maintenance responsibility and liability of the left installations are taken over by the Government based on agreed financial compensation.[105] The financial compensation may help the government in continuous monitoring and ensuring the management of the marine ecosystem in the area where the installations are left. Studies reveal that where partial decommissioning is permitted, it is of extreme necessity that the laws address post-decommissioning residual liability to address continuing monitoring to prevent potential hazards associated with the left installations.[106] Although the legal regime is still developing in the part of post-decommissioning regulation, at least it has started showing a way by addressing some post-decommissioning issues like residual responsibility. However, a will be discussed later on the challenges still the law is not comprehensive on this aspect as no particular government institution is mandated to deal with it.

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103 Ibid.

104 The Income Tax Act, CAP 332 R.E 2019.

105 S. 193(4) of the Petroleum Act, 2015.

106 Torabi F, Najad SM, Legal Regime of Residual Liability in Decommissioning, above note 2, at p.2.

In a nutshell, this article argues that, though the laws have covered important aspects of decommissioning, the provisions are too general to be implemented and therefore call for regulations to address in detail the issues related to how it has to be done to promote the protection of marine ecosystems. Drawing experience from the mining sector, the adoption of the Mining (Safety, Occupational Health and Environmental Protection) Regulations of 2010[107] and the Mine Closure Guidelines of 2019[108] has enriched considerably the legal regime on environmental protection during decommissioning of mining projects in Tanzania.[109] Therefore, the promulgation of the regulations will improve the legislative framework governing environmental management in oil and gas operations in Tanzania. This will be attributed to comprehensive coverage of the regulations on decommissioning and its associated complexities.

5.0. LEGAL AND INSTITUTIONAL CHALLENGES AFFECTING EFFECTIVE DECOMMISSIONING OF UPSTREAM PETROLEUM PROJECTS IN TANZANIA

Despite the significant progress that Tanzania has made toward addressing decommissioning in petroleum projects, the findings of this article show that Tanzania's legal and institutional regime faces several challenges which hamper the effective protection of the marine ecosystem in decommissioning of upstream petroleum projects. Such challenges are examined below;

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107 The Regulations devotes the whole of part XIV for decommissioning of the mining projects. It provides for the standards for rehabilitation and the level of environmental rahabilitation which needs to be attained in conducting rehabilitation see for example regulation 198, 199, 200 just to mention a few.

108 Made under section 19 of the Mining Act No. 14 of 2010.The guidelines address specific aspects unique to decommissioning of mining projects.

109 The guidelines for example provides for the procedures for conducting decommissioning of the mining project and scientific studies required to be incorporated in mining closure plan.

First, decommissioning in petroleum projects in Tanzania is governed by multiple and fragmented policies, laws and regulations which create overlapping mandates of institutions. Having been governed by multiple laws and policies itself is not necessarily a problem.[110] It only becomes a problem where there is no coordination and harmonization of the provisions of the laws and policies.[111] For instance, the laws governing decommissioning include the Environment Management Act and the Petroleum Act and their attendant regulations. Each set of policies and legal framework provides for a regulatory regime on the matter. Implementation might face divergent approaches to the same as the legislative framework is designed to meet the requirement of each different laws depending on the nature of the law itself. On this ground, it is argued that laws and regulations in emerging markets are vague and widely untested and their applications are inconsistent.[112]

Second, fragmented key players to offshore decommissioning leading to the absence of the dominant player is another challenge. Decommissioning of upstream petroleum installations involves multisector stakeholders in the absence of coordination mechanisms. For example, the Environmental Management Act requires that at the time of conducting EIA the project proponent or developer of the project should submit to NEMC the decommissioning plan as a part of the Environmental Impact Statement or as an independent report.[113] It also

110 Interview by Author (8 June 2022, Dar es Salaam).

111 Ibid.

112 See Kurth H., "Decommissioning Hydrocarbon Assets: Finding Value in a Shifting Regulatory Landscape" (Online) accessed at https://www.huntonak.com/images/content/3/7/v2/37276/ Decommissioning-Hydrocarbon-Assets.pdf on 5th February 2023.

113 The Fourth Schedule of the The Environmental Management (Environmental Impact Assessment and Audit) Regulations, GN No. 349 of 2004 as amended in 2018. In practice, during perusal of the Environmental Impact Statements it was discovered that decommissioning plans were submitted as part of EIS. However, most of them were extremely brief (not more than one page) therefore they had no compreherensive address of how decommissioning will be

gives a mandate to NEMC to monitor the implementation of decommissioning plan.[114] On the other hand, the Petroleum Act requires the license holder approaching the cessation of the project to submit decommissioning plan to PURA at least five years before the expiry of the project.[115] PURA is also mandated to monitor the implementation of decommissioning plan.[116] As a regulatory authority, PURA has the power to order a review of the plan.[117] However, at the time of reviewing the plan as per instructions of PURA the law does not make it mandatory for the license holder to resubmit the revised decommissioning plan as per the instruction of PURA to NEMC. During the monitoring of the implementation of the decommissioning plan, the two institutions are likely to monitor two different versions of the plan something which may confuse the license holder and affect the general monitoring process. Indeed, the lack of harmonization of these laws is likely to cause a challenge to the implementation and achievement of effective decommissioning.

Third, in Tanzania, the operation of what is stipulated in the principal legislation is hampered by the absence of decommissioning regulations. The lack of specific regulations to govern decommissioning of petroleum projects leads to inadequacies in the legal regime to address specific decommissioning issues. It is an accepted view that in a modern state, the central government regulates a variety of activities and makes

undertaken. This calls for regulations or guidelines which will provide guidance on important issues to tbe adressed in the decommissioning plans.

114 The Fourth Schedule of the The Environmental Management (Environmental Impact Assessment and Audit) Regulations, GN No. 349 of 2004 as amended in 2018.

115 S. 187 of the Petroelum Act, 2015.

116 S. 187of the Petroleum Act, 2015.

117 S. 187(6) Petroleum Act, 2015.

interventions in numerous fields.[118] Hence, it is absurd to expect Parliament to pass all of the many laws and regulations needed to handle the intricate and technological problems that call for specialized expertise.[119]Regulations help to cover the detailed information not covered in the principal Act generally supplementing the law which need not to provides for the nitty gritty of operational aspects. Having specific regulations on decommissioning may help to specify detailed procedures for pre-decommissioning, decommissioning and post-decommissioning phases. The technical issues which parliament cannot go into them due to lack of expertise in an area are addressed in regulations and rules.[120] Generally, regulators admitted that the absence of specific regulations affects their functioning as these regulations will contain details which are not included in the principal legislation.[121] The Germany Permanent Secretary at the Federal Ministry for Environment, Nature Conservation and Nuclear Safety once stated on the Brent Spar Sagga of 2019 that 'We now have an opportunity to lay down a clear procedure for the future on the environmentally sound disposal of disused oil platforms'.[122] In our view, clear procedures for decommissioning unused petroleum platforms at the national level can be laid down in the regulations.

Although this article noted earlier that the petroleum industry is still in its infancy stage and no project has undertaken decommissioning yet,

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118 Marume S., Jubenkanda R., Namusi C., Madziyire N., "Subsidiary Legislation as a Vital Component of Administrative Law" International Journal of Scientific Engineering and Research (IJSER), 2014 www.ijser.in ISSN (Online): 2347-3878 p. 59 at p.60.

119 Ibid.

120 Shafie MS., Arif MI., Hanapi H., Hisham H. & Hassan FM., "Subsidiary Legislation in Malaysian Administrative Law: Definition, Advantages & Grounds to Challenge it" 8(10) International Journal of Scientific and Research Publications (IJSRP), 2018, p. 292 at p. 292.

121 Interview by Author (10 June 2022, PURA, Dar es Salaam).

122 Schönfeldt K., Germany's position on decommissioning oil platforms in the North Sea: Brent Spar Revisited? (online), available at https://gpil.jura.uni-bonn.de/2020/05/germanys-position-on-decommissioning-oil-platforms-in-the-north-sea-brent-spar-revisited/ accessed on 21 July 2023.

with time the industry grows and some of the projects will start undertaking decommissioning in the near future. For instance, the CAG report notes that Pan African Energy Tanzania will undertake decommissioning at Songosongo by October 2025.[123]This necessitates the fast-tracking of the Regulations to prepare an environment in terms of the legal regime to ensure that the undertaking of decommissioning will be well regulated. Having Regulations in place is also useful because it will ensure protection will be given to the marine ecosystem, especially for offshore upstream petroleum projects.

Fourth, although the legal regime has included strict enforcement procedures to ensure compliance by providing for joint and several civil and criminal liability for liability decommissioning issues, the liability does not extend to the parent company of the International Oil Company. This entails that it does not include an aspect of vicarious liability to the parent company which may be useful in case the government fails to recover all the damages from the International Oil Company.[124] The Petroleum Act requires where the decommissioning fund is not sufficient to cover the implementation of the decommissioning plan, the licence holder, contractor, and where applicable, the owner of the facilities shall cover the costs and expenses. It may happen in a situation where all of the mentioned parties cannot afford to cover the insufficiency, in that circumstance the parent company may be held vicariously liable to recover the amount required to implement decommissioning.

Fifth, the law simply provides that the government bears liability for the left installations but no government institution is mandated specifically to take care of such left installations if they are to be converted to

123 CAG Report on Audit of the Public Authorities, above note 26, at p. 110.

124 Kooffreh B. & Anyatang B.,"Abandonment/decommissioning under Nigerian Legal Regimes: A Comparative Analysis", 23(2) Environmental Law Review, 2021, p. 63 at p. 77.

artificial reefs for protection of marine ecosystem.[125] Notably, since 1980s the need to preserve ecosystems created by offshore installations has been supported strongly.[126]The rationale is that, after offshore structures stay for some years in the area, they attracts marine invertebrates to attach to them which in turn attracts fish to feed on them and hence forming a complex food chain.[127] When that is the case, complete removal of the structures may cause more harm to the ecosystem created than leaving the installations *in situ*. At this point, residual liability and responsibility becomes crucial to be addressed to make it clear as who bears the liability of the left installations. Failure designate a particular body to ensure management of the left installations is likely to lead to management problems. As a result, the left installations may contaminate the marine environment or lead to other negative impacts. It is well illustrated by the saying that "when everyone's responsible, no one is responsible" which entails that, responsibility has to be well defined to indicate who bears which liability.[128] Hence, the conspicuous silence of laws on this aspect creates a gap which is likely to lead to devastating impacts on the marine ecosystem. Generally, Tanzania's legal regime is still developing on a post-decommissioning regulatory regime and requires improvement.

Sixth, the absence of harmonization between Acts of Parliament and Model Production Sharing Agreements (MPSA) on the appropriate place to open decommissioning funds and when contributions to the fund should commence. Most of the production-sharing agreements were entered using the 1980 Petroleum (Exploration and Production) Act and they contain stabilization clauses to the subsequent laws which are likely

125 S. 193(4) of the Petroleum Act, 2015.

126 Kaiser MJ., & Pulsipher AG., Rigs-to-Reef Programs in the Gulf of Mexico, above note 4, at p.120.

127 Ibid.

128 See Quote No. 6 of Albert Bandura top 80 Quotes (2023 update) at https://quotefancy.com/albert-bandura-quotes as accessed on 5th February 2023.

to affect the contractors economically. The existing conflict between PSAs and Acts of Parliament may render the Acts of Parliament redundant. For example, the MPSA 2008 requires that decommissioning funds be opened in the bank with a long-term rating of not less than AA while the Petroleum Act of 2015 and MPSA of 2013 have no such requirement. The Petroleum Act is silent on that aspect while the 2004 and 2008 MPSAs qualify the bank-worthy opening of such funds but in Tanzania, no bank has such a qualification. On one hand, the investor prefers looking for an international bank which meets the requirements, on the other hand, the government wants the contribution to be made to the local banks.[129] The question remains as to whether the requirement in the PSAs should be addressed or the Petroleum Act which has no such requirement. As a result, there are license holders who have reached the time to start contributing to the decommissioning fund, but no fund has been opened and no contribution has been made to date.[130] The major challenge is where should the money be deposited.[131] It was noted in the field that, this challenge delays the opening of funds and commencement of contributions.[132] It is therefore likely that the delay in the opening of decommissioning fund of the Songosongo project run by Pan Africa which has left only two years to be decommissioned might have been backed by this challenge. The CAG report notes that the challenge of failure to open the fund may result in leaving decommissioning costs after the expiry of the Production Sharing Agreement to fall into the government.[133] The outcome of this may be a loss to the government or if the government fails to rehabilitate the environment then it may result

129 Interview by Author (6 June 2022, Dar es Salaam).

130 Interview by Author (10 June 2022, PURA Dar es Salaam).

131 Ibid.

132 Interview by Author (8 June 2022 Dar es Salaam).

133 CAG Report, above note 26, at p. 110.

in an adverse impact on the marine ecosystem since some of these projects are undertaken offshore.[134]

Seventh, inadequate technical personnel in the institutions to regulate and monitor decommissioning processes in petroleum projects.[135] It is not contested that decommissioning of petroleum facilities is technical. It requires expertise with experience to handle and supervise the whole chain of decommissioning process from its commencement to finalization. Hence, the role of adequate personnel resourced with skills cannot be emphasized.[136] It is argued that although there were steps taken on capacity building in the oil and gas sector through Oil for Development Project led by the Norwegian government, still the problem is existing.[137] Most of the beneficiaries of such capacity-building projects are no more working in institutions dealing with the environment and oil and gas.[138] The reasons for such inconsistencies may arise from the government's inability to retain such trained personnel due to low remunerations in the public service compared to private entities, transfer of staff from one entity to the other as well as limitations in terms of creativity within public service. This has therefore called for more investment in capacity building to prepare skill-resourced personnel to work in the sector.

5.0. CONCLUSION

The discussion has found that decommissioning is one of the legally recognized mechanisms used to manage the environment in areas where

134 For example the Songosongo project undertaken by Pan African Energy Tanzania.

135 Interview by Author (8 June 2022 Dar es Salaam).

136 Mmari D., Andilile J. and Fjeldstad O., the Evolution and Current Status of the Petroleum Sector in Tanzania in Fjeldstad O., Mmari D., Dupuy K.(Eds.), Governing Petroleum Resources Prospects and Challenges for Tanzania 2017 , 19 p. 1 at p. 84.

137 Interview by Author (7 June 2022 Dar es Salaam).

138 Ibid.

petroleum projects are undertaken. The legal regime in Tanzania allows both partial and complete/total decommissioning of petroleum projects depending on the circumstances. However, complete removal is still the default option in decommissioning petroleum projects. It has been noted that the legal framework governing the decommissioning of petroleum projects in Tanzania is multiple, fragmented and uncoordinated therefore requires review and harmonization. The existing legal framework needs to be supplemented by regulations specifically covering the manner and procedures for decommissioning to enhance the legislative framework. The conspicuous absence of these regulations makes it difficult to implement the recognised legal requirements. Efforts must be put in place to promulgate the decommissioning regulations.

Further, the conflicting provisions of laws and those in the PSAs which are contractual arrangements for specific oil and gas operation projects have the impact of causing derailment of the implementation. As between actors in the sector, reliance on the PSAs which resulted from negotiations seems to be more preferred than adherence to recently enacted laws which have changed the legislative landscape to accommodate more practical issues on implementation of the decommissioning in oil and gas projects. The conflict can be addressed by negotiations between parties to the PSAs by improving the same to create a smooth implementation.

For a multiplicity of institutions, there is a need to create a platform to bring together actors to avoid potential institutional conflicts and confusion which are likely to happen due to the conflicting mandates of those institutions as per their established legal frameworks. Also cooperation amongst institutions dealing with environmental management generally and those in oil and gas operations specifically can pave the way for avoidance of institutional conflicts. There is a dire need to ensure that all responsible institutions create better working

cooperation in undertaking their mandates for the betterment of sustainable management of the environment in oil and gas operations.

Generally, this study recommends that the regulations should require conducting an assessment a few years before decommissioning to guide the type of decommissioning appropriate to a particular project while creating a balance between economic and environmental factors as well as enhancing personnel in oil and gas decommissioning within the Government and regulatory institutions to address the existing gaps are crucial towards achieving the intended results of need to have proper decommissioning.