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Environmental Impact of Oil on Water: A Comparative Overview of the Law and Policy in the United States and Nigeria

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I. INTRODUCTION

Oil has been, and will probably remain in the foreseeable future, the most important energy source in the world.[1] But its use has attendant risks. Prominent among these risks is the environmental degradation associated with its production and use. Oil pollution ushered in by the petroleum industry worldwide has been described as a necessary price for cultural modernization and advancements in state infrastructure.[2] The task of controlling and minimizing the adverse impact of this inescapable consequence of production, trans-portation, refinement, and use of oil rests with municipal and international governments. Oil pollution affects land, water, and air. However, the focus of this article is limited to the impact of oil pollution on water, since it presents the most critical problems in Nigeria.[3]

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1. C. TUGENDGART & A. HAMILTON, OIL: THE BIG BUSINESS 1 (1975) *in* OPEC Bulletin 55 (1994). There is, however, a growing push to reduce dependence upon oil as a source of transportation fuels for environmental reasons. But the oil industry appears generally to be responding to the environmental concerns in different ways including the introduction of a new fuel-the Reformulated Gasoline-which is expected to cut certain automotive emissions by as much as 20 per cent or more. *14 Areas Exempted from the Clean Gas Plan*, N.Y. TIMES, Dec. 25, 1994, at 26.

2. M.A. Adewumi & T. Ertekin, *Oil and Natural Gas Drilling and Transportation-Environmental Problems and Control, in* ENVIRONMENTAL CONSEQUENCES OF ENERGY PRODUCTION: PROBLEMS AND PROSPECTS 141 (S.K. Majumdar et al., eds., 1987). *See also* G. ETKERENTSE, NIGERIAN PETROLEUM LAW 62 (1985) (asserting that even in the best of oil field practice, spillage of crude oil and the resultant pollution cannot be completely eliminated).

3. *See infra* notes 34-50. This is not to suggest, however, that the pollution of the other media is not troubling. Arable farmlands have been lost to oil pollution. A Bendel State Government publication in 1987 (now defunct) stated that about one-quarter of the available land in the Delta area of the state had been rendered barren due to oil spillages and leakages. *See* HAZARDS OF OIL EXPLORATION IN BENDEL STATE 6 (1987) (neither can the effects of gas flaring that goes on unabated in the oil producing areas in Nigeria be underestimated).

The problem of oil pollution in Nigeria is monumental.[4] The Nigerian government and the oil industry are doing too little to redress the situation.[5] This inaction has led to great feelings of frustration on the part of the affected communities and has forced them to resort to measures-such as civil disobedience,[6] protests, and riots, primarily aimed at attracting attention to their plight and ultimately, in most cases, leading to disruptions of oil production.[7] Perhaps the most famous was the agitation caused by the Ogoni tribe in Southeastern Nigeria for compensation and environmental restoration. This disturbance continues to attract

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4. *Id.* According to Nigeria's former Minister of Works and Housing, 2796 oil spill incidents involving a total of 88.2 million gallons of crude oil were reported between 1976 and 1990. *Nigeria To Tighten Pollution Control*, THE OIL DAILY, Dec. 17, 1991, at 2(1). Note, however, that the actual quantity spilled during this period might have been much more than that stated since for much of the period, the operating companies freely chose whether to report a spill incident or not depending particularly on their judgment of which spills they considered significant. *See* Soga A. Awobajo, *An Analysis of Oil Spill Incidents in Nigeria: 1976-1980, in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT-PROCEEDINGS OF 1981 INTERNATIONAL SEMINAR 57 (1981) [hereinafter THE PETROLEUM INDUSTRY]. The country continues to be treated to reports of deaths, evacuation of whole villages, destruction of property and sea life, pollution of drinking water and drastic fall in the people's standard of living all as a result of oil pollution. F.O. McOliver, *Legislating Environmental Protection: Cost-Benefit Analysis, in* THE PETROLEUM INDUSTRY 43. In fact, recent press reports which stated that some oil producing communities in Nigeria are threatened with extinction due to oil pollution and poverty caused by oil exploration do not seem to be overstatements. *See, e.g., Nigeria: Oil-Producing Community Threatened*, INTER PRESS SERVICE, Oct. 6, 1993, *available in* LEXIS, Nexis Library, CURNWS File.

5. J.N. Nwankwo & D.O. Irrechukwu, *Problems of Environmental Pollution and Control in the Nigerian Petroleum Industry, in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT 102, 105 (1985) (stating that "since the inception of the oil industry in [Nigeria] . . . there has been no concerted and effective effort on the part of government or the oil companies to control the environmental effects of the petroleum industry"). *But see* O. Adewale, *Federal Environmental Protection Agency Decree and the Petroleum Industry*, 16 J. PRIVATE & PROPERTY L. 51, 63 (1992/93) (stating that the Department of Petroleum Resources has done a commendable job). On the part of the industry little, voluntary action is ever taken to redress the situation. For instance, after nearly four decades of Shell's operations in Nigeria, and probably acting under pressure from environmental groups, it only recently saw fit to support an "independent, internationally coordinated" environmental study of operation areas. *Shell Hopes Niger Study Disproves Pollution Claims*, JOURNAL OF COMMERCE, Jan. 9, 1995, at 5B. *See also Shell Admits Causing Pollution in Nigeria, Announces Survey Plan*, AGENCE FRANCE PRESSE, Feb. 3, 1995, *available in* LEXIS, Nexis Library, CURNWS File. Earlier, the Trustee Savings Bank of U.K. sold its holdings in Shell "in protest at the company's environmental and social policies in Nigeria." *'Green' Shell Shares Sold in Protest at Spills*, THE INDEPENDENT (London), Oct. 24, 1994, at 12.

6. For instance, the Ogoni tribe in southeastern Nigeria successfully boycotted elections held in June 1993 which were, however, later annulled by the military for wholly unrelated reasons.

7. The Department of Petroleum Resources has stated that in 1993 alone oil companies "lost about 30 million barrels of crude [oil]" due to clashes with communities. *Nigeria: Tribal Heads Press Oil Companies to Meet Local Needs*, JOURNAL OF COMMERCE, Oct. 28, 1994, at 11B. Recently, one of the communities (Ugborodo) in an open letter to Nigeria's military ruler threatened to disrupt Chevron's oil field in protest against the company's failure to pay them compensation for spills dating back to 1978. *Chevron Faces Nigerian Threat Over Spill Protests*, JOURNAL OF COMMERCE, Oct. 25, 1994, at 5B.

some measure of international attention.[8] The reaction of the Nigerian government has been to forcefully suppress these uprisings, resulting in gross violations of human rights.[9] Adopting a comparative approach, this article will argue that the government of Nigeria and the oil industry can and should address the concerns of its communities, thereby curtailing the damaging consequences of continuing oil pollution and the losses incurred from disruption in production encouraged by the present situation.

First, in Section II, this article considers the sources of oil in the different water bodies and its effects. While the major concern with oil pollution in the United States appears to be with transportation-related activities, in Nigeria, oil field pollution presents the greatest risk to the health of all organisisms. The effects of oil pollution of water to humans, marine organisms, and the ecology will be briefly discussed. Second, in Section III, the attempts to regulate pollution in the oil industry, as it affects water, in Nigeria will be compared with the approach employed in the United States. The comparison is relevant despite the huge technological and economic disparities between the two nations. Since oil exploration and production is a global industry, dominated largely by the same group of transnational corporations,[10] they should be expected to adopt the same standards and technology worldwide for the uniform protection of the planet from pollution. Oil is an international commodity which brings the same price per barrel regardless of where it is produced. Thus, it can be asserted that the oil producing corporations make the same profits from their operations no matter whether the oil is produced from Nigeria or the United States.[11] Since these corporations have the technol-

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8. Various international groups (e.g. Amnesty International, Greenpeace, International PEN, etc.) and some British MPs are involved in the Ogoni struggle against exploitation and the pollution of its environment by oil extraction. This struggle by the Ogoni tribe championed by its Movement for the Survival of Ogoni People (MOSOP) earned the organization and its leader, Ken Saro-Wiwa the 1994 Right Livelihood Award. *Nigerian Rights Activist, Self-Help Groups Win Alternative Nobel*, AGENCE FRANCE PRESSE, Oct. 12, 1994, *available in* LEXIS, Nexis Library, CURNWS File. For graphic accounts of the ordeals and struggle of the Ogoni tribe, see John Vidal, *Born of Oil, Buried in Oil*, THE GUARDIAN (London), Jan. 4, 1995, at T2; *Shell-Shocked: The Environmental and Social Costs of Living with Shell in Nigeria*, GREENPEACE INTERNATIONAL, July 1994 [hereinafter *Shell-Shocked*].

9. According to Amnesty International in its report of November 10, 1994, "[g]overnment forces are killing and raping civilians and pillaging their towns in retribution for complaints about pollution from the country's oil industry." *Nigerian Troops Hit on Rape, Pillage*, THE WASHINGTON TIMES, Nov. 11, 1994, at A21.

10. The seven major companies, widely known as the "seven sisters" were the British Petroleum, Exxon, Mobil, Shell, Gulf, Chevron, and Texaco. But with the Chevron/Gulf merger there are now only "six sisters." *See generally* A. SAMPSON, THE SEVEN SISTERS: THE GREAT OIL COMPANIES AND THE WORLD THEY MADE (1976). The oil industry in Nigeria is dominated by four of these multinationals, with Shell accounting for about half of Nigeria's crude production.

11. The profit margins might even be higher in many of the developing countries because of lower taxes, cheaper labor, and overall lower costs of production.

ogy required to minimize the adverse impact of oil exploration and production on the environment, the same technology should be employed in all of their operations worldwide. However, Nigeria's experience in replicating operations of other countries reveals that absent a strict and viable regulatory regime, multinational corporations use less expensive and sloppy production methods with obvious deleterious effects solely to maximize profits. A recent report by Greenpeace International noted that:

> While oil companies' operations in developed regions are usually accompanied by environmental impact assessments, social and environmental policies and not to mention a great deal of effort to appease the justified concerns of local communities these practices are not exported to lesser developed regions where little or no media attention is paid and where accountability is unheard of.[12]

This article argues, therefore, that disparities in standards in oil exploration and production in different countries are more a function of the value attached to environmental care by those countries than the state of their technological and economic development.[13]

Third, in Section IV, this article assesses the strengths and weaknesses of the Nigerian and U.S. approaches. It examines the numerous and sometimes overlapping Nigerian and U.S. statutes, the common law, and, to a limited extent, international law to demonstrate that the current approach in both countries: 1) focuses largely on post-accident response rather than prevention, 2) that prevention of pollution is a more effective approach, and 3) that liability for oil spills is inappropriate. It will also show why certain aspects of environmental regulation in the oil industry are in the interest of public health and should not be subjected to economic analysis as urged by the industry.

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12. *Shell-Shocked*, *supra* note 8, at 9. With particular regard to Shell's operations in Nigeria, the report added that the company's "operations and materials are outdated, in poor condition and would be illegal in other parts of the world. *Id.* This view was clearly corroborated by a U.S. petroleum executive who stated that "foreign companies can operate in Nigeria in ways they cannot do just a few miles off the coast of California," *Oil and Politics Make for Dangerous Mix in Nigeria*, L.A. TIMES, Sept. 11, 1994, at M2, and by a senior official of the World Wide Fund for Nature who also stated that "people get away with things in Nigeria that they'd be locked up for in the Gulf of Mexico." *Shell: After Years of Criticism, Company Changing Habits*, GREENWIRE, Jan. 25, 1995, *available in* LEXIS, Nexis Library, CURNWS File. Any wonder then why the amount of oil spilled by Shell in Nigeria alone between 1982-1992 accounted for about 40 percent of the company's total spills in its operations in more than 100 countries in the same period, whereas Nigeria accounts for only 14 percent of Shell's total production. *Shell-Shocked*, *supra* note 8, at 6, 12. On the attitude of transnational corporations towards environmental care in developing countries, *see* MICHAEL REDCLIFT, SUSTAINABLE DEVELOPMENT: EXPLORING THE COTRADICTIONS 73-78 (1987).

13. The link between development and environmental protection is conceded but may not justify all cases of neglect. *See* J. MAYDA, *Environmental Legislation in Developing Countries: Some Parameters and Constraints*, 12 ECOLOGY L.Q. 997, (1984/85) (noting some of the constraints facing developing countries in their quest for environmental protection). *See infra*, notes 324-332 and accompanying text.

Finally, Section VI recommends that the enforcement machinery in the Nigerian law be strengthened and that the governments of all oil producing and consuming nations apply greater pressure on transnational oil corporations to adopt environmentally safe technologies and procedures in their operations worldwide. It is the joint respnsibility of all nations to develop a sustainable policy for all parts of the world.[14]

II. SOURCES OF OIL IN WATER

Oil, including its products and wastes can enter water from a variety of sources occuring at every stage of production, transportation, refining, and use. These sources include: 1) discharges of sludge from oil tankers, 2) disposal of oil-containing waste water from ships,[15] 3) accidental rupture or grounding of oil tankers, 4) dumping of waste oil, 5) natural oil seeps,[16] 6) intentional discharge as a weapon of war,[17] 7) leaks from storage facilities and pipelines, 8) well blowouts, 9) atmospheric fallout, and 10) improper discharge of wastes such as produced water, drilling muds, cuttings and refinery effluents. According to the U.S. Council on Environmental Quality,[18] vessel-source pollution constitutes the major source of oil pollution in and around U.S. waters. This pollution occurs mainly through operational discharges by oil tankers and accidental spills.[19] Pipeline accidents and spills at production wells, refineries, and storage facilities also contribute to the oil pollution problem but in less significant proportions.[20]

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14. *See* The Rio Declaration on Environment and Development, 31 I.L.M. 874 (1992), Principles 6, 7 [hereinafter *Rio Declaration*].

15. *See* ENVIRONMENTAL TRENDS, COUNCIL ON ENVIRONMENTAL QUALITY, EXECUTIVE OFFICE OF THE PRESIDENT 50 (1989).

16. It has been estimated that somewhere between 0.2 million and 6 million metric tons of oil are discharged annually through this natural process. R. D. Wilson, *Estimates of the Annual Input from Natural Marine Seepage, in* OCEAN AFFAIRS BOARD EFFECT OF PETROLEUM IN THE MARINE ENVIRONMENT 1 (1973).

17. For instance, during the 1991 Gulf War, Iraq was reported to have intentionally released over 6 million barrels of crude oil into the Arabian Gulf as a military weapon. *See* M.J.T. Caggiano, *The Legitimacy of Environmental Destruction in Modern Warfare: Customary Substance Over Conventional Form*, 20 B.C. ENVTL. AFF. L. REV. 479 (1993).

18. Rio Declaration, *supra* note 14.

19. Worthy of mention is the spill resulting from the grounding of the *Exxon Valdez* in 1989 in Prince William Sound, Alaska during which a total of about 11 million gallons of crude oil were spilled. It has been characterized as the worst environmental disaster in America. The renewed concern that emerged in the wake of the spill created the political momentum that led to the passage of the Oil Pollution Act, 1990. Generally, it is estimated that ships discharge about 1.5 million tons of oil into the sea each year. INTERNATIONAL MARITIME ORGANIZATION, MANUAL ON OIL POLLUTION 1 (1988). Most spillage comes from from routine operations such as tank washings and operational discharges, accounting for four or five times more pollution than spills and blowouts. *See* CAMPBELL-MOHN ET AL., ENVIRONMENTAL LAW FROM RESOURCES TO RECOVERY 741 (1993). *See also* J.W. KINDT, MARINE POLLUTION AND THE LAW OF THE SEA 740-41 (1986) (stating that "accidental oil spills by tankers do not even account for 10 per cent of the totals for vessel-source pollution").

20. Rio Declaration, *supra* note 14. But it has been contended, with some amount of justification, that the perception of massive tanker spills as the major source of oil pollution

In comparison, in Nigeria, oil field pollution presents the greatest risk from the oil industry.[21] Nigerian waters are polluted from well blowouts,[22] indiscriminate direct discharge of production wastes and refinery effluents on land and water, leaks from pipelines and storage tanks, spills during storage and loading operations at terminals,[23] and discharges of waste oil into waters from motorized boats. Communities living close to production sites, refineries, and pipelines have had to contend with polluted rivers, streams, creeks, and groundwater for a long time.[24]

Groundwater is further contaminated by liquids from surface impoundments or spills from storage tanks, pipelines, improperly closed or abandoned oil wells, and poorly constructed injection wells. The oil, product, or waste infiltrates the ground and percolates downward to the water table. Whether the contaminants reach the groundwater, in fact, is dependent upon a number of factors including 1) the viscosity and permeability of the soil, 2) the quantity and characteristics of the pollutant, and 3) the depth of the water table aquifers.[25] Studies indicate that groundwater contamination by hydrocarbons in Nigeria is significantly influenced by a combination of these factors notably the low viscosity and high permeability of Nigerian geological formations and shallow depth

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in the U.S. is not true and could only be explained by the fact that such tanker spills grab headlines and cause public outcry. Rather, it is claimed, the majority of the spills occur at fixed facilities. *See Report of Proceedings of the International Oil Spill Conference, in* OIL SPILL U.S. LAW REPORT (1993), *available in* LEXIS, Nexis Library, CURNWS File. *But see* WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW 376 (1994) (stating that all eight of the catastrophic spills (those exceeding 1 million gallons) from 1976 have been the result of tanker accidents, from the *Argo Merchant* grounding in December 1976 to the *Exxon Valdez* spill in March 1989).

21. 'Equipment malfunction' has been found to account for 50 percent of all the spills recorded in Nigeria. *See* Awobajo, *supra* note 4, at 59; C.N. Ifeadi & J.N. Nwankwo, *Critical Analysis of Oil Spill Incidents in Nigerian Petroleum Industry, in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT-PROCEEDINGS OF 1987 INTERNATIONAL SEMINAR 104, 108-09 [hereinafter THE PETROLEUM INDUSTRY 1987].

22. The Funiwa-5 well blowout of January 17, 1980, discharged about 17.6 million gallons of crude oil into the waters. A study done after this incident found among other results that well water in the area contained 40 times the permissible amount of petroleum, hydrocarbon penetrated about 50 miles inland, and about 100 miles of sand beach were affected. Palczynski, *Hydrocarbon Concentration in the Gulf of Guinea After Major Oil Spills*, PROCEEDINGS OF AICHE SUMMER NATIONAL MEETING, *quoted in* Okogu, *Economic Aspects of Oil Spillages: Risk Management and Options for Coping, in* PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON THE NATIONAL OIL SPILL CONTINGENCY PLANNING FOR NIGERIA 60, 65 (1991).

23. On July 6, 1979, a rupture of a storage tank at the Forcados Terminal led to an escape of some 23.9 million gallons of oil into the waters. E.C. Odogwu, *Economic and Social Impacts of Environmental Regulations on the Petroleum Industry in Nigeria, in* THE PETROLEUM INDUSTRY, *supra* note 4, at 49, 50. That incident remains to date the largest single spill in Nigeria.

24. For instance, until fairly recently there were hardly any restrictions on the discharge of wastes with the result that water bodies were the direct receiving medium. *See infra* notes 211-214 and accompanying text.

25. Akomeno U. Oteri, *A Study of the Effects of Oil Spills on Ground Water, in* THE PETROLEUM INDUSTRY, *supra* note 4, at 89.

aquifers.[26] As a result of these geologic qualities, groundwater contamination by hydrocarbons is a widespread and growing environmental problem in Nigeria.[27] Direct spills of hydrocarbons into groundwater are particularly problematic, because minor spills can pollute a large volume of water for a considerable period of time.[28] Such spills have turned water wells in some communities into "gasoline wells."[29]

III. EFFECTS OF OIL ON WATER

There has not always been a consensus, even among scientists, on the exact effects of oil pollution on water. Studies of specific spills have shown considerable disagreement on the damage and magnitude arising from such spills, attributable to the opposing interests of those undertaking the studies.[30] Yet another source of uncertainty is the many variables which could influence the impact of oil pollution on the receiving water.[31] These include the type and volume of oil, hydrography, climatic or seasonal changes, length of contact, previous exposure of the area to oil, and the indigenous biota. However, a review of the literature[32] reveals that

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26. *See, e.g.*, Ifreadi & Awa, *Groundwater Contamination by Hydrocarbons in the Nigerian Petroleum Industry, in* THE PETROLEUM INDUSTRY 1987, *supra* note 21, at 84-85. The authors stated that Nigerian crude oils are characteristically light and, therefore, have higher percentage of the lighter, more water-soluble components, and are less viscous than the heavier crudes. Their downward migration is also favored by the geology which is characterized by an overlying permeable layer.

27. *Id.* at 85 (stating that the greatest number of the contamination cases are from buried storage tanks and delivery pipelines). In the U.S., the Conservation Foundation in its 1987 review of environmental trends had observed that existing pollution control programs had done little to protect groundwater quality. It noted that "contamination is widespread, threatening drinking water supplies for millions of Americans." STATE OF THE ENVIRONMENT: A VIEW TOWARD THE NINETIES 87-88 (Conservation Foundation ed., 1987).

28. Fodeke & Ladan, *Guidelines for Environmental Quality Monitoring in Oil, Gas, and Petrochemical Industries in Nigeria, in* THE PETROLEUM INDUSTRY 1987, *supra* note 21, at 27, 28.

29. OTERI, *supra* note 5. *See also* J.O. Osgood, *Hydrocarbon Dispersion in Groundwater: Significance and Characteristics*, 12 GROUND WATER 427 (1974) (reporting the discovery of oil in a newly installed well in Pennsylvania the source of which was found to be a pipeline rupture that happened about 20 years earlier).

30. For instance, there has been considerable disagreement on the exact magnitude of the damage done by the Exxon Valdez spill between the industry and those serving its interests on the one hand and the government, the victims and environmental groups on the other hand. *See, e.g.*, INT'L PETROLEUM ENCYCLOPEDIA 189 (1993); J.M. BAKER, TWO YEARS AFTER THE SPILL: ENVIRONMENTAL RECOVERY IN PRINCE WILLIAM SOUND AND THE GULF OF ALASKA 11 (1991); *Exxon Valdez Spill Damage Worse for Animals Than Previously Thought, Government Report Says*, 21 Envtl. L. Rep. 2234 (1991). A commentator wrote that the spill not only ruined fishing in Prince William Sound but also "ruined a way of life," and accused Exxon's scientists of concealing the true consequences of the spill. R. Ott, *Exxon Oil Spill Devastated a Way of Life*, N.Y. TIMES, Sept. 8, 1994, at A16.

31. E.C. Masteller, *The Influence of Oil Drilling Operations and Crude Oil on the Biological Community, in* ENVIRONMENTAL CONSEQUENCES OF ENERGY PRODUCTION, *supra* note 2, at 164.

32. S.E. Manaham, Environmental Chemistry 29 (5th ed., 1991); Masteller, *supra* note 31 at 167; J.M. BAKER, *supra* note 30; R.O. ANDERSON, FUNDAMENTALS OF THE PETROLEUM

there is a consensus that water can be adversely affected by the presence of petroleum, its product, or waste. In other words, it is generally agreed that petroleum in water is harmful, even though the extent of the harm may not be agreed upon.

The impact could be on the aquatic life, aesthetic values, recreation, navigation, or even the health of humans. The presence of oil, or its resultant tar residues in the form of pellets, balls, or globs on the beaches, is unsightly and impairs recreational activities like swimming or water skiing. These effects are important, but the concern about petroleum-caused damage to water goes far beyond appearances and recreation. The greatest concerns are for the health and safety of lifeforms and the long-term ecological and environmental well-being of the planet.[33]

A. *Effect on Aquatic Life*

Aquatic life can be affected in more than one way. Oil, as many other pollutants in water, consumes dissolved oxygen during degradation, and a shortage of oxygen could be fatal to the living organisms in water. Many fish kills are caused not by the direct toxicity of pollutants, but by the biodegradation of pollutants which consumes and causes a deficiency of life sustaining oxygen.[34] A Council on Environmental Quality report stated:

> In relation to toxicity, a significant positive correlation has been reported between concentration of polycyclic aromatic hydrocarbons[35] metabolites and mutations in marine organisms. Studies have also shown that certain polycyclic aromatic hydrocarbons induce carcinoma formation in various marine organisms and can be acutely toxic.[36]

Known effects to marine organisms include disruption of physiological or behavioral activities which may reduce many species' resistance to

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INDUSTRY 246 (1984); Nwankwo & Irrechukwu, *supra* note 5, at 102-04; J.W. KINDT, *supra* note 19, at 751-52; ENVIRONMENTAL TRENDS, *supra* note 15; NATIONAL RESEARCH COUNCIL, OCEAN SCIENCES BOARD, OIL IN THE SEA-INPUTS, FATES, AND EFFECTS 383, 483, 487 (1985); Idoniboye & Andy, *Effect of Oil Pollution in Aquatic Environment*, *in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT-PROCEEDINGS OF 1985 INTERNATIONAL SEMINAR 311; R.S. WILLIAMS, ENVIRONMENTAL CONSEQUENCES OF THE PERSIAN GULF WAR (1991); H.R. JONES, POLLUTION CONTROL IN THE PETROLEUM INDUSTRY 3 (1973).

33. ANDERSON, *supra* note 32 at 246. For a general discussion on some of these injuries, *see also* Thomas R. Post, *Private Compensation for Injuries Sustained by the Discharge of Oil from Vessels on the Navigable Waters of the United States: A Survey*, 4 J. MAR. L. & COM. 25, 29-31 (1972/73).

34. S.E. Manaham, *supra* note 32, at 29.

35. These are complex chemical compounds that are found in, among other sources, unburned fossil fuels, such as crude oil, coal, and peat.

36. Rio Declaration, *supra* note 14, at 47. *See also* ANDERSON, *supra* note 32, at 246 (stating that although petroleum products are not usually very active chemically, many products and components of crude oil are toxic and that have the potential to kill and injure marine organisms and even human beings when ingested or inhaled).

infection or stress and interference with reproductive capabilities. Additional effects are disturbance of the food chain, and "direct coating" which impedes the vital processes of respiration and feeding in animals, prevents sunlight penetration to plants, and increases temperature by absorbing solar radiation.[37] Any one, or a combination of these effects, results in massive kills of fish, fish eggs and larvae, birds, otters, crabs, and other animals inhabiting water.[38] These effects could ultimately dislocate the social and economic life of the communities who rely on the contaminated waters for fishing, particularly subsistence fishing. This has been the fate of many of the riverine oil-producing, fishing-dependent communities in Nigeria.

B. *Effect on Human Health*

Of greater concern is the potential for these contaminants to create a hazard to human health. In Nigeria, the problem is exacerbated by two factors. First, most of rural Nigeria, and even some cities, lack access to potable water. Less than 22 percent of rural Nigeria has access to safe water,[39] and most of the oil-producing communities do not fall into this small class.[40] As a result of the lack of water treatment facilities, the major sources of water for drinking are rivers, streams, and groundwater. Second, operators in the Nigerian petroleum industry have had considerable leeway in their manner of operations. Insufficient consideration has been given to the environment in which oil producers operate.[41] Wastes from their operations have, in many cases, been discharged on land or surface water, and oil leaks into fresh water bodies have not been promptly remedied.[42] More so than in developed countries, the result in Nigeria, shows that wastes from oil fields, refineries, pipelines, and stor-

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37. *Id.* at 50. *See also* KINDT, *supra* note 19, at 751.

38. A government report on the Exxon Valdez spill stated that by 1991 the spill had killed half of Prince William Sound's sea otter population, 580,000 sea birds, and had caused a 70 percent higher death rate in salmon eggs in the region. 21 Envtl. L. Rep. 2234 (1991). A 25,000 gallon oil spill from a barge in 1986 off the central California coast was reported to have "wiped out prime sea bird habitat and killed approximately 10,000 birds." *Apex Oil to Pay $6.4 Million to Settle Federal, California Claims from 1986 Spill*, 25 Envtl. L. Rep. 1029 (1994). Fish-kill was also reported from the Funiwa-5 oil well blowout in Nigeria. E. Ekekwe, *The Funiwa-5 Oil Well Blowout, in* THE PETROLEUM INDUSTRY, *supra* note 4, at 64, 66; NWANKWO & IRRECHUKWU, *supra* note 5, at 102. J.M. BAKER, *supra* note 30, at 13 (also reported a 90 percent mortality of fish eggs and larvae in the areas affected by the *Torrey Canyon* spill off southwest England and the *Argo Merchant* spill off Nantucket).

39. WORLD RESOURCE INSTITUTE, THE 1994 INFORMATON PLEASE ENVIRONMENTAL ALMANAC 437 (1994).

40. *See* Vidal, *supra* note 8.

41. *See* Nwanko & Irrechukwu, *supra* note 5.

42. *Id.*, at 103. There was a report of an incident where a damaged pipeline kept oozing crude oil into the water system for over two months without any attention from the pipeline owner. The report added that the affected water system was the source of drinking water for thousands of people but was more "like grease" as a result of the spillage. *Nigeria: Oil Spillage Fuels Nigerian Rivalries*, INDEPENDENT ON SUNDAY (LONDON), August 15, 1993, at 10.

age tanks pose an increased risk to human health because of greater contamination of drinking water by petroleum.[43]

The intake by humans of some of these contaminants poses grave health hazards, since they have been proven to be toxic.[44] Brine has been found to be sufficiently toxic to be harmful to animals, including humans.[45] Refinery effluents are also known to contain heavy metals, in concentrations beyond tolerable limits, which cause metabolic malfunctions in humans.[46] Many of the chemicals derived from crude oil, like benzene, toluene, butylene, and others are proven carcinogenic, mutagenic and teratogenic.[47] The high incidence of respiratory disorders, cancer, asthma, and birth deformity in many of Nigeria's oil-producing communities has been attributed to oil pollution.[48] Life expectancy in one community is 45 years, compared to Nigeria's nationwide rate of 57 years.[49] A report on the Funiwa 5 well blowout blamed the resultant oil spill for the deaths of 180 persons in one of the affected villages two months after the spill.[50]

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43. *Id.* The Romi and Rodi rivers near the Kaduna Refinery in northern Nigeria and the well waters in the surrounding villages are said to be heavily polluted from the petroleum product spillage that has occurred unabated from the refinery. *See* FEDERAL ENVIRONMENTAL PROTECTION AGENCY, GUIDELINES AND STANDARDS FOR ENVIRONMENTAL POLLUTION IN NIGERIA 72 (1991); FODEKE & LADAN, *supra* note 28, at 28 (reporting that community boreholes in one of the villages were turned into 'gasoline wells').

44. Madu, *Toxicity of Crude Oil, Impact on Food Chain and Man, in* PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON THE NATIONAL OIL SPILL CONTINGENCY PLANNING FOR NIGERIA 167, 168 (1991).

45. R.O. ANDERSON, *supra* note 32, at 246; Ajao et al, *The Effect of Oil Formation Water On Some Marine Organisms, in* THE PETROLEUM INDUSTRY, *supra* note 4, at 80-81. *See also* American Petroleum Institute, Environmental Guidance Document, *Onshore Solid Waste Management in Exploration and Production Operations* § 4.1 (1989) (noting that brine is strongly saline and that the amount of total dissolved solids in brine could be up to 150,000 parts per million; by contrast sea water ordinarily contains about 35,000 parts per million of total dissolved solids).

46. Nwankwo & Irrechukwu, *supra* note 5, at 102.

47. Benzene is said to be particularly harmful because of its serious toxic effect on the bone marrow. Benzene poisoning could lead to a variety of results including narcosis and death. S.O. Olusi, *Human Health Hazards Associated with Petroleum Related Pollution, in* THE PETROLEUM INDUSTRY, *supra* note 4, at 195, 195-96. *See also* Idoniboye & Andy, *supra* note 32, at 311; Bloth et al, *Cancer Mortality in U.S. Counties with Petroleum Industries*, 198 SCIENCE 51-53 (1977) (reporting the results of a survey of cancer mortality in U.S. counties with petroleum industries which showed a correlation between high mortality rate and existence of petroleum industries).

48. *Nigeria Oil-Producing Community Threatened, supra* note 4.

49. *Id.*

50. THE TEXACO OIL BLOW-OUT REPORT 120-21, 233-34 (R. Abdah ed., 1980), *quoted in* J.F. Fekumo, *Civil Liability for Damages Caused by Oil Pollution, in* ENVIRONMENTAL LAWS IN NIGERIA 254, 267-68 (J.A. Omotola ed., 1990). More recently, another spillage in Nigeria resulted in the hospitalization of about 20 villagers who "took ill after drinking water polluted by the spillage." *Nigerian Oil Spillage Causes Havoc, Agency Says*, REUTERS WORLD SERVICE, Nov. 20, 1994, *available in* LEXIS, Nexis Library, CURNWS File.

IV. THE REGULATORY REGIMES

Both the United States and Nigeria have laws which impact the problem of water pollution by oil. In addition, certain relevant international rules apply to the two nations.

A. *United States Oil Pollution Laws*

Oil pollution legislation has a long history in the United States. Beginning with the Rivers and Harbors Act of 1899, there are over a dozen federal enactments in force applying, in varying degrees, to the problem of oil pollution of water.[51] Individual states also retain jurisdiction over this area and have passed exercising this authority. Additionally, common law holds oil companies liable for oil pollution under actions including negligence, nuisance, trespass, strict liability, and negligence per se.[52] The most popular tort liability theory asserted is nuisance because it does not require the plaintiff to prove negligence on the part of the defendant, and also because, more than the other theories, it offers a greater chance of recovering higher damages, including punitive damages.[53]

These legislative and common law rules are supplemented by a large body of regulations enacted by the several agencies vested with jurisdiction.[54] The result is a complex patchwork of laws and regulations that are time-consuming and tedious for even the most sophisticated experts to wade through and emerge with any certainty of the law. While an examination of all the laws is beyond the scope of this paper, other scholarly works address the interplay between international legal frameworks and these regulatory schemes.[55] The discussion that follows is largely restricted to federal enactments and to a selected number of laws considered most significant.

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51. Some of these enactments include the Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation, and Liability Act, Ocean Dumping Act, Clean Water Act, Outer Continental Shelf Lands Act, Oil Pollution Act, Safe Drinking Water Act, Wild and Scenic Rivers Act, Coastal Zone Management Act, Trans-Alaska Pipeline Authorization Act, Migratory Bird Treaty Act, Deepwater Port Act, Ports and Waterways Safety Act, etc.

52. *See generally* W.R. Keffer, *Drilling for Damages: Common Law Relief in Oilfield Pollution Cases*, 47 S.M.U. L. REV. 523 (1994). Specifically for the strict liability rule, *see infra* note 244.

53. *See, e.g.*, Marshall v. El Paso Natural Gas Co., 874 F.2d 1373 (10th Cir. 1989).

54. At the federal level alone there are the Environmental Protection Agency, the Department of Transportation (including the Coast Guard), the Army Corps of Engineers, the Department of Interior, the Minerals Management Service, etc. The same is true of several of the states; e.g., in Oklahoma there are the Oklahoma Corporation Commission, Department of Environmental Quality, Water Resources Board, and the Department of Wildlife Conservation all exercising jurisdiction over pollution from the oil and gas industry.

55. For a detailed and masterly coverage of the subject, *see* MICHEAL M. GIBSON, ENVIRONMENTAL REGULATION OF PETROLEUM SPILLS AND WASTES (1993).

1. The Safe Drinking Water Act[56]

The Safe Drinking Water Act (SDWA), passed in 1974 and amended in 1986, is geared towards the protection of underground sources of water. Part C protects underground waters through a regulatory program controlling the subsurface injection of substances. It requires the Environmental Protection Agency (EPA) to propose and promulgate "minimum requirements" for state programs to prevent underground injection which endangers water sources.[57] The provisions require that state programs must prohibit any underground injection except as authorized by permit or by rule. The applicant for the permit has the burden of proving to the state that the proposed underground injection will not endanger drinking water sources. The promulgation of any rule which authorizes underground injection which endangers drinking water sources is prohibited.[58] However, section 300h(b)(2) provides that EPA regulations for state underground injection control programs may not enact requirements which interfere with or impede the underground injection of brine or other fluids associated with oil and gas production either for disposal or for enhanced recovery, unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection.

The EPA regulations made pursuant to the Act define five different classifications for injection operations.[59] In this classification, Class II injection wells cover the oil and gas industry injection operations. The regulations for this class generally allow the injection of fluids that are brought to the surface during oil and gas production and fluids injected for enhanced recovery. In all cases, the law requires that underground sources of drinking water may not be endangered by such injection.[60]

Amendments in 1986 to the SDWA required each state to adopt and submit to the EPA in three years a state program to protect wellhead areas in their jurisdiction from contaminants which may adversely affect the health of persons.[61] Also noteworthy, particularly from the point of view of protecting public health, are the provisions of section 300(i) granting emergency powers to the EPA. The section provides that where the EPA determines that a contaminant is present, or is likely to enter a public water system or an underground source of drinking water which may present an imminent and substantial endangerment to the health of

56. 42 U.S.C. §§ 300f, 300j-26 (1988).

57. *Id.* § 300h(b)(1).

58. *Id.* § 300h(b)(1)(A),(B) 22.

59. 40 C.F.R. §§ 144.6, 146.5. (1995)

60. Section 300h(d)(2) provides that injection endangers drinking water sources if it may result in the presence of any "contaminant" in underground water "which supplies or can reasonably be expected to supply" public water systems, if the presence of such contaminant results in a system's not complying with any national primary drinking water regulation or if it "may otherwise adversely affect the health of persons."

61. 42 U.S.C. § 300h-7.

persons, the agency may take any action it deems necessary to protect the health of such persons, including issuing orders requiring the provision of alternative water supplies by persons who caused or contributed to the endangerment and commencing a civil action for appropriate relief, usually an injunction.[62]

The regulation of underground storage tanks is also relevant to the protection of underground sources of drinking water from petroleum and other contaminants. The Hazardous and Solid Waste Amendments[63] were enacted in 1984 to the Resource Conservation and Recovery Act. A portion of the amendments established a regulatory program for underground storage tanks.[64] The EPA has since promulgated regulations covering, among other things, technical standards and corrective action, investigation, and reporting requirements for underground storage tanks.[65] Tanks with a capacity of 110 gallons or less are exempt from the regulations.

2. The Federal Water Pollution Control Act[66]

The Federal Water Pollution Control Act, referred to as the Clean Water Act (CWA), was enacted in 1948, but significantly amended in 1972. It was passed principally to control any point source discharges into the "waters of the United States." The Act states national goals of fishable and swimmable waters by 1983 and the elimination of pollutant discharges into navigable waters by 1985.[67] The basic premise of the CWA makes the discharge of any contaminant into the waters of the United States unlawful unless the discharge is made pursuant to a permit issued under the Act.[68] The term "waters of the United States" has been so broadly defined by the regulations and cases that it is thought to cover all waters that contribute or could contribute to interstate commerce including non-navigable intermittent streams and isolated wetlands which may seldom fill with water.[69]

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62. *Id.* at § 300i(a). Violation of or failure or refusal to comply with any such order may attract a civil penalty of up to $5,000 for each day in which such violation or failure to comply continues. 42 U.S.C. § 300i(b).

63. 42 U.S.C. § 6901 *et seq.*

64. *Id.* § 6991 *et seq.*

65. 40 C.F.R. § 280.

66. 33 U.S.C. §§ 1251-1387 (1988).

67. *Id.* at § 1251(a). The policy goal to eliminate all discharges into navigable waters has been characterized as "impossible." W. RODGERS, ENVIRONMENTAL LAW: AIR AND WATER 19 (1986). The adoption of a no discharge policy by the CWA was severely criticized by the National Water Commission, suggesting that water pollution should be defined in relative terms depending on the uses to which the water is put at present or in the future as may be determined by responsible public authorities. *Final Report of the National Water Commission, Water Policies for the Future* 69-70 (1973).

68. 33 U.S.C. § 1311(a).

69. *See, e.g.*, 33 C.F.R. § 328.3; United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 106 S.CT. 455, 88 L.Ed. 2d 419 (1985); United States v. Texas Pipe Line Co., 611 F.2d 345 (10th Cir. 1979); Stephen M. Johnson, *Federal Regulation of Isolated Wetlands,*

a. Liability for Oil Spills

Section 1321 of the CWA specifically addresses the discharge of oil and hazardous substances into or upon the waters of the United States. It prohibits the discharge by any person of oil or hazardous substances into or upon the waters of the United States in such quantities as "may be harmful," as determined by regulations made thereunder.[70] However, certain discharges may be permitted, namely those into the contiguous zone permitted under MARPOL 73/78,[71] and those permitted in circumstances or conditions, as regulations may stipulate.[72]

The EPA determined that a "harmful quantity" of oil is that which 1) violates a state water quality standard approved by the EPA under section 1313 of the CWA, 2) "cause[s] a film or sheen upon or discoloration of the surface of the water or upon adjoining shorelines, or [3]) cause[s] a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines."[73] A "sheen" is defined as "an iridescent appearance on the surface of the water."[74] The sheen is produced by the refraction of light at the oil-water interface. From these definitions, the quantity of oil spilled is inconsequential since it takes only a small quantity of oil to create a sheen. Accordingly, liability might arise even if no actual harm results from a discharge. This may, in fact, have been the intention of Congress in deleting "in harmful quantities" and substituting "quantities as may be harmful" in the 1978 amendments to the CWA.

Prior to the amendments, courts would not permit a penalty if the defendant could prove that the discharge had not been harmful. Thus, in *United States v. Chevron Oil Company*,[75] the court emphasized that by the language of Section 311 of the CWA, Congress had not chosen to prohibit *all* discharges of oil, but rather only discharges in "harmful quantities." However, following the amendments, the courts have held that actual harm to the environment is irrelevant when determining whether the prohibition of discharges in Section 311 were violated. In *Chevron U.S.A., Inc. v. Yost*,[76] the court held that the 1978 amendments authorized the EPA to prohibit spills that "may be harmful" regardless of whether they caused actual damage. The court stated: "In sum, the agency may both proscribe incipient injury and measure its presence by a test that avoids elaborated inquiry."[77] The court recognized that this approach might lead

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See also 23 ENVTL. L. REP. 1 (1993).

70. 33 U.S.C. § 1321(b)(3).

71. Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships. 17 I.L.M. 546.

72. *Id.*

73. 40 C.F.R. § 110.3 (this is commonly known as E.P.A.'s "sheen test" for oil discharges).

74. *Id.* at § 110.1.

75. 583 F.2d 1357 (5th Cir. 1978).

76. 919 F.2d 27 (5th Cir. 1990).

77. *Id.* at 30.

to overregulation, but it noted that "it is equally apparent that this imprecision is a trade-off for the administrative burden of case-by-case proceedings."[78]

It is pertinent to note that not all point source discharges attract liability under the CWA since certain discharges may be permitted.[79] The Act established the National Pollutant Discharge Elimination System (NPDES) for permitting point source discharges from industrial sources, with limitations set on the amount and characteristics of pollutants that can be discharged under an NPDES permit. However, EPA has promulgated regulations forbidding the discharge of *any* pollutants into surface waters from onshore oil and gas facilities.[80]

Whenever a vessel, offshore facility, onshore facility discharges oil or hazardous substances, the "person in charge" of such vessel or facility is required to report to the National Response Center as soon as he has knowledge of the discharge.[81] Failure to make the report as required exposes the person at fault to criminal liability and punishment of up to five years imprisonment or $500,000 fine or both.[82]

Violation of the "no-discharge provision" or failure to comply with the Federal Government's directives regarding cleanup operations triggers liability for civil penalties which may be assessed administratively or determined in a civil penalty action in a federal district court. The administrative penalty may be for an amount up to $25,000 per violation or $10,000 per day for each day during which the violation continues.[83] Liability for this penalty is not fault-based; instead it is a form of strict liability.[84] In *United States v. Coastal States Crude Gathering Co.*,[85] the defendant's pipeline was installed in accordance with all applicable governmental regulations and standard industry practice. Nevertheless, oil leaked from it when it was struck by a vessel owned by an unknown third party traveling well outside the navigation channel. The court upheld the Coast Guard's imposition of a civil penalty, holding that liability for civil penalties under Section 1321 of the CWA is absolute.[86]

It is difficult to rationalize the absence of any defenses to a civil pen-

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78. *Id. See also* Orgulf Transport Co. v. United States, 711 F. Supp. 344, 347 (W.D. Ky. 1989).

79. 33 U.S.C. § 1321(b)(3).

80. 40 C.F.R. § 435.32.

81. 33 U.S.C. § 1321(b)(5), 40 C.F.R. § 110.10. It is also provided that such report shall not be used against the person in any criminal case arising from the discharge, except a prosecution for perjury or for giving a false statement.

82. *Id.*

83. *Id.* at § 1321(b)(6).

84. The blameworthiness of the discharger is relevant only in the determination of the amount of the civil penalty. 33 U.S.C. § 1321(b)(8).

85. 643 F.2d 1125 (5th Cir. 1981), *cert. den.*, 454 U.S. 835 (1981).

86. *See also* United States v. Marathon Pipe Line Co., 589 F.2d 1305 (7th Cir. 1978) (upholding a civil penalty even though the facts showed that the operator was not at fault at all).

alty claim, but the discharger may avoid liability for cleanup costs under certain circumstances.[87] For instance, an owner or operator of a vessel or facility from which a discharge occurs solely because of an act of God or war would be liable for payment of a civil penalty, but be able to avoid payment of removal costs. The imposition of civil penalties in circumstances where no fault is established on the part of the operator, as in the above case, is as unjustified as it is unfair. The payment of compensation to third parties for damage, if any, resulting from such spill is sufficient liability for the discharge. The observations of Wood, Circuit Judge, in his concurring opinion in *United States v. Marathon Pipe Line Co.*[88] are noteworthy. He stated:

> I recognize . . . no justification for the basic unfairness [the payment of the penalty] involves.The company is concededly not guilty of the slightest fault. It in no way caused the accident, except it was in business. Just being in business of supplying critical energy or other needs for our society scarcely justifies this type of penalty being imposed by someone in a government agency. I fail to see how it will deter or remedy anything. The company did not conceal the accident, but actively engaged in efforts to contain the spill . . . . Little good can be accomplished in these particular circumstances by this process which is generally considered to be contrary to the accepted principles of law and equity.[89]

As noted above, the civil penalty may be assessed in federal district courts.[90] The penalty may be for an amount up to $25,000 per day of violation, or an amount up to $1,000 per barrel of oil discharged. When a discharge is found to be the result of "gross negligence or willful misconduct" the penalty can be for an amount not less than $100,000, and not more than $3,000 per barrel of oil discharged.[91] Note, however, that this procedure is an alternative to the assessment of an administrative penalty.[92] Whichever procedure is adopted, the person liable for the penalty is the "owner, operator, or person in charge" of the vessel or facility from which the oil is discharged. An action may also be initiated for an injunction to abate imminent and substantial threats to public health or welfare from a vessel or facility.[93]

Under the CWA, the owner or operator of a facility or vessel from which the harmful quantities of oil are discharged, either onto surface waters or on land from where the oil is likely to reach surface water, is

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87. *See infra* notes 102-103 and accompanying text.

88. 589 F.2d 1305 (1978).

89. *Id.* at 1310. Bauer, Circuit Judge, also opined that the punishment of a business that is faultless is a "self-defeating exercise of power" noting that " 'strict liability' concepts normally refer to *compensation*, not punishment without fault."

90. 33 U.S.C. § 1321(b)(7).

91. *Id.* at § 1321(b)(7)(D).

92. *Id.* at § 1321(b)(7)(F).

93. *Id.* at § 1321(e).

primarily liable to arrange for the removal of the oil.[94] The federal government also has authority to remove or contain oil spills or threats of oil spills.[95] Where the Federal Government acts pursuant to this authority, it is entitled to recover the removal costs from the responsible party subject to certain prescribed limits.[96] The monetary limits vary according to whether the discharge is from a vessel or an onshore or offshore facility. For onshore and offshore facilities, owners and operators are liable up to the statutory limit of $50 million. Under regulations made pursuant to section 1321(f)(2), the EPA has set lower limits for small onshore storage facilities with capacity of 1,000 barrels or less.[97] The limit is $200,000 for aboveground storage facilities and $260,000 for underground storage facilities. However, these regulations appear to have been superseded by later amendments to section 1321 which limited the agency's discretion by stipulating a minimum of $8 million in any case.[98]

In the case of an inland oil barge, the statutory limit is $125 per gross ton of such barge or $125,000, whichever is greater. For any other vessel, the amount recoverable is up to $150 per gross ton or $250,000, whichever is greater.[99] These limits do not apply where the federal government can show that the discharge was the result of "willful negligence or willful misconduct" within the privity and knowledge of the owner. If a willful violation is found, then the owner or operator is liable for the full amount of the removal costs.[100] It is important to note that the limits apply only to cleanup costs sought by the federal government, they do not in any way modify or affect the rights of the federal government, state government, and other governmental and private parties to seek compensation under any other law for damages to any public or private property resulting from the discharge or removal of oil or hazardous substances.[101]

The CWA permits certain defenses to liability. Accordingly, the owner or operator is not liable to the government for removal costs if he can prove that the discharge was caused *solely* by 1) an act of God, 2) an act of war, 3) negligence on the part of the United States Government, or 4) an act or omission of a third party.[102] In fact, where any of these de-

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94. *Id.* at 1321(c).

95. *Id.*

96. *Id.* at § 1321(f).

97. 40 C.F.R. § 113.

98. 33 U.S.C. § 1321(q). D.E. Pierce, *Regulating Surface Water Impacts Associated with the Exploration, Development, Production, and Transportation of Oil and Gas*, 1994 ROCKY MTN. MIN. L. INST., MIN. L. SER. 3-1, 3-28 to 3-29.

99. 33 U.S.C. § 1321 (f).

100. *Id.*

101. *Id.* at § 1321(o).

102. *Id.* at § 1321(f). Note, however, that under subsection (g) an owner or operator of a vessel carrying oil as cargo or an onshore or offshore facility which handles or stores oil in bulk, from which there is a discharge, who alleges that the discharge was caused solely by the act or omission of a third party is still liable to pay to the federal government the costs incurred for removal and shall be entitled by subrogation to all the rights of the federal government to recover such costs from such third party.

fenses is available, an operator or owner who already incurred removal costs is entitled to recover such costs from the federal government.[103]

b. Regulation of Produced Water

Produced water is released from containment in oil and gas bearing formations during the course of oil and gas operations. It is also commonly referred to as "brine," or "salt water," or "formation water." It is estimated that oil and gas operations in the U.S. result in the production of about 21 billion barrels of produced water annually.[104]

Discharge of produced water in groundwater is regulated under the SDWA, while the CWA regulates discharge into surface waters. As noted earlier, section 1311(a) of the CWA generally prohibits the discharge of any "pollutant" into navigable waters from a "point source" unless the discharger obtains a permit. A point source would include a source of produced water.[105] Produced water is also covered by the definition of the term "pollutant". However, the definition specifically excludes water that is either injected for disposal, or for enhanced recovery purposes when the state where the well is located "determines that such injection or disposal will not result in the degradation of ground or surface water resources."[106]

Accordingly, such injections for disposal or enhanced recovery will not require a NPDES permit. However, if the produced water is not going to be injected, a NPDES permit is required unless an alternative disposal technique, permitted under state law,[107] is used which will not result in a discharge into waters of the United States. In order to qualify for a permit, the discharge must comply with effluent limitations designed to meet state water quality standards and minimum technological requirements imposed by the Act.[108]

The EPA has promulgated minimum standards for discharge of produced water and the regulations divide oil and gas operations into five categories.[109] These categories are: 1) offshore, 2) onshore, 3) coastal, 4) agricultural and wildlife water use, and 5) stripper. The regulations provide that NPDES permits may allow some discharges into waters in the coastal and offshore categories, subject to limits on oil and grease con-

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103. *Id.* at § 1321(i).

104. S. Lansdown, *The Problem of Produced Water — Obtaining the Right to Dispose of It and Avoiding Liability for Such Disposal*, 44 INST. ON OIL & GAS L. & TAX'N 3-1, 3-4 (1993). *See also* J.C. Harrison, *An Overview of Environmental Laws and Regulations Impacting Onshore E & P Operations*, 42 INST. ON OIL & GAS L. & TAX'N 9-1, 9-4 (1991) (stating that produced water accounts for over 98 percent of all exploration and production waste volume).

105. 33 U.S.C. § 1362(14).

106. *Id.* at § 1362(6).

107. Such alternative disposal techniques could include road spreading, evaporation pits, percolation pits, agricultural use, etc.

108. 33 U.S.C. § 1342(a).

109. 40 C.F.R. Pt. 435.

tent.[110] For the onshore category, the regulations prohibit the discharge of produced water and other wastes into navigable waters.[111] The regulations, however, allow some discharges for stripper wells, defined as onshore wells that produce 10 barrels per well per day or less,[112] and agricultural and wildlife water use category subject to certain limitations.[113]

Violations of the prohibition or limitations attract both civil and criminal penalties. The penalties range between 1) $2,500 and $25,000 per day of violation, 2) $5,000 to $50,000 per day of violation for "knowing violations," or 3) imprisonment for up to three years.[114]

c. Spill Prevention and Response Plans Under the CWA

As part of the government's national response system, the CWA requires the EPA to promulgate regulations to prevent discharges of oil and hazardous substances from vessels and from onshore and offshore facilities.[115] Pursuant to this mandate, the EPA promulgated the Oil Pollution Prevention Regulations in 1973.[116] The regulations require operators to prepare written Spill Prevention Control and Countermeasure (SPCC) plans for offshore facilities and for onshore areas where spills can potentially enter the waters of the United States. The SPCC plan must be reviewed and certified by a registered professional engineer that the plan has been prepared in accordance with good engineering principles.[117]

In addition to the SPCC plans, all tank vessels, all offshore facilities, and onshore facilities, which by reason of their locations could reasonably be expected to cause substantial harm to the environment by discharging into the waters of the United States, are required to have individual re-

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110. *Id.* at §§ 435.12, 425.42. The limit on daily oil and grease content for the coastal category is 72 mg/l and a monthly average of 48 mg/l. The same limits apply to the offshore category but under the Best Available Technology Economically Achievable (BAT) and the New Source Performance Standard (NSPS) effluent limitations promulgated by EPA in 1993, the oil and grease discharge standards for produced water are 42 mg/l daily maximum and a 29 mg/l average monthly maximum. Oil and Gas Extraction Point Source Category, Offshore Sub-category; Effluent Limitations Guidelines and New Source Performance Standards, 58 FED. REG. 12,454. However, under guidelines recently proposed by the EPA, discharge of produced water into US waters from coastal areas would be prohibited altogether except in Cook Inlet, Alaska where the BAT limitations for oil and grease content of 42 mg/l daily maximum and 29 mg/l average monthly maximum would still apply. *See* Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Oil and Gas Extraction Point Source Category, Coastal Subcategory, 60 FED. REG. 9,428.

111. 40 C.F.R. § 435.32(a).

112. *Id.* at § 435.60.

113. *Id.* at §§ 435.30, 435.51-435.52. The effluent limitations established for the agricultural and wildlife water use category limit oil and grease in produced water discharges to a daily maximum of 35 mg/l. The permit for stripper wells would normally require a specified treatment, but absent such specific requirement, discharges must comply with state water quality standards.

114. 33 U.S.C. §§ 1319(c), 1319(d), 1319(g).

115. *Id.* at § 1321(j)(l).

116. 40 C.F.R. Pt. 112.

117. *Id.* at § 112.3(d).

sponse plans to address the removal of a "worst case discharge" or a "substantial threat of such a discharge" of oil or hazardous substances.[118] These individual prevention and response plans are, of course, in addition to the National Contingency Plan and the National Response System provided for under the CWA.[119]

3. The Oil Pollution Act

The Oil Pollution Act[120] (OPA), enacted on August 18, 1990, was a direct response to the 1989 Exxon Valdez spill. The Act establishes a comprehensive scheme for the prevention, removal, liability, compensation, and imposition of penalties for oil pollution. However, the pre-existing statutory regime remains in effect except for the finding of liability which is governed by the OPA. The OPA significantly raises the levels of liability, strengthens the federal government's authority to act in case of a spill, tightens tank equipment standards, raises the size of the Oil Spill Liability Trust Fund, and requires evidence of financial responsibility for vessels and other facilities, among other objectives.

The Act provides that in the case of a discharge of oil or a substantial threat of a discharge of oil into or upon the navigable waters or adjoining shorelines or the exclusive economic zone from a vessel or other facility, the "responsible party"[121] shall be liable for the removal costs and damages that result from such incident.[122] Basically, claims against the responsible party fall into two categories: removal costs and damages. The first category covers costs incurred by the United States, a state, or an Indian tribe, as well as any other person whose acts are consistent with the National Contingency Plan for the removal of oil.[123] The damage claims cover 1) damage to natural resources (including the reasonable

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118. 33 U.S.C. § 1321(j)(5). The EPA on July 1, 1994 issued final revisions to the National Oil and Hazardous Substances Pollution Contingency Plan requiring that onshore facilities not related to transportation must prepare plans to respond to discharges of oil. 59 FED. REG. 34,070 (1994).

119. 33 U.S.C. §§ 1321(d), 1321(j).

120. 33 U.S.C. §§ 2701-2761. For incisive appraisals of the OPA, *see generally* Wagner, *The Oil Pollution Act of 1990: An Analysis*, 21 J. MAR. L. & COM. 569 (1990); Antonio J. Rodriguez & Paul A.C. Jaffe, *The Oil Pollution Act of 1990*, 15 TUL. MAR. L.J. 1 (1990); RODGERS, *supra* note 20, at 375-92; Randle, *The Oil Pollution Act of 1990: Its Provisions, Intent, and Effects*, 21 ENVTL. L. REP. 10,119 (1991).

121. *See* 33 U.S.C. § 2701(32) for a definition of the term "responsible party" which for most part refers to the owner or operator, but could also include a third party.

122. 33 U.S.C. § 2702(a). *See* U.S. v. South Pacific Transportation Co., (D.C. Or. 1995)(for a definition of the scope of the OPA). The U.S. sought to recover response costs under the OPA from the defendant corporation for a spill of about 6,000 gallons of diesel fuel from the defendant's train's fuel tanks into the Yoncalla Creek in January 1993. The U.S. District Court for the District of Oregon ruled that the derailed train was not a "facility" under the OPA. More generally, the court stated that because the OPA was intended to regulate only oil spills occurring during commercial production and transportation, it does not extend to oil spills occurring during its use by consumers.

123. *Id.* at § 2702(b)(1).

cost for assessing the damage), 2) damage to real or personal property, 3) loss of subsistence use of natural resources, 4) loss of revenues to government, 5) loss of profit or impairment of earning capacity, and 6) damages for net costs of providing increased or additional public services during or after removal activities.[124]

"Natural resources" are defined to include "land, fish, wildlife, biota, air, water, ground water, [and] drinking water supplies.[125] In order to make a claim for damages for loss of subsistence use of natural resources, the ownership or management of such resources is irrelevant.[126] All that is required by a claimant is proof of reliance on the natural resources for subsistence and a causative link between the discharge and the damage to the natural resources. Natural resource damage claims could be substantial.[127] The measure of natural resource damages is "(a) the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damaged natural resources; (b) the diminution in value of those natural resources pending restoration; and (c) the reasonable cost of assessing those damages."[128]

The OPA specifically excludes certain discharges from its scope of authority. These are any discharges that are permitted by a permit issued under federal, state, or local law; originate from a "public vessel;"[129] or originate from an onshore facility which is subject to the Trans-Alaska Pipeline Authorization Act.[130]

a. Defenses

The OPA recognizes the traditional defenses in environmental law, including acts of God, acts of war, and acts or omission of a third party, if the responsible party establishes that he exercised due care with respect to the oil concerned and that he "took precautions against foreseeable acts or omissions of any such third party and the foreseeable consequences of those acts or omissions."[131] Accordingly, once a responsible

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124. *Id.* at § 2702(b)(2).

125. *Id.* at § 2701(20).

126. *Id.* at § 2702(b)(2)(C).

127. *See* Schenke, *Liability for Damages Arising from an Oil Spill*, 4 J. NAT. RESOURCES & ENV'T. L. 14 (1990).

128. 33 U.S.C. § 2706(d).

129. *See* 33 U.S.C. § 2701(29) for its definition.

130. *Id.* at § 2702(c).

131. *Id.* at § 2703(a). Notice that the sub-section does not specifically list "negligence on the part of the United States government" as one of the defenses. However, it might be argued that negligence on the part of the U.S. government could be regarded as an act or omission of a third party which is recognized as a defense to liability under the Act. Further, § 2703(b) exculpates a responsible party of liability to a claimant "to the extent that the incident is caused by the gross negligence or willful misconduct of the claimant." All claimants under § 2702 including the U.S. government are affected by this limited defense. *But see* Michael J. Uda, *The Oil Pollution Act of 1990: Is there a Bright Future Beyond Valdez?*, 10 VA. ENVTL. L.J. 403, 422 note 138 (1991) (stating that negligence on the U.S. government has ceased to be a defense under the OPA).

party establishes that a discharge was caused solely by any one, or a combination, of these defenses, then it is not liable for payment of damages and removal costs. However, these defenses do not apply where the responsible party fails or refuses 1) to report the incident as required by law, 2) to provide all reasonable cooperation and assistance sought by a responsible official in connection with removal activities, or 3) without sufficient cause, to comply with an order concerned with removal activities.[132]

b. Limits on Liability

Section 2704(a) of the OPA establishes higher liability limits for different types of vessels and facilities. The limits are as follows:[133] 1) tank vessels greater than 3,000 gross tons, $1,200 per gross ton or $10 million, whichever is greater; 2) tank vessels of 3,000 gross tons or less, $1,200 per gross ton or $2 million, whichever is greater; 3) non-tank vessels, $600 per gross ton or $500,000, whichever is greater; 4) onshore facilities, $350 million, however, through rule-making, this limit may be reduced to as low as $8 million;[134] and offshore facilities, the total of all removal costs plus $75 million. There are two major exceptions, namely 1) if the facility is a deepwater port, the limit is $350 million which may, however, by rulemaking be reduced to $50 million,[135] and 2) if the discharge or substantial threat of a discharge of oil is from any Outer Continental Shelf facility or a vessel carrying oil as cargo from such a facility, then the owner or operator of such facility or vessel is liable for *all* removal costs incurred by federal, state, or local government or agency.[136]

These limits do not apply 1) if the spill was caused by the gross negligence or willful misconduct of the responsible party or any person answerable to him; 2) if the responsible party violates an applicable Federal safety, construction, or operating regulation; 3) if the responsible party fails or refuses either to report the incident as required by law when he knows or has reason to know of the incident; 4) fails to provide all reasonable cooperation and assistance requested by a responsible official in connection with removal activities; or 5) fails without sufficient cause, to comply with an order pertaining to removal activities.[137]

The OPA liability and limits just discussed are exclusively federal.

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132. 33 U.S.C. § 2703(c).

133. *Id.* at § 2704(a).

134. *Id.* at § 2704(d)(1). Such regulations are to take into account "size, storage capacity, oil throughput, proximity to sensitive areas, type of oil handled, history of discharges and other factors relevant to risks posed by the class or category of facility." *Id.*

135. *Id.* at §§ 2704(a)(4), 2704(d)(2)(C).

136. *Id.* at § 2704(c)(3).

137. *Id.* at § 2704(c)(1),(2). Some commentators have criticized these exceptions as being too broad, noting that in essence the OPA regime is one of unlimited liability. Cooney, for instance, observed that a major oil spill is unlikely to occur "without a violation of a federal regulation." M.K. Cooney, *Comment, The Stormy Seas of Oil Pollution Liability: Will Protection and Indemnity Clubs Survive?*, 16 HOUSTON J. INT'L L. 343, 369 (1993).

There could be additional liability under state laws since state liability laws are not preempted by the OPA. The OPA permits states to impose additional liability or requirements with respect to oil pollution.[138] In fact, most Coastal and Great Lake states have passed oil spill legislation, the vast majority of which provide for strict unlimited liability for removal costs.[139]

c. Evidence of Financial Responsibility

The law requires that there exist a responsible party for any vessel in excess of 300 gross tons that operates in any place subject to the jurisdiction of the United States and that offshore facilities must establish and maintain evidence of financial responsibility sufficient to meet the maximum amount of liability for which the responsible party could be liable under the law.[140] The sanctions for violating these requirements can be severe. They include 1) revocation of clearance required for the vessel to operate in U.S. waters, 2) denial of entry to U.S. waters, 3) detention of vessel, 4) seizure and forfeiture of vessel to the U.S., 5) administrative penalty of up to $25,000 per day of violation, or 6) a judicial order terminating operations.[141]

The law gives additional assurance to claimants. A claim may be asserted directly against the guarantor providing evidence of financial responsibility for a responsible party.[142] In such a claim, the guarantor cannot invoke the defenses which would otherwise be available to it under the policy. However, the guarantor's liability is limited to the amount of financial responsibility it has provided to the responsible party.[143] It has been asserted that this possibility of a direct claim against the guarantor coupled with the potential for unlimited liability under both federal and state laws will make it extremely difficult for vessels operating in U.S. waters to obtain insurance coverage.[144] One consequence might be a serious disruption of U.S. imported oil supply leading in turn to scarcity and price rise.[145]

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138. 33 U.S.C. § 2718.

139. GIBSON, *supra* note 55, at 75, 127; Rodriguez & Jaffe, *supra* note 120, at 10-11.

140. 33 U.S.C. § 2716.

141. *Id.* at §§ 2716(b), 2716a.

142. *Id.* at § 2716(f).

143. *Id.* at § 2716(g).

144. Cooney, *supra* note 137, at 360 (asserting that as the law is, "no one will be capable of obtaining a certificate of financial responsibility"). At a hearing by the House Merchant Marine and Fisheries Subcommittee on Coast Guard and Navigation on the interim rules on financial responsibility, the Subcommittee Chairman, Representative W.J. Tauzin, expressed concern that many vessel owners would be unable to fulfill the requirements to secure the certificates of financial responsibility, and advised the Coast Guard "to proceed cautiously." He feared that up to 50 percent of U.S. oil supply could be in jeopardy if shippers fail to qualify for the certificates. *Shipping Representatives Tell Concerns on Financial Responsibility Interim Rule*, 25 ENVTL. L. REP. 584 (1994). The requirements for certificates of financial responsibility became enforceable on Dec. 28, 1994.

145. The concern about the possible disruption of imported oil supply prompted sev-

d. Other Provisions

Another source of worry for the shipping industry has been OPA's requirement of double hulls for vessels operating in U.S. waters or its exclusive economic zone. It requires that all new vessels constructed for the carriage of oil shall be equipped with double hulls when operating in U.S. waters or the exclusive economic zone.[146] With regard to existing vessels, the double hull requirement is phased in over a period of years, starting this year, depending upon the age and size of the tank vessel.[147] By 2010 all vessels over 5,000 gross tons must have double hulls, except that those which currently have double bottoms or double sides may continue operating in U.S. waters until 2015.[148] These provisions have been criticized for imposing a great financial burden on the shipping industry and the unavoidable increase on the cost of transporting oil to the U.S.[149] Questions have even been raised about the safety of double hulls.[150]

The OPA also has wide ranging provisions on the Oil Spill Liability Trust Fund.[151] Principally financed by a five cent per barrel tax on imported and domestic oil,[152] it is designed to cover removal costs and damage claims of the federal government, state governments, and uncompensated private claimants.

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eral House members to write to President Bill Clinton urging him to delay implementation of the financial responsibility rule. 25 ENVTL. L. REP. 1346 (1994). *See also Shift in Insurance to Cover Oil Ships May Disrupt Flow*, N.Y. TIMES, Dec. 12, 1994, at A1, C4; John M. Mitchell, *Comment, The United States Coast Guard's Proposed Regulation of Certificates of Financial Responsibility Under the Oil Pollution Act of 1990: Fostering a Continuing Market of Insurance for Shipowners?*, 7 ADMIN. L. J. AM. U. 121, 148-49 (1993) (predicting that the Coast Guard's "inflexible approach" will jeopardize waterborne transportation of oil to the U.S.).

146. 46 U.S.C. § 3703(a). Other preventive measures enacted by the OPA include the additional requirements for the issuance and review of licenses, certificates of registry and merchant mariner's documents, and for vessel manning. 46 U.S.C. §§ 7101, 7106, 7107, 7109, 7302, 7701-7703.

147. *Id.* at § 3703a(c)(3).

148. *Id.*

149. *See* Paul S. Edelman, *The Oil Pollution Act of 1990*, 204 N.Y.L.J. 3, 23 (1990) (stating that the average cost to retrofit a tanker with a double hull is estimated to be $30 million). The Coast Guard also estimates that the double hull requirements will increase the average annual cost of transporting oil in U.S. waters by approximately $350 million, or about $.16 per barrel of oil transported. It noted, however, that the cost per barrel of oil prevented from being spilled is estimated at $24,000. 57 FED. REG. 1855 (1992).

150. Edelman, *supra* note 149. *See also* T.A. Alcock, *"Ecology Tankers" and the Oil Pollution Act of 1990: A History of Efforts to Require Double Hulls on Oil Tankers*, 19 ECOLOGY L.Q. 97, 107-115 (1992) (detailing the arguments for and against double hulls on oil tankers); A.A. Ayorinde, *Inconsistencies Between OPA 1990 and MARPOL 73/78: What is the Effect on Legal Rights and Obligations of the United States and Other Parties to MARPOL 73/78*, 23 J. MAR. L. & COM. 55, 89, 93-94 (1994) (suggesting that mid-deck design and double hull offer equivalent protection and that OPA's insistence on only double hulls amounts to a violation of U.S. international obligations assumed under MARPOL 73/78).

151. 33 U.S.C. § 2712. The Fund was first established in 1986. 26 U.S.C. § 9509.

152. 26 U.S.C. § 4611(c)(2)(B).

The administration of the OPA is shared mainly among three agencies: 1) the EPA, concerning non-transportation related onshore facilities that could, because of their locations, cause substantial harm to the navigable waters; 2) the Department of Transportation, including the Coast Guard, concerning transportation-related onshore facilities, deepwater ports, and vessels; and 3) to the Department of Interior concerning the offshore facilities and associated pipelines.[153]

B. *Nigerian Oil Pollution Laws*

Anti-pollution laws in Nigeria are scattered throughout several authoritative sources. They usually appear only as incidental provisions in the statutes and regulations. Each is identified and discussed below.

1. The Petroleum Act of 1969[154]

The Petroleum Act deals mainly with business regulation of the petroleum industry and contains only little on pollution prevention. Nevertheless, Section 9 empowers the Minister of Petroleum Resources (Minister) to make regulations on a wide range of issues including "the prevention of pollution of water courses and the atmosphere."[155] The Act also provides that the Minister may revoke an oil mining license or lease if, in his opinion, the licensee or lessee "is not conducting operations continuously and in a vigorous and businesslike manner and in accordance with *good oilfield practice*."[156] The law does not provide a definition of the term "good oilfield practice," which has been interpreted in various ways depending on the standpoint of the interpreter. For instance, to oil producing companies, "good oilfield practice" might mean minimizing economic cost of production without regard to safety or environmental care. However, there is a comparable concept under the Mineral Oils (Safety) Regulations,[157] and it is suggested that the term should incorporate an obligation to ensure minimal environmental harm.

Breach of the good oilfield practice requirement alone may not warrant a revocation of a license or lease under the Act; the other requirements for continuous operations conducted in a vigorous and businesslike manner must also be satisfied. Despite the few safeguards, the use of poorly defined terms permits maximization of production rather than protection of the environment.

a. The Petroleum (Drilling and Production) Regulations[158]

Pursuant to the authority conferred on the Minister to make regula-

153. Executive Order 12777, 56 FED. REG. 54, 757 (1991).
154. Cap. 350 Laws of the Federation, 1990.
155. *Id.* at § 9(1)(a)(iii).
156. *Id.* at Schedule 1, ¶ 24(1)(a)(emphasis added).
157. *See infra* note 162.
158. Enacted in Legal Notice 69 of 1969.

tions, several sets of regulations have been enacted, some of which contain provisions on oil pollution. Perhaps the most significant provision in The Petroleum (Drilling and Production) Regulations (Regulations) are contained in Regulation 25. It provides as follows:

> The licensee or lessee shall adopt *all practicable precautions including the provision of up-to-date equipment* approved by the Director of Petroleum Resources, to prevent the pollution of inland waters, rivers, water courses, the territorial waters of Nigeria or the high seas by oil, mud or other fluids or substances which might contaminate the water, banks or shore line or which might cause harm or destruction to fresh water or marine life, and where any such pollution occurs or has occurred, shall take prompt steps to control and, if possible, end it.[159]

The Regulations further require the operator to 1) maintain all apparatus, appliances, boreholes, and wells capable of producing petroleum in good repair and condition, 2) carry out all its operations in a proper and workmanlike manner accepted by the Director of Petroleum Resources[160] as amounting to good oilfield practice, and, in particular, 3) take "all steps practicable" to "control the flow and to prevent the escape or avoidable waste of petroleum" and "prevent the escape of petroleum into any water, well, spring, stream, river, lake, reservoir, estuary or harbour."[161] Regulation 40 requires the operator to drain all waste oil, brine, and sludge or refuse into proper receptacles and dispose of them in a manner approved by the Director.

Finally, the Regulations obligate an operator to pay "adequate compensation" to any person whose fishing rights are interfered with by the *unreasonable* exercise of the operator's rights.[162] This is the only provision in the Regulations that seems to aid the victim of oil pollution, but it has weaknesses and has been criticized. First, it does not clearly give a right of action to the victim. Second, the concept of "adequate compensation" is rather vague and unsatisfactory. Third, and perhaps the most serious objection, is the fact that the victim is not entitled to any compensation unless it is established that the operator exercised its rights "unreasonably." This, no doubt, is a difficult, if not impossible, task especially for the illiterate and poor fishermen who are more likely to be the beneficiaries of this particular regulation. Fourth, the scope of the Regulations is too restrictive. It does not cater to interests, other than fishing rights, that might also be harmed as a result of the unreasonable exercise of the operator's rights.

The entire body of Regulations could also be criticized for its failure to clearly assign responsibility for cleanup in the event of an oil discharge

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159. *Id.* at reg. 25 (emphasis added).
160. Hereinafter referred to as the Director.
161. *Id.* at Reg. 23.
162. *Id.* at Reg. 25.

into water. The operator is merely required to "control and, if possible, end [the pollution]."[163] This cannot be justifiably interpreted to require responsibility for cleanup and restoration of the polluted environment.[164] Another obvious shortcoming in the Regulations is the absence of any specific sanction for violation of any of the obligations imposed upon the operator apart from the general power of the Minister to revoke the operator's license or lease for failure to comply with the enabling Act or any regulations issued thereunder.[165] The sanction of revocation of a lease or license for every case of non-compliance with the Act or regulations is unrealistic and not feasible. Despite several obvious cases of non-compliance, not a single case in the quarter century that the Regulations have existed has succeeded when invocation of the Minister's power for breach of the anti-pollution provisions was requested.

The Regulations have also been severely criticized for being too general to create any legal obligation. Such terms as "proper and workmanlike manner," "good oilfield practice," "all practicable precautions," and "adequate compensation" are cited as being too vague and meaningless to be enforceable.[166] Additionally, the Regulations fail to provide any definitions of these terms. While this is a valid objection, but it might be argued that those terms do, in fact, set very high standards for the operators. For instance, the requirement of "all practicable precautions" or the provision of "up-to-date equipment" can only be reasonably judged by global standards, particularly considering the transnational status of most of the operators.[167] That argument, however, does not detract from the need for greater precision in the promulgation of standards in Nigeria.

b. Mineral Oils (Safety) Regulations[168]

Mineral Oils (Safety) Regulations were made under the Mineral Oils Act, which was repealed by the Petroleum Act. Even though the Act was repealed, its regulations were saved and deemed reconfirmed under Section 9 of the Petroleum Act.[169] They deal generally with safety concerns in the oilfield. The sections dealing specifically with oil pollution of water are regulations 7 and 16. Regulation 7 provides that in the absence of any

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163. O. Akanle, *Pollution Control Regulation in the Nigerian Oil Industry,* Nigerian Inst. of Advanced Legal Studies Occasional Paper 16 (1991).

164. Petroleum Act, Schedule 1 ¶ 24(1)(b).

165. *See, e.g.*, Akanle, *supra* note 163, at 13; O. Adewale, *Rylands v. Fletcher and the Nigerian Petroleum Industry*, 8/9 J. PRIVATE & PROPERTY L. 37, 48 (1987/88); Y. Omorogbe, *Regulation of Oil Industry Pollution in Nigeria, in* NEW FRONTIERS IN LAW 147, 152-53 (Epiphany Azinge ed., 1991).

166. *Cf.* Regulation 7 of the Mineral Oils (Safety) Regulations (Legal Notice 45 of 1963) which defines "good oilfield practice" for the purpose of the regulations as the "Current Institute of Petroleum Safety Codes, the American Petroleum Institute Codes or the American Society of Mechanical Engineers Codes." *Id.*

167. Legal Notice 45, 1963.

168. Cap. 350, Schedule 4, ¶ 4.

169. *See supra* note 162 and accompanying text.

specific provision, all drilling, production and other operations necessary for the production and subsequent handling of crude oil and natural gas shall conform with "good oilfield practice." In a marked departure from the trend of the other enactments, the regulation provides a definition of "good oilfield practice."[170] The regulations also require bulk storage tanks to have provisions made for containing any leakage to prevent oil contaminating the water when located above water.[171] The sanction for violation of these provisions is a one hundred *naira*[172] fine or six months imprisonment or both.[173]

c. Petroleum Refining Regulations[174]

In language similar to that of the Petroleum (Drilling and Production) Regulations, the Petroleum Refining Regulations require a refining company to adopt "all practicable precautions," including the provision of up-to-date equipment as may be specified by the Director to prevent pollution of the environment by petroleum or petroleum products, and where such pollution occurs, to take prompt steps to control, and if possible, end it.[175] It specifically requires that drainage and disposal of refinery effluent and drainage water shall conform to "good refining practices," subject to approval by the Director.[176] The Petroleum Refining Regulations also make provision as to the physical quality of storage tanks in order to contain leakage from tanks[177] and for reporting of "unprogrammed" spillages of crude oil, products, or chemicals inside the refinery.[178]

In sum, Regulation 7 states that, absent any specific provision, the construction, operation, and maintenance of a refinery shall conform to "international standards" subject to the approval of Director.[179]

2. Oil in Navigable Waters Act, 1968[180]

The Oil in Navigable Waters Act of 1968 (Act) has remained the only legislation entirely devoted to oil pollution of water. However, its scope is

170. Reg. 16(2)(C).

171. *Id.*

172. At the official exchange rate, one U.S. dollar exchanges for twenty two naira, but in the autonomous foreign exchange market a dollar fetches over seventy naira.

173. Reg. 27. Note that it is the "manager" of the operator who is liable for breaches of the regulations.

174. Legal Notice 45, 1974.

175. *Id.* at reg. 43(3).

176. Reg. 43(1); Reg. 27 also requires that residues, sludges, rusts, and similar matter from tanks which may have contained leaded petroleum products shall be disposed of according to "good refining practices" and only to such places as have been approved by the Director.

177. Reg. 24.

178. Reg. 38.

179. Reg. 45.

180. Cap. 337 Laws of the Federation (1990).

severely restricted, and its usefulness is suspect. It was enacted not so much out of the Nigerian government's concern for environmental well-being, but to quell the government's desire to comply with its international obligation under the International Convention for the Prevention of Pollution of the Sea by Oil to protect navigable waters from oil pollution.[181]

It is an offense for a Nigerian ship to discharge oil into a part of the sea designated as "prohibited sea area,"[182] attracting a fine for the owner or master of the ship not exceeding 2,000 *naira* on summary trial.[183] Prohibited sea areas are listed in a Schedule contained in the Act and essentially cover all sea areas within 50 miles from land and outside the territorial waters of Nigeria and all the seven seas.[184] Section 3 also makes it an offense to discharge oil from any vessel from any place on land, or from any apparatus used for transferring oil from or to a vessel into the "whole of the sea within the seaward limits of the territorial waters of Nigeria" and all other waters within those limits including inland waters which are "navigable by sea-going ships."[185] This provision would appear to cover all types of onshore and offshore facilities, but its usefulness is diminished by the restrictions on the places where it applies. The requirement that the waters must be navigable by sea-going ships clearly suggests that the legislative policy of the enactment was to protect navigation only.[186]

Another factor that seriously puts the efficacy of the Act into question is the myriad of very liberal defenses it allows. For example, it is a complete defense to establish that the discharge from a vessel occurred 1) for the purpose of securing the safety of any vessel, 2) for the purpose of preventing damage to any vessel or cargo, 3) for the purpose of saving life,[187] 4) as a consequence of damage to the vessel, or 5) by reason of leakage if the leakage was not due to any want of reasonable care.[188] Other defenses include 1) sabotage,[189] 2) absence of negligence,[190] and 3) showing that the oil was contained in an effluent produced from a refinery.[191]

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181. The Convention was subsequently amended in 1962, 1969 and 1971. The Preamble to the Act clearly confirms the motive. *See* Akanle, *supra* note 163, at 4.

182. Cap. 337, Sec. 1.

183. *Id.* at § 6.

184. ¶¶ 1 and 2 of the Schedule to the Act.

185. §§ 3(1), 3(2). A violation attracts a fine not exceeding 2,000 naira (Sec 6).

186. Other provisions of the Act (*e.g.*, §§ 8 and 9) which seek to protect only the waters of the harbor from oil additionally confirm the general intendment of the legislation.

187. § 4(1). A commentator rightly characterized this defense as "alarming." A. IBIDAPO-OBE, CRIMINAL LIABILITY FOR DAMAGES CAUSED BY OIL POLLUTION (1988). Article IV of the Convention in almost identical language makes provision for the same defenses.

188. § 4(2).

189. § 4(4).

190. § 4(3).

191. § 4(5).

3. Federal Environmental Protection Agency Act, 1988[192]

The Nigerian Federal Environmental Protection Agency Act (FEPA) remains to date the most comprehensive environmental legislation passed in the country's history. The dumping by an Italian firm of toxic waste in Nigeria in 1988 was the catalyst the government needed to enact the legislation after more than ten years of procrastination.[193] It establishes FEPA as the implementing authority with responsibility, among others, to establish environmental criteria, guidelines, and standards for the protection of the "nation's air and interstate waters as may be necessary to protect the health and welfare of the population from environmental degradation."[194]

Section 20 prohibits the "discharge in such harmful quantities of any hazardous substance into the air or upon the land and the waters of Nigeria" or adjoining shorelines except as permitted or authorized by any law in force in Nigeria. A violation of this prohibition secures a penalty of 100,000 *naira* fine, ten years imprisonment, or both; where the offense is committed by a corporate body, the penalty is 500,000 *naira* and an additional fine of 1,000 *naira* for every day the offense subsists.[195] In addition to criminal penalties, the owner or operator of the vessel or facility from which the discharge occurred is also liable for the costs of removal, restoration or replacement of natural resources destroyed as a result of the discharge, and "costs of third parties in the form of reparation, restoration, restitution, or compensation as may be determined by FEPA from time to time."[196] The owner or operator is, however, free from this additional liability if he or she can prove that the discharge was caused solely by a natural disaster, by an act of war, or by sabotage.[197] The discharger is also required to give immediate notice of the discharge to FEPA, begin "immediate cleanup operations," and promptly comply with other directions as FEPA may prescribe.[198]

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192. Cap. 131 Laws of the Federation, 1990. *See generally* Adewale, *supra* note 5.

193. The dumping incident also led to the promulgation of the Harmful Waste (Special Criminal Provisions, etc.) Act, Cap. 165 Laws of the Federation, (1990) (providing stern penalties for dumping of "harmful waste" in Nigeria).

194. § 5(g). FEPA is also mandated to make recommendations to the minister with responsibility for the environment (currently the Minister of Works & Housing) for the purpose of establishing water quality standards for the inter-state waters to protect the public health or welfare and enhance the quality of water, taking into consideration the use and value for public water supplies, propagation of fish and wildlife, recreational purposes, agricultural, industrial and other legitimate uses. § 15.

195. §§ 20(1), 20(2), 20(3). Note that under § 20(4), where the offense is committed by a corporate body, the official in charge of the corporation at the time the offense was committed is also liable to be proceeded against and punished unless he can establish that the offense was committed without his knowledge or that he exercised all due diligence to prevent the discharge.

196. § 21(1).

197. *Id.*

198. § 21(2).

The Act does not provide a definition of "hazardous substance" but mandates FEPA to determine what it amounts to for purposes of Section 20.[199] FEPA has determined that "hazardous substance" means:

1. Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive, or

2. Any substance designated by FEPA to be reported if a designated quantity of the substance is spilled in the waters of Nigeria or if otherwise emitted to the environment.[200]

Though oil has not been listed as a hazardous substance, it is submitted that in view of the threat oil poses to human health and environment,[201] it qualifies as a hazardous substance under the first prong of the definition. The definition is encompassing enough to also include production wastes and oil products.[202]

FEPA has severe limitations concerning the control of oil that reduce the Act's efficacy in preventing oil pollution of water. First, Section 20 does not absolutely prohibit the discharge of hazardous substance upon the nation's waters. What is prohibited is the discharge of such substance in "harmful quantities." Consequently, the mere discharge of oil upon the waters, does not, by itself, attach liability under the Act. It must be shown, in addition, that the oil discharged was in harmful quantities, requiring a case by case determination. Similar language in the U.S.'s CWA, prior to its amendment was interpreted to require a showing that a discharge caused actual harm before liability could attach to that discharge.[203] This task is overwhelming for the enforcement agency given the large number of spills and other constraints of the regulatory agency.[204] The U.S. CWA's formula of "quantities as may be harmful" is a better approach as it gives the regulatory agency authority to determine what is prohibited by some general and verifiable yardstick not requiring an elaborate or case by case inquiry.[205]

Second, the scope of FEPA and, consequently, its mandate are restricted to "waters of Nigeria" which are defined by the Act to mean all water sources in any form which are 1) "inter-state, 2) in the Federal Capital Territory, 3) territorial waters of Nigeria, 4) within the Exclusive Economic Zone, or 5) in any other area under the jurisdiction of the Nigerian Federal Government."[206] While this scope is considerably

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199: § 20(5).

200. FEPA, GUIDELINES AND STANDARDS FOR ENVIRONMENTAL POLLUTION CONTROL IN NIGERIA 214 (1991).

201. *See supra* notes 29-49 and accompanying text.

202. The Guidelines actually list some wastes from the refining process, e.g., slop oil emulsion solids, tank bottoms (leaded), as dangerous waste. *Supra* note 195, at 178.

203. *See supra* 75-78 and accompanying text.

204. *Infra* notes 284-287 and accompanying text.

205. *See supra* notes 70-78 and accompanying text.

206. § 38.

broader than that of the Oil in Navigable Waters Act, it does not appear to cover many of the small interstate rivers, streams, and creeks which continue to be polluted by oil and which serve the drinking and other domestic needs of many of the communities in oil producing and refining areas. It is actually these waters that are in more dire need of protection given the substantial health risks posed by such pollution. It is doubtful that the affected states have the resources to protect these waters. It is, therefore, suggested that the scope of FEPA and its mandate be expanded to cover all waters in Nigeria at least temporarily, until it is seen that the states possess the ability and will to act.

The criminal liability under Section 20 also appears to be inadequate because it exempts only discharges with permit or authorization.[207] It is hardly justifiable to impose criminal liability whenever there is a discharge of hazardous substance, regardless of the cause, including a discharge caused solely by, say, an act of God.[208] The defenses available for the civil liability include acts of war, acts of God, and sabotage. So that the defense of sabotage cannot provide an easy escape route, the owner or operator seeking to avail itself of this defense should be required to show 1) that it exercised due care with respect to the discharge concerned, 2) that it took precautions against foreseeable acts or omissions of any third party, and 3) that it was aware of the foreseeable consequences of those acts or omissions.[209] The defense of sabotage should also be restricted in third party claims against the discharger. Sabotage should not be a total bar to the discharger's liability to pay compensation to third parties for whatever damage third parties suffered, except where the claimant is also the saboteur. It is only fair that innocent third parties should be compensated for damage arising from acts to which they did not contribute. The operator carrying on economic activity for profit is in a better position to bear such loss, but the operator should be given an express right of indemnification against the person causing the damage.[210]

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207. *But see* Adewale, *supra* note 5, at 57-59. She suggested that the exemptions under § 20 incorporate the defenses under the Oil in Navigable Waters Act (ONWA) and, therefore, make the offenses anything but absolute. *Id.* It is doubtful that this was the intention of the lawmaker. If it were so, it would have been absolutely unnecessary to specify the defenses to § 21 liability since the liability does not arise unless the discharge is in violation of § 20. The § 21 defenses are all (though in different words) contained in § 4, ONWA. Further, it can hardly be said that the defenses under ONWA amount to a permit or authorization to discharge oil into navigable waters. A permit or authorization, it is submitted, connotes some positive conferment of a right to act as distinct from a defense which merely shields a wrongdoer from punishment. By way of analogy, can it truly be said that a person who is provoked has a permit to kill the person offering the provocation? *Cf.* with the case of an executioner who has by law a permit or authority to carry out executions.

208. *See supra* notes 87-89 and accompanying text.

209. *Cf.* OPA 33 U.S.C. § 2703(a).

210. *Id.* at § 2702(d)(1)(B), CWA 33 U.S.C. § 1321(g). *See* Akpezi E. Ogbuigwe, *Compensation and Liability for Oil Pollution in Nigeria-Need for a Positive Approach*, 3 J. PRIVATE & PROP. L. 21, 31 (1985). Operators too frequently cite sabotage as an excuse for non-payment of compensation. It is, however, recognized that sabotage is indeed a problem

As noted earlier, the liability of the owner or operator extends to payment of costs to third parties in the form of restoration, restitution, or compensation *but* only "as may be determined by [FEPA]." It is not clear why this restriction was included, but it is clear that the fate of the many victims of oil pollution in Nigeria might turn on the manner in which FEPA discharges this trust. It is probably too early to pass judgment but after nearly seven years,[211] victims of oil pollution in Nigeria continue to go without any form of compensation, and, where any is paid, it is usually inadequate.[212] Their plight has been exacerbated by the absence of clear provisions in the statutes giving them a right of action against the polluters. The FEPA Act does not appear to have departed markedly from this tradition; nor does it create a right for the victim which can be enforced directly against the polluter, absent a prior determination by FEPA of the amount of compensation, if any, that the victim is entitled to be paid.[213]

Finally, pursuant to the FEPA Act, certain regulations have been promulgated governing several aspects of environmental care in the industries generally including the oil industry.[214] Those relevant to the oil industry are the National Environmental Protection (Effluent Limitation) Regulations[215] and the National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations,[216] both enacted in 1991. The former establishes effluent limitations for all categories of industries. For the petroleum industry, the regulations allow an oil and grease content in brine and other production wastes

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in Nigeria, but the operators and the government should double their efforts to get saboteurs prosecuted under existing laws rather than make innocent parties bear the loss.

211. *Cf.* Adewale, *supra* note 5, at 59-60 (expressing optimism that this FEPA's authority would signal the end of the hardship suffered by victims of oil pollution).

212. Gberesu, *The Concept of Fair and Adequate Compensation in Nigerian Oil Industry, in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT 1987, *supra* note 21, at 48. In one spill incident which involved about 23.9 million gallons of crude oil, the affected villagers received a mere 550,000 naira for loss of fishing rights. Odogwu, *supra* note 23, at 50.

213. § 21(1)(b).

214. This is in spite of the confusion created by § 23 over whether FEPA has the authority to regulate the oil industry. The section provides that FEPA "shall cooperate" with the Department of Petroleum Resources "for the removal of oil related pollutants discharged into the Nigerian environment and play such supportive role" as the Department may from time to time request from it. The question has been whether this section retains the exclusive authority of the Department of Petroleum Resources to regulate the petroleum industry including environmental aspects, thereby leaving FEPA to play only a supportive role as may be requested by the Department. *See* Adewale, *supra* note 5, at 63 (concluding that the Department is still in charge of environmental regulation in the oil industry but called for a review of the provisions). However, this paper has proceeded on the assumption that FEPA also has authority to regulate the oil industry, relegated only in matters pertaining to removal of oil related pollutants.

215. S.I. 8 of 1991.

216. S.I. 9 of 1991.

of 10 mg/liter for discharge into inland waters.[217] Violation attracts a fine of 20,000 *naira*, two years imprisonment, or both. If the offense is committed by a corporation, the fine is 500,000 *naira*.[218] An effluent limit of 10 mg/liter for oil and grease content is, indeed, a high standard, but it does not appear to have taken into adequate consideration the almost unique Nigerian situation where the inland surface waters serve many of the communities for drinking and other domestic purposes without any form of treatment.[219] An outright ban on discharge of brine and other production wastes into inland waters would be more desirable and, accordingly, is recommended.[220]

The National Environmental Protection (Pollution Abatement in Industries Generating Wastes) Regulations also directly impact the petroleum industry. Regulation 1 states that no industry or facility shall release "hazardous or toxic substances into the air, water or land of Nigeria's ecosystems beyond limits approved" by FEPA.[221] More specifically, regulation 15(2) provides: "no oil, *in any form*, shall be discharged into public drains, rivers, lakes, sea, or underground injection without a permit issued by [FEPA] or any organization designated by [it]."[222] This is an outright ban on the discharge of oil into the specified water sources and does not seem to depend on other considerations such as whether the oil is of harmful quantity. The Regulations also restate the restriction on the discharge of effluents with constituents beyond specified limits, and provide, though scantily, for contingency planning by all industries and facilities against accidental release of pollutants.[223] The penalty for violation of these regulations is the same as with the Effluent Limitation Regulations.[224]

4. Other Legislation

In addition to the enactments already discussed, other Nigerian legislation has some relevance to the subject of oil pollution of water. Worthy

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217. Schedule 3.

218. Reg. 5, adopting the penalties specified in §§ 35 and 36 of the enabling FEPA Act.

219. With a 10 mg/l effluent limit for oil, produced water from some oil fields in Nigeria would fairly easily qualify for discharge into inland surface waters without any form of treatment. For instance, it has been demonstrated that brine from the Obagi Field contains a little less than 10 mg/l of oil and could, therefore, be discharged into the nearby Orashi river even though the river is the source of drinking water for the neighboring communities. *See* B.S. Uhuegbulem & H.N. Dala, *Handling of Production Effluents in Freshwater Environment: The Obagi Experience, in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT 108, 114-15 (1989).

220. *Cf.* Murday et al., *Oil Pollution Control in Nigeria: Legal and Enforcement Considerations, in* THE PETROLEUM INDUSTRY AND THE NIGERIAN ENVIRONMENT, *supra* note 21, at 54, 58 (suggesting that the discharge of produced water in swamps be banned for "new sources" while a compliance schedule should be developed for "existing sources").

221. Reg 15(1).

222. Reg. 15(2).

223. Regs. 7 and 8.

224. *See supra* note 211 and accompanying text.

of mention are the Oil Pipelines Act[225] and the Criminal Code.[226]

The Oil Pipelines Act, enacted in 1956, is one of the earliest pieces of legislation on the subject of oil pollution and, perhaps, the only one that undoubtedly confers a right of action to victims of oil pollution from pipelines and other ancillary installations. Section 11(5) provides, in part, as follows:

> The holder of a licence shall pay compensation . . . ; (c) to any person suffering damage (other than on account of his own default or on account of the malicious act of a third person) as a consequence of any breakage of or leakage from the pipeline or an ancillary installation. If the amount of such compensation is not agreed between any such person and the holder, it shall be fixed by a court in accordance with Part IV of this Act.[227]

Claimants have a fairly great chance of success under this subsection, since it does not require them to establish negligence on the part of the pipeline license holder. In other words, it creates strict liability for the license holder.[228] Ironically, this is one provision of the law that has been seriously underutilized by claimants. There is just no clear reason for this, but one probable reason is insufficient knowledge on the part of the claimants and their counsel.[229] In one of the very few cases where the subsection served as the basis for an award of damages, it was the judge who *suo motu* resorted to it after determining that the tort of negligence and the rule in *Rylands v. Fletcher*, relied on by the plaintiffs, were inapplicable.[230]

The Criminal Code applies to any person who "corrupts or fouls the water of any spring, stream, well, tank, reservoir, or place, so as to render it less fit for the purpose for which it is ordinarily used." A party guilty of this offence is punishable with imprisonment for up to six months.[231] Similarly, Section 247 states that any person who "vitiates" the atmosphere in any place so as to make it noxious to the health of persons or who does any act which is, and which he knows or has reason to believe to be, likely to spread the infection of any disease dangerous to life, whether human or animal, is guilty of an offense punishable with six months imprisonment. These provisions are without doubt applicable to oil pollution of water, as well as other forms of environmental degradation, but the penalty of imprisonment provided by the Code is highly inappropri-

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225. Laws of the Federation, Cap. 338 (1990).

226. *Id.* Cap. 77.

227. The said Part IV lists some of the factors to be considered by the court in assessing the amount of compensation.

228. Ikpede v. Shell BP Petroleum Development Company of Nigeria Ltd. M.W.S.J. 61 (1973).

229. J.A. Omotola, *The Quantum of Compensation for Oil Pollution: An Overview*, *in* ENVIRONMENTAL LAWS IN NIGERIA, *supra* note 50, 285, 306.

230. Ikpede's case, M.W.S.J. 61.

231. § 245.

ate for corporate offenders.

Finally, regarding statutory enactments, the Harmful Waste (Special Criminal Provisions) Act, 1988.[232] Section 1 prohibits the "purchase, sale, importation, transit, transportation, deposit, [and] storage of harmful wastes" and makes it a crime to engage in any of these activities without lawful authority. The penalty for contravention is stern: 1) imprisonment for life and 2) forfeiture to the Federal Government of any carrier used in the transportation or importation of the harmful waste and any land on which the waste was deposited or dumped.[233] "Harmful waste" is broadly defined to mean any "injurious, poisonous, toxic, or noxious substance." This could be construed to cover oil pollutants considering their injurious or toxic nature,[234] but it is doubtful if the lawmakers intended this enactment to apply to the oil industry, particularly considering the legislative history.[235] The Act was a swift reaction to the dumping of toxic waste by an Italian firm in the port town of Koko in 1988[236] and was intended to deter any similar actions, especialy given the increasing rates of transboundary movement of radioactive and other hazardous wastes to developing countries.[237]

5. Common Law Liability

As observed earlier, most of the statutes and regulations in force in Nigeria do not confer any right of private action on the victims of oil pollution. As a consequence, claims have generally been brought as common law tort claims. The more usual theories of tort relied on are negligence, nuisance, and the rule in *Rylands v. Fletcher*. Each of these has its severe limitations as shown by some of the cases.[238]

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232. Cap. 165 Laws of the Federation, (1990).

233. *Id.*, § 6.

234. *See supra* notes 32-50 and accompanying text.

235. IBIDAPO-OBE, *supra* note 187, at 250.

236. *See* press briefing by Nigeria's Minister of External Affairs on the matter. DAILY TIMES (Nigeria), June 15, 1988, at 1; Sylvia F. Liu, *The Koko Incident: Developing International Norms for the Transboundary Movement of Hazardous Waste*, 8 J. NAT. RESOURCES & ENV'T. L. 121 (1993).

237. The concerns aroused by those incidents led to the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal, 28 I.L.M. 649 (1989), and the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement of Hazardous Wastes Within Africa, 30 I.L.M. 773 (1991). The latter was adopted by Organization of African Unity member states following their concern that the Basel Convention did not include a total ban. For a consideration of the issues, *see* Mary Critharis, Note, *Third World Nations are Down in the Dumps: The Exportation of Hazardous Waste*, 16 BROOK J. INT'L L. 311 (1990); C. Russel H. Shearer, *Comparative Analysis of the Basel and Bamako Conventions on Hazardous Waste*, 23 ENVTL. L. REP. 141 (1993); Maureen Walsh, *The Global Trade in Hazardous Wastes: Domestic and International Attempts to Cope with a Growing Crisis in Waste Management*, 42 CATH. U. L. REV. 103 (1992).

238. *See generally* E.N.U. Uzodike, Tort Law in the Oil Industry, *in* ENVIRONMENTAL LAWS IN NIGERIA, *supra* note 50, at 237; T. Osipitan, *Problems of Proof in Environmental Litigation, in* ENVIRONMENTAL LAWS IN NIGERIA, *supra* note 50, at 112.

For claims brought under negligence, which requires the claimant to establish the existence of a duty of care, the breach of the duty and a causal link between the breach and the injury suffered[239] the main difficulty for the plaintiffs remains the showing of absence of the elements of reasonable care on the part of the operator. In a highly technical industry such as the petroleum industry, proof of negligence requires expert scientific evidence unavailable and unaffordable to the largely unschooled and poor victims of oil pollution in Nigeria. In *Atubin v. Shell BP Petroleum Development Company of Nigeria Ltd*,[240] in which the plaintiffs claimed that the defendant caused crude oil, gas, and chemicals to escape from pipelines under their control thereby destroying fishes in the lake and their farmland, the court held that the plaintiffs did not prove that defendant was negligent.[241] Though the courts, may at times, invoke the doctrine of *res ipsa loquitur*[242] to relieve the plaintiff of the burden of establishing defendant's negligence, the inference is rebuttable by expert evidence showing that the defendant took the utmost care and acted in accordance with standard industry practices. The oil polluters in Nigeria are well positioned, considering the enormous resources at their disposal, to supply the expert evidence in rebuttal, and the Nigerian courts have established that such expert evidence, if unchallenged, must be accepted and acted upon by the trial court.[243]

The rule in *Rylands v. Fletcher* has provided greater succor to claimants, since the cases show a willingness by the courts to hold operators in the oil industry liable on the basis of the rule. The rule is one of strict liability not requiring any showing of negligence on the part of the defendant.[244] The plaintiff only needs to prove: 1) that there was an "escape" from defendant's land of anything likely to do mischief, 2) that there was a "non-natural user" of the land, and 3) that the plaintiff suffered damage as a result of the "escape."[245] In *Umudje v. Shell BP Petroleum Development Company of Nigeria Ltd*,[246] the plaintiffs claimed damages for the "escape" of oil-waste from a pit in the control of the defendants which resulted in damage to plaintiffs' ponds, lakes, and farmlands. The Supreme Court held the defendant company liable for the damage to plaintiffs' property under the rule in *Rylands v. Fletcher*. Sim-

239. Donoghue v. Stevenson App. Cas. 562 (1932).

240. Suit No. UHC/48/73, Judgment of the Ughelli High Court delivered on November 12, 1974, (Unreported).

241. *See also* Chinda v. Shell BP Petroleum Development Company of Nigeria Ltd 2 R.S.L.R. 1 (1974) (holding that the plaintiffs could not establish any negligence in the defendant's operation of its flare sites which caused enormous damage to plaintiffs' crops, land, and houses). The plaintiffs in Atubin's case could have successfully maintained an action under § 11(5), Oil Pipelines Act (discussed above).

242. The doctrine raises a *prima facie* presumption of negligence against a defendant.

243. Seismograph Services Ltd. v. Akpornovo 6 S.C. 119, 135, (Nigeria S. Ct.) (1974).

244. Rylands v. Fletcher (1866) L.R. 1 Exch. 265, 277-280, *aff'd by* the House of Lords, (1868) L.R. 3 H.L. 330, 338-340.

245. *Id.*

246. (1975) 9-11 S.C. 155 (Nigeria S.Ct.).

ilarly, in *Edhemowe v. Shell BP Petroleum Development Company of Nigeria Ltd*,[247] the court held the defendant liable for damage caused to plaintiff's fish pond by the oil which escaped from the defendant's waste pit, holding that the accumulation of crude oil in a waste pit was a non-natural user of land.

In spite of the higher chances of success by plaintiffs with the rule in Rylands,[248] it must be noted that the courts have accepted statutory authority as a complete defense to a claim brought under the rule. Accordingly, in *Ikpede v. Shell BP Petroleum Development Company of Nigeria Ltd*,[249] where leakage of crude oil from defendant's pipelines caused damage to plaintiffs' fish swamp, the court held that even though all the requirements of the rule in Rylands' case were met, the defendant could not be held liable under the rule since its act of laying pipelines was done pursuant to a license issued under the Oil Pipelines Act.[250] Some commentators have expressed doubts on the appropriateness of applying the rule in Rylands' case to oil operations in Nigeria, asking whether oil operations could actually be considered non-natural users of land.[251] Such doubts are legitimate since it is difficult to see how oil operations could amount to non-natural user of land in a country whose fortune is almost entirely dependent on earnings from oil.[252] However, the utilization of the rule might be defended as an effort by Nigerian courts to regulate oil pollution and provide relief to victims in the absence of any other basis

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247. Suit No. UHC/12/70, judgment of the Ughelli High Court delivered on January 29, 1971 (unreported).

248. Other cases where the rule was accepted by the courts as the basis for their decisions include Otuku v. Shell BP Petroleum Development Company of Nigeria Ltd. Suit No. BHC/2/83, judgment of the Bori High Court delivered on January 15, 1985 (unreported); Okoro v. Shell BP Petroleum Development Company of Nigeria Ltd. Suit No. W/21/72, judgment of the Warri High Court delivered on November 27, 1972 (unreported).

249. Rylands, L.R. 1 Exch., at 273. In Umudje's case, the Supreme Court indicated that it would have been prepared to accept the defense of statutory authority had any existed in that case.

250. The court, however, awarded damages to the plaintiffs on the basis of the strict liability provisions of the Oil Pipelines Act. *See supra* note 222 and accompanying text.

251. *See* Adewale, *Rylands v. Fletcher*, *supra* note 165, at 40-42; Uzodike, *supra* note 238, at 245; Omorogbe, *supra* note 165, at 155.

252. In the U.S., the rule is not uniformly applied in all states. For instance, the courts in Texas and Oklahoma have rejected the rule holding that the use of land for oil and gas operations in those states was not an unnatural use. *See* Turner v. Big Lake Oil Co., 128 Tex. 155, 166 (1936); Atlas Chemical Industries, Inc. v. Anderson, 514 S.W.2d 309, 313 (1974); Sinclair Prairie Oil Co. v. Strell, 190 Okla. 344, 124 P.2d 255 (1942). On the other hand, the rule has been utilized in some states such as Kansas, Utah and Indiana as a basis for recovery of damages from oil and gas operations. *See* Wendtlandt v. National Cooperative Refinery Assn., 215 P.2d 209 (1950); John T. Arnold Assoc., Inc. v. City of Wichita, 615 P.2d 814, 823-26 (Kan. App. 1980); Branch v. Western Petroleum, Inc., 657 P.2d 267, 274-75 (Utah 1982); Mowrer v. Ashland Oil and Refinery Co., 518 F.2d 659, 662 (7th Cir. 1975). The Rylands v. Fletcher rule seems to have been accepted in Canada as applicable to operations in the oil and gas industry. *See* London Guarantee and Accident Co. v. Northwestern Utilities (1936) App. Cas. 108 (a Privy Council decision dealing with gas pollution in Alberta), Lohndorf v. British American Oil Company (1958) 24 W.W.R. 193, 196.

for relief. After all, the rule, being one of common law, is not immutable and is subject to modifications to meet the needs of a changing society.

Nuisance has also been used as a basis for claims against oil polluters but less frequently than negligence. It has two major drawbacks. First, the tort of private nuisance protects property interests, and is, therefore, unlikely to be available to plaintiffs claiming personal injury as a result of oil pollution.[253] Second, it appears that most acts of nuisance committed by oil companies affecting water would be regarded as public nuisances which are actionable only by the Attorney General. Since such acts affect the public as a whole, no single individual can sue under the tort of nuisance unless he can show that he suffered special damages, peculiar to himself. In *Amos v. Shell BP Petroleum Development Company of Nigeria Ltd*,[254] an action brought by the plaintiffs for and on behalf of 42 villages, the plaintiffs alleged that the defendant, in the course of oil mining operations, built a large earth dam across their creek which caused serious flooding upstream and the drying up of the creek downstream. They claimed, as a result, their farms were flooded and damaged, the movement of canoes, the main means of transportation, was hampered, and their agricultural and commercial life was paralyzed. The court dismissed the action holding that the creek was a public waterway and its blocking was a public nuisance for which the plaintiffs could not sue in the absence of any proof that they suffered any damage over and above that of the general public.[255] The court also held that the plaintiffs could not maintain a representative action for special damages because the losses were suffered separately and each individual must plead and prove his or her special individual loss.

C. *International Law*

As alluded to earlier, there are rules of international law which impact the subject of oil pollution of water. However, international regula-

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253. *See* Thompson-Schwabb v. Costaki (1956) 1 W.L.R. 335, 338.

254. 4 E.C.S.L.R. 86 (1974), *aff'd* 6 S.C. 109 (1977).

255. Nigerian courts have been too willing to hold that acts which affect more than one person amount to public nuisance thereby denying any of the victims right to sue. Unfortunately, the Attorney-General has not been known to be enthusiastic to enforce such public rights. *See* Lawani v. The West African Portland Cement Co., (1973) 3 U.I.L.R. (Part IV) 459 (a class action by inhabitants of five villages for damage to their crops, buildings and other properties arising from the operations of the defendant's cement factory was dismissed on the ground that the injuries amounted to public nuisance). In the U.S., the dichotomy between private and public nuisance is, of course, recognized, but the courts do not label an act one or the other merely on the basis of the number of people who are injured by the act complained of. In United States v. Students Challenging Regulatory Agency Procedures, 412 U.S. 669, 93 S.Ct. 2405, 37 L.Ed. 2d 254 (1973), the U.S. Supreme Court held that in determining the issue of standing, it is of no consequence that many people suffer the injury. The Court noted that to deny standing to individuals who are injured simply because many others are also injured would mean that the more injurious government actions could be questioned by nobody. *See also* Duke Power Co. v. Carolina Environmental Study Group Inc., 438 U.S. 59 (1978).

tion of oil pollution is one area in which the United States has not enthusiastically participated with the result that the U.S. is not party to most of the major multi-lateral treaties on the subject.[256] Reasons suggested for this lukewarm attitude include the lower levels of liability allowed under the international conventions and the possibility of preemption of state liability laws.[257] There seems little prospect for any change in this attitude, since ratifying the conventions would entail reopening some of the domestic legislation, particularly the Oil Pollution Act, which is unlikely now or in the near future.[258]

Somewhat curiously, the U.S. was the first state to ratify the Convention on Oil Pollution Preparedness, Response and Cooperation.[259] The convention went into force in May, 1995, having been ratified by at least 15 countries,[260] including Nigeria. It protects the marine environment from oil spills and provides for planning, reporting procedures, technology sharing, and cooperation.[261] The OPRC requires parties to establish national systems for preparedness and response.[262]

Nigeria is a party to the 1969 International Convention on Civil Liability for Oil Pollution Damage (CLC)[263] and the 1971 Convention on the

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256. The treaties include the Convention on Civil Liability for Oil Pollution Damage, 1969, *revised by* the Protocols of 1976, 1984, and 1992; the Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971, *revised by* the Protocols of 1984 and 1992; and the Law of the Sea Convention, 1982.

257. *See* Cooney, *supra* note 137, at 346 n. 13, 356-58; Rodriguez & Jaffe, *supra* note 120, at 24; Gary B. Conine, *Environmental Issues in Offshore Exploration and Production Activities*, 42 INST. OIL & GAS L. & TAX'N 8-1, 8-46 to 8-47 (1991).

258. *See* William DiBenedetto, *Little Chance for Any Changes to Pollution Act*, JOURNAL OF COM., Dec. 23, 1992, at 1B. Admiral Kime, Commandant, U.S. Coast Guard, probably summed up U.S. thinking in a speech to the Propeller Club of the United States (Feb. 23, 1993): "Let's face it, Congress has voted. The vote was 535-0. Pigs will fly before the U.S. ratifies the 1984 Protocols." *Id.* (*quoted in* GIBSON, *supra* note 55, at 27). Note that the OPA, 33 U.S.C. § 2761(d) mandates the Interagency Committee to coordinate and cooperate with other nations and foreign research entities in conducting oil pollution research development and demonstration activities. Further, OPA § 3001 recognizes that "it is in the best interests of the United States to participate in an international pollution liability and compensation regime that is at least as effective as" United States law in preventing incidents and guaranteeing full and prompt compensation. President Bush, while signing the OPA, issued a statement in which he recognized the "global challenge" of oil pollution and urged the Senate to give immediate consideration to ratifying the 1984 Protocols. "[T]he solutions we devise must be broad enough to address the needs of all nations." Statement by President George Bush upon signing H.R. 1465, 26 WEEKLY COMP. PRES. DOC. 1265-66, Aug. 27, 1990.

259. 30 I.L.M. 733 (1991). Perhaps, as a further sign of things to come, the Coast Guard took steps recently to align U.S. domestic transport rules with Regulation 26 of Annex 1 of MARPOL 73/78 by adopting final rules requiring U.S. flag vessels of more than 400 gross tons and U.S. flag oil tankers of more than 150 gross tons to carry approved oil spill response plans. 59 FED. REG 51,332 (1994).

260. Article 16 provides for entry into force twelve months after fifteen ratifications.

261. Articles 3, 4.

262. Articles I(1), 6.

263. 973 U.N.T.S. 3, *reprinted in* 9 I.L.M. 45 (1970).

Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND).[264] The purpose of the CLC is to provide uniform international rules and procedures for determining questions of liability and providing adequate compensation for persons who suffer damage caused by pollution resulting from escape or discharge of oil from ships. It makes the owner of a ship, from which there is a discharge, liable for the resulting damage[265] up to specified limits.[266] The FUND, which is supplementary to the CLC, establishes the International Oil Pollution Compensation Fund to provide compensation for pollution damage to the extent that the protection afforded by the CLC is inadequate and to give effect to other related purposes.[267]

It is doubtful if victims of oil pollution in Nigeria have had any meaningful benefit from these conventions. The reason, of course, is that the conventions apply solely to discharge from ships, which has not really been of critical concern in Nigeria, even though it does constitute a real problem in the country's coastline.[268] Further, there has not been any domestic legislation promulgated to make the provisions of the conventions enforceable internally.

Also, of some relevance to Nigeria, is the Law of the Sea Convention which came into force recently.[269] The convention imposes on parties a primary obligation to protect and preserve the marine environment,[270] while at the same time recognizing their right to exploit their natural resources pursuant to their environmental policies and in accordance with the primary obligation.[271] The parties undertake individually and jointly to take measures necessary to prevent, reduce, or control pollution of marine environment from any source, using the "best practicable means at their disposal and in accordance with their capabilities."[272]

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264. 1110 U.N.T.S. 57, *reprinted in* 11 I.L.M. 284 (1972).

265. Article III(1).

266. Under Article V(1), the liability of the ship owner for any one incident is limited as follows: (a) 3 million units of account for a ship not exceeding 5,000 units of tonnage; (b) for a ship in excess thereof, 420 units of account for each additional unit of tonnage up to a limit of 59.7 million units of account. *Id.* However, under Article V(2), there is no limit to liability where an act or omission of the owner was committed with the intent to cause the pollution damage arising or recklessly with knowledge that such damage would probably result. (A unit of account is approximately $1.43). These limits of liability are as revised by the 1984 Protocol.

267. Article 2.

268. *See* ETKERENTSE, *supra* note 2, at 80 (stating that much of the oil found along Nigeria's coastline comes from ocean-going tankers).

269. U.N. Doc. A/Conf./62/122. After so many years of waiting, the Convention finally came into force on Nov. 16, 1994. Nigeria ratified it on August 14, 1986. Though the U.S. is not yet a party to the Convention, it is hoped that it would soon take the necessary steps to ratify it, its principal objections (relating to Part XI of the Convention) having been alleviated by virtue of the Agreement Relating to the Implementation of Part XI of UNCLOS of G.A. Res. 48/263, U.N. Doc. A/48/950 (1994).

270. Article 192.

271. Article 193.

272. Article 194(1).

V. ASSESSMENT

The regulatory laws in the United States and Nigeria, as summarized in the foregoing sections, have clear strengths and weaknesses. The following discussion suggests an appropriate tool and focus for enhancing the strengths and minimizing the weaknesses of these oil pollution related laws.

A. *General Observations*

The pre-FEPA (1988) regulatory regime in Nigeria is, in theory and practice, plagued with so many shortcomings that there is a temptation to write it off as non-existent. Even FEPA did not change much in practice. First, FEPA, or Nigerian law in general, to a very large extent did not set any specific standards for the oil operators to meet in order to protect and preserve the water sources and the environment in Nigeria. The statutes and regulations are couched in such general and imprecise terms that they make compliance and enforcement nearly impossible. For illustration, there was nothing in any of Nigeria's oil-related laws, outside of the Oil in Navigable Waters Act,[273] that prohibited the discharge of oil or waste into the environment.[274] Nigerian law only enjoins operators to exercise care in order to prevent spills. They are required to adopt "good oilfield practice," take "all practicable precautions," carry out their operations in a "proper and workmanlike manner," and, in the event of a spill, "control and, if possible, end it."[275] It is extremely difficult to determine the nature of any obligations created by such vague expressions.[276] The FEPA Act and the regulations made under it appear, to a large extent, to address this shortcoming by enacting a prohibition of discharge of "hazardous substance" into or upon water and by setting specific standards in certain aspects of the operations in the oil industry to protect the integrity of the "waters of Nigeria."[277]

Another shortcoming of the Nigerian laws is the wide discretion usually given to the implementing agencies. For the most part, the statutes authorize a government official, usually a minister, to make regulations without setting any time frame within which such assignment is to be carried out and in language that suggests that the official has a choice

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273. The restricted scope of the Act, the soft penalties and the many defenses allowed make the Act a nearly worthless piece of legislation. *See supra* notes 180-191 and accompanying text.

274. Rather, there are provisions which seem to suggest that operators have authority to cause damage but "as little . . . as possible." Reg. 36 of the Petroleum (Drilling and Production) Regulations provides in part as follows: "The licensee or lessee [shall] take all steps practicable . . . (e) to cause as little damage as possible to the surface of the relevant area and to the trees, crops, buildings, structures and other property thereon." *Id.*

275. Emphasis added. *See supra* notes 155-157 and accompanying text.

276. *See supra* notes 162-164 and accompanying text.

277. *But see supra* notes 203-206 and accompanying text.

whether or not to make such regulations.[278] This could be contrasted with most of the provisions in U.S. law which contain definite directives to make appropriate regulations within a given time frame.[279] Environmental protection laws regarding the Nigerian oil industry must be made to reflect this stronger U.S. approach. Nigerian laws must be changed to have mandates, modes, and times for carrying out such laws.[280]

Compounding the wide discretion given to the implementing agencies is the vague nature of the power granted the Department of Petroleum Resources (DPR or Department), the main regulatory agency. For example, the regulations in several places require that oil operator practices and equipment should be approved by the Director of the DPR.[281] Here, it is onerous to interpret what the language means.

Is one entitled to assume that the operators' practice, for example, of discharging brine or equipment into inland waters,[282] some of which are outdated and the failure of which contributes significantly to the oil pollution problem in Nigeria,[283] received the prior approval or acceptance of the Director? Or is it a case of the Director's failing to insist on his prior approval or acceptance of such practices and equipment as required by law?

Whichever is the case, the role of giving prior approval or acceptance to all practices and equipment used in the oil industry is not a proper one for the DPR for several reasons. First, it is doubtful if the Department has the necessary expertise and facilities to fulfill that mandate.[284] Second, it places the Department in an awkward position, since most spills in Nigeria are caused by practices or equipment supposedly prescribed or approved by the Department.

Given these regulatory flaws, it is difficult to determine categorically who is more blame for the current state of environmental degradation caused by oil production, namely transportation and refinement in Nigeria, the Department, or the operators. The latter might even be partly responsible for the Department's unwillingness to enforce the law against the spillers.[285] The proper role for the department and other agencies should be to set and enforce the standards to protect the Nigerian environment and leave the industry to devise ways and means of attaining those standards.

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278. The statutory provisions usually state as follows: "The minister may make regulations . . . ." *See, e.g.*, Sec. 5 Oil in Navigable Waters Act; § 9 Petroleum Act; § 37 FEPA Act.

279. *See, e.g.*, CWA 33 U.S.C. §§ 1321(b)(2)(B), 1321(j)(6), OPA 33 U.S.C. §§ 2704(d), 2706(e)(1).

280. Akanle, *supra* note 163, at 6, 28.

281. *See, e.g.*, Regs. 7, 27, 43 of the Petroleum Refining Regulations, regs. 25, 36, 40 of the Petroleum (Drilling and Production) Regulations.

282. Nwankwo & Irrechukwu, *supra* note 5, at 103.

283. *See supra* notes 12 and 20.

284. Nwankwo & Irrechukwu, *supra* note 5, at 105.

285. *See infra* notes 288-290 and accompanying text.

Yet another shortcoming of the regulatory regime in Nigeria is the laughably inadequate sanctions provided for in most of the statutes and regulations. What effect, for instance, does a fine of a hundred *naira* or $4.55 mean to an oil operator for breach of environmental regulations? Clearly, the sanctions, except perhaps those in the FEPA Act,[286] are not stiff enough to be a deterrent. To be effective, regulations must induce compliance. Thus, it is critical that new regulations be developed to incorporate penalties and enforcement provisions that create strong incentives for compliance.[287]

A much more fundamental objection is the neglect or unwillingness of the regulatory agencies to enforce the existing regulations. This appears to be the main bane of Nigeria's environmental regulation of the oil industry rather than the absence of rules. Despite the several reported cases of oil spills in Nigeria, there has not been a single known case of enforcement of the statutes and regulations against the culprits.[288] The neglect or failure of the regulatory agencies to apply the stipulated sanctions has been consistent and remarkable and creates the impression of complicity and support for the oil companies with sloppy production practices. This contrasts sharply with the enthusiastic enforcement in the United States of relevant sanctions through criminal, civil, and administrative penalties. Over the last decade, the use of criminal sanctions for violations of U.S. environmental laws has increased dramatically; so have the penalties.[289] Many prosecutions are against individuals working for corporations. The extension of criminal liability to individuals who act for the corporate entity will provide a potent incentive to ensure that environmental laws are complied with and that environmental concerns are addressed in a prompt and forthright manner.[290] The selfish desire to protect one's own liberty converts, at least in theory, every employee and company manager into a motivated environmental protectionist.

The Nigerian agencies are urged to emulate the enforcement scheme in the United States recognizing that they may, indeed, be faced with some genuine constraints, including budget facilities, personnel compe-

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286. *See supra* notes 195, 196, and 218 and accompanying text.

287. *See* PERCIVAL ET AL., ENVIRONMENTAL REGULATION LAW, SCIENCE AND POLICY 984 (1992).

288. O. A. Bowen, *The Role of Private Citizens in the Enforcement of Environmental Laws, in* ENVIRONMENTAL LAWS IN NIGERIA, *supra* note 50, at 165.

289. *See* GIBSON, *supra* note 55, at 20. Statistics of criminal prosecutions for environmental crimes by the U.S. Department of Justice for the fiscal year 1983 through fiscal year 1993 showed a total of 1,081 indictments (329 corporations and 752 individuals); 804 convictions (258 corporations and 546 individuals); a total of $253,632,917 in fines and 417 years of imprisonment. United States Department of Justice Memorandum Re: Environmental Criminal Statistics Fiscal Year 83 through FY92, *cited in* Linda C. Martin, *Environmental Crimes: What You Don't Know Can Send You to Jail*, 2-4, (paper presented at a seminar on Basic Environmental Issues in the Oil Patch, College of Law, University of Tulsa (June 17, 1994)).

290. David E. Pierce & John S. Lowe, SHORT COURSE IN ENVIRONMENTAL LAW FOR THE OIL AND GAS INDUSTRY 119-120 (Seminar Materials, University of Tulsa (Dec. 6-7, 1994)).

tencies, and the role of government in the oil industry. All petroleum resources in Nigeria are vested in the Federal Government[291] which in turn enters into operating agreements, usually joint ventures,[292] between the operating companies and the Nigerian National Petroleum Corporation (NNPC), a state oil corporation. Consequently, the costs for pollution abatement must be borne by both the operating companies and the state as it does not seem the government is willing to pay its share.[293] Until 1988, the Department of Petroleum Resources, then known as the Petroleum Inspectorate, was an integral part of the NNPC but now forms a part of the Ministry of Petroleum Resources. Before 1988, the NNPC's dual role of being both an operator and a regulator meant that enforcement actions affected the NNPC; thus, it was hardly surprising that the NNPC took no enforcement action which would have resulted in adverse self-regulation.[294]

Compounding the problem of non-enforcement by the public agencies is the lack of any mechanism for private enforcement of the statutes and regulations in Nigeria.[295] Conversely, nearly every major federal environmental legislation in the United States has provisions for citizen suits.[296] U.S. law enables private citizens to bring actions against violators, and, more importantly, to compel the enforcement agencies to carry out their non-discretionary statutory duties.[297] Citizen suits are proven as a very useful tool for environmental protection, because they stimulate

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291. Constitution, Federal Republic of Nigeria 1979, § 40.

292. The government now seems to prefer the production-sharing contract to the joint venture agreements because under the former the government is not required to contribute towards the exploration and production costs. *Nigeria reviews Oil- drilling law*, DEUTSCHE PRESSE AGENTUR, Nov. 4, 1994, (*available in* LEXIS, Nexis Library, Curnws File).

293. *See* Omorogbe, *supra* note 165, at 162. It is hoped that the current shift away from joint venture agreements to production-sharing contracts will minimize the constraint posed by government's inability or failure to contribute to pollution abatement costs.

294. Akanle, *supra* note 165, at 16.

295. *See generally*, Bowen, *supra* note 288.

296. *See, e.g.*, CWA, 33 U.S.C. § 1365; SDWA, 42 U.S.C. § 300j-8; Clean Air Act, 42 U.S.C. § 7604; CERCLA, 42 U.S.C. § 9659; Endangered Species Act, 16 U.S.C. § 1540(g). The Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 136, seems to be the only principal exception.

297. But the U.S. Supreme Court appears to have signalled a change in direction in Lujan v. Defenders of Wildlife, 112 S. Ct. 2130 (1992) in which it held that the citizen suit provision in the Endangered Species Act was unconstitutional for granting standing that exceeded the Constitutional limits of Article III. For reactions to the case and suggestions for alternative strategies, see Harold Feld, *Saving the Citizen Suit: The Effect of* Lujan v. Defenders of Wildlife *and the Role of Citizen Suits in Environmental Enforcement*, 19 COLUM. J. ENVTL. L. 141 (1994); Cass R. Sunstein, *What's Standing After Lujan? Of Citizen Suits, "Injuries," and Article III*, 91 MICH. L. REV. 163 (1992). Earlier in 1987, the Supreme Court had interpreted § 1365(a)(1) of the CWA rather restrictively to confer jurisdiction only in cases of ongoing violations and denying jurisdiction for wholly past violations. Gwaltney of Smithfield v. Chesapeake Bay Foundations, 484 U.S. 49 (1987). The relevant part of the provisions authorizes citizens to bring suits against any person "who is alleged to be in violation" of applicable standards, limitations, or orders. For a critique of the decision, *see* Rodgers, *supra* note 20, at 289-290.

and supplement government enforcement.[298]

In Nigeria, by contrast, the absence of statutory provisions permitting private rights of action has left the common law as the only refuge for victims of oil pollution who seek judicial remedies.[299] But because of the numerous drawbacks associated with common law tort actions,[300] the victims' chances of success of recovering any substantial and meaningful remedy are slim. The claimants are thus constrained, to accept whatever compensation is offered to them by the polluting oil companies, no matter how grossly and ostensibly inadequate those offers might be.[301] The Nigerian courts make the alternative option of litigation even more unattractive because of the paltry awards they give in the few cases that succeed. For instance, in *Mon v. Shell BP Petroleum Development Company of Nigeria Ltd.*,[302] the court found that the spillage from the defendant's pipelines caused enormous damage to the plaintiffs' fish pond but awarded only two hundred *naira* as damages for the plaintiffs' loss. In another case,[303] the court merely awarded the exact amount initially offered by the defendant but rejected earlier by the plaintiffs.

The attitude of the Nigerian courts, as exemplified in the cases just cited, is in sharp contrast with the disposition of the American courts towards awards of punitive damages. In one of the several cases against the Exxon Corporation arising from the 1989 Exxon *Valdez* spill, the trial court awarded $5 billion as punitive damages in favor of the plaintiffs which included Alaskan fishermen and property owners.[304]

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298. For instance, in October 1994 some environmental groups and a Congressman sued the Coast Guard and the National Oceanic and Atmospheric Administration for failing to issue oil spill prevention and damage assessment regulations within the period mandated by the Oil Pollution Act (NRDC v. U.S. Coast Guard, DC ENY, no. 94-4892, 10/20/94, *cited in* 25 ENVTL. L. REP. 1277 (1994)). The private right of action created by the statutes was initially to help enforce the law but the OPA, moving further than any other federal environmental legislation before it, also authorizes the private citizen to sue for damages. *See supra* note 120 and accompanying text.

299. Note, however, the right of action created by § 11(5), Oil Pipelines Act, albeit limited to pollution arising from pipelines. *See supra* note 227 and accompanying text.

300. *See supra* notes 238-255 and accompanying text.

301. *See supra* note 238 and accompanying text. The victims' poor economic conditions, their ignorance, and the expensive and uncertain option of litigation are additional reasons why the inadequate compensatory payments are accepted. Under current practice, compensation is available only when there is actual physical damage to claimant's private property; claims for loss or injury arising from dependence on commonly owned natural resources such as water are not entertained. Osuno (Panel Discussion), *in* THE PETROLEUM INDUSTRY, *supra* note 4, at 213.

302. (1970-72)1 R.S.L.R. 71.

303. Nweke v. Nigerian Agip Oil Company Ltd. (1976) 10 S.C. 101.

304. *In re* Exxon Valdez, DC Alaska, No. A89-0095-CV. The verdict was handed down on Sept. 16, 1994, cited in 25 ENVTL. L. REP. 1029 (1994). Similarly, in Marshall v. El Paso Natural Gas Co., 874 F.2d 1373 (10th Cir. 1989), the court awarded over $5 million in damages for injury resulting from defendants' improper plugging of a poor well even though an official of the regulatory agency had witnessed and "approved the plugging as proper." Nigerian courts generally seem not given to awarding huge damages in tort cases. *See* H. Ogunniran, *Awarding Exemplary Damages in Tort Cases: The Dilemma of Nigerian*

Apart from the insufficient damage awards given to successful claimants in oil spill cases, Nigerian courts also never grant injunctive remedies. In balancing the harms, the courts always put the need for continuous oil operations, and, consequently, the pecuniary benefits to the operating company and the country, above the need for the protection of the environment, individuals' health and property.[305] In *Allar Iron v. Shell BP Petroleum Development Company of Nigeria Ltd.*,[306] where the plaintiff sought an injunction against continuing pollution of his land, fishpond, and creek, the court denied the injunction *inter alia* on the ground that "mineral oil is the main source of this country's revenue," and that a grant of injunction would render nugatory the oil exploration license granted the defendant company. On the other hand, American courts do, though seldomly grant injunctions in deserving cases in order to protect the environment. In *Amoco Production Co. v. Village of Gambell, Alaska*,[307] the Supreme Court observed as follows:

> Environmental injury, by its nature, can seldom be adequately remedied by money damages and is often permanent or at leastof long duration, that is, irreparable. If such injury is sufficiently likely, therefore, the balance of harms will usually favor the issuance of an injunction to protect the environment.[308]

Another pertinent observation about the U.S. regime is the level of uncertainty caused by the existence of several sources of liability including numerous federal statutes, state enactments, and common law. Rodriguez and Jaffe observe that "United States law regarding water pollution is unusually confused, with overlapping statutes and common law remedies on both the federal and state levels."[309] This observation is still relevant today, even considering the attempt by the OPA to minimize the confusion with regard to liability at the federal level. It has been suggested that the existence of the complex web of laws was caused in part by the U.S. Congress's history of reacting to specific events rather than

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Courts, 36 J. AFR. L. 111 (1992).

305. Kola Adeniji, *Legal Control of Pollution Hazards from Petroleum Operations: Implications for the Nigerian Oil and Gas Industry*, 12 GHANA U. L.J. 106, 118-19 (1975).

306. Judgment of the Warri High Court (unreported) (Nov. 26, 1973) Suit No. W/89/71.

307. 480 U.S. 531 (1987).

308. *Id.* at 545. However, the court refused to affirm the order of injunction made by the Court of Appeals on the ground that no permanent damage was probable and that a balance of harms favored a refusal of injunction. But in TVA v. Hill, 437 U.S. 153 (1978), the Supreme Court authorized an injunction against the completion of a multi-million dollar dam because the dam would threaten an endangered species of fish (snail darter), holding that it was irrelevant that much money had been spent on the dam and that only little work remained to be done. It should be pointed out, however, and the Court itself noted, that the court considered its discretion in this case foreclosed by Congress and that only an injunction could vindicate the objectives of the law. *Id.* at 173. *But see* Boomer v. Atlantic Cement Co., 26 N.Y.2d 219 (1970), where the court in denying an injunction took into account, among other factors, the fact that the cement plant was the core of the local economy.

309. Rodriguez & Jaffe, *supra* note 120, at 1.

planning regulatory regimes.[310]

B. *Focus*

One feature common to the oil related law of both Nigeria and the United States is the disproportionate emphasis placed on response. The efforts seem to focus on "after-the-spill" consequences, such as liability, compensation, and cleanup, rather than seeking to prevent the occurrence of the spill in the first place. The one, and perhaps only notable, area where the oil industry in Nigeria has demonstrated some concern for the environment is in its preparations for response to oil spills. Every producing oil company has developed a first level response plan for minor spills and a cooperative second level response plan for medium to major oil spills, developed for spills beyond the response capability of individual oil companies.[311] In the United States, the OPA has been characterized as "reactive" because its "primary provisions" are not implicated until a spill occurs.[312]

It is the position of this article that the proper focus of the regulatory regimes should be on spill prevention while treating the consequences of a spill whenever it occurs as incidental. The response approach, no matter how sophisticated, is not likely to provide any effective answer to the problem of water pollution by oil. First, it has been shown that damage to the environment from oil spills is immediate and generally short-term.[313] Thus, even the quickest response after a spill is unlikely to prevent much of the harm. Moreover, some of the components of oil, such as benzene and naphthalene, are water soluble,[314] dissolving quickly in water, with the result that even after an apparently effective cleanup, these components could still remain in the water in harmful proportions.

Second, it is now beyond doubt that even the most thorough cleanup is really never effective enough to remove all the spilled oil. For instance, even the "extensive and thorough"[315] cleanup efforts by Exxon still left approximately between 250,000 and 1.3 million gallons of oil in the Alas-

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310. CAMPBELL-MOHN ET AL., *supra* note 19, at 757-58.

311. The second level response is organized under the auspices of Clean Nigeria Associates (CNA), a cleanup cooperative of all the operating oil companies in Nigeria. The CNA effectively came into being on Sept. 20, 1984 when it signed agreements with the cleaning contractor Halliburton Ltd. with offices in Oklahoma, acting through its Nigerian subsidiary.

312. D.L. Vickers, Note, *Deterrence or Prevention Two Means of Environmental Protection: An Analysis of the Oil Pollution Act of 1990 and the Oregon Senate Bill 242*, 28 WILLAMETTE L. REV. 405, 431 (1992). Vickers argues that the OPA's focus on oil spill liability, compensation and removal is "misguided" and criticizes that focus as the Act's Achilles' heel. *Id.* at 419, 431.

313. BAKER, *supra* note 30, at 30. *See also* THE CONTROL OF OIL POLLUTION, *supra* note 15, at 50 (stating that there is "abundant evidence that freshly-spilled crude oils contain low-boiling substances which are acutely toxic").

314. *See supra* note 15 and accompanying text.

315. BAKER, *supra* note 30, at 30.

kan environment after the Exxon Valdez spill.[316] In fact, it has been estimated that mechanical skimming, now the most common cleanup method, removes only ten to twenty percent of spilled oil.[317]

Third, the cleanup chemicals and the cleaning procedures could themselves constitute environmental problems, in some cases to most damaging dimensions. For instance, the Torrey Canyon oil spill was said to have caused negligible damage to fisheries. Instead, it was found that the kerosene and aromatic hydrocarbon-based dispersants used in the cleanup caused the real damage.[318]

One final reason why the operators should prefer a prevention strategy is that many of the actions that follow an oil spill such as cleanup, negotiations, litigation, subsequent payment of compensation, restoration of the polluted environment, and adverse publicity are usually more costly and time consuming than prevention.[319]

C. *Tools*

Given the above discussion, it is pertinent at this point to consider which tool, or combination of tools, should be adopted by governments to regulate the oil industry, particularly as it relates to environmental water pollution. Generally, several different tools are employed by environmental statutes to ensure the realization of their objectives,[320] but for purposes of this paper the choice is restricted to the command-and-control mechanism and to the use of economic incentives.

Command-and-control standards refer to regulations issued by a government to prescribe the level of pollutant that a facility may emit. The standards are either 1) performance-based, which set ambient-quality levels, or 2) technology-based, which control discharges based on technological feasibility. In other words, the command-and-control strategy regulates by specifying certain goals which must be met in order to engage in

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316. Michael J. Uda, *supra* note 131, at 403 n.2.

317. *Slick Solutions to an Environmental Scourge*, N.Y. TIMES, Aug. 15, 1993, at 3.11. *See also* J.D. Kingham, *Oil Spill Chemicals: Environmental Implications and Use Policy*, *in* The Petroleum Industry and the Nigerian Environment, supra note 4, 179 (stating that regardless of any action taken after a major oil spill has occurred, the environment will suffer some damage and that it is likely that a sizable fraction of the spilled oil will remain even where the best cleaning hardware and expertise have been used); Adewumi & Ertekin, *supra* note 2, at 160 (concluding that none of the cleaning methods is a panacea for getting rid of the spilled oil but may only help to minimize the impact of the oil spill on the environment).

318. C.T.I. Odu, *Degradation and Weathering of Crude Oil Under Tropical Conditions*, *in* THE PETROLEUM INDUSTRY, *supra* note 4, at 144. *See also* THE CONTROL OF OIL POLLUTION, *supra* note 15, at 58 (pointing out that "cleaning procedures probably cause as much concern among biologists as the oily pollutants themselves and in some cases cleaning increases damage to shore life").

319. For instance, the Exxon Valdez spill caused Exxon over $2 billion in cleanup costs and well over $6 billion in penalties and damages thus far. 25 ENVTL. L. REP. 1155 (1994).

320. For an overview of the various legal tools including their effectiveness and defects, *see* CAMPBELL-MOHN ET AL, *supra* note 19, at 129-146.

a polluting activity.[321] The prescribed measures are usually cost-oblivious.

On the other hand, the use of economic incentives places emphasis on cost and price mechanisms. It involves the cost-benefit analysis, residual charges (e.g. special taxes, effluent or emission fees),[322] tax deductions or subsidies for purchase of pollution abatement equipment, etc. The cost-benefit system supports the adoption of environmental protection measures only when the benefits from such measures outweigh their costs.

The choice of a tool for the regulation of water pollution by oil should depend on the goals of the regulations. The objectives should, at a minimum, include the protection of public health, fishing, other marine organisms, navigation, recreation, and aesthetics. As shown above,[323] oil pollution of water endangers all of these interests, but the most critical is public health, particularly in Nigeria where untreated surface and ground waters serve the domestic needs of most Nigerians.[324]

Where public health considerations are involved, as in the case of water pollution by oil, the usual approach has been to enact measures aimed at protecting the public health without regard to other factors such as cost or whether the technology exists to effect the regulation.[325] This approach is reflected in many U.S. environmental statutes, including some of those regulating the oil and gas industry.[326] It has, predictably, been the subject of severe criticism by the oil industry, which charges that the regulations impose a high economic burden wholly unrelated to whatever the regulations' benefits might be.[327] But subjecting regulations

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321. Stewart, *Regulation, Innovation and Administrative Law: A Conceptual Framework*, 69 CAL. L. REV. 1256, 1264 (1981).

322. For example, under current practices in Nigeria, oil producers are allowed to flare associated gas on the payment of a penalty of 50 kobo (2.27 cents) per 1,000 cubic feet (the charge until about 1992 was 2 kobo per 1,000 cubic feet). Associated Gas Reinjection (Amendment) Act 1985.

323. *See supra* notes 30-50 and accompanying text.

324. *See supra* notes 39 and 48-50 and accompanying text.

325. PERCIVAL ET AL., *supra* note 281, at 146-47. *See also* South Terminal Corp. v. E.P.A., 504 F.2d 646, 675 (1st Cir. 1974) (Judge Campbell remarking that "minimum public health requirements are often, perhaps usually, set without consideration of other economic impact"); Lakshman Guruswamy, *Integrating Thoughtways: Re-Opening of the Environmental Mind?*, WIS. L. REV. 463, 508 (1989) (observing that a number of environmental laws "emphasize ethical over economic values insofar as they aim to protect health, safety and environmental quality, rather than to make markets more efficient or to maximize consumer surplus or social wealth").

326. The OPA, the CWA, and the Clean Air Act are good examples of the command-and-control type of legislation. Such health-based standards can, of course, be found in statutes regulating other industries, e.g., the Delaney Clause of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 348(C)(3)(A). The clause prohibited the use of carcinogenic chemicals in foods despite the claims that the benefits of the practice outweighed the risks. W.H. Rodgers, Jr., *Benefits, Costs, and Risks: Oversight of Health and Environmental Decision-making*, 4 HARV. ENVTL. L. REV. 191, 192 (1980).

327. H.B. Scoggins, Jr., President of Independent Petroleum Association of America compared the mass of legislation and regulations on the oil industry with going after a mos-

which seek to protect public health to some form of economic analysis has its own problems. First, the cost-benefit analysis is not entirely objective; it is, to some extent, a subjective value judgment. Further, it measures only the economic efficiency of alternative actions while ignoring critical moral and aesthetic concerns.[328] Some of these concerns cannot be adequately expressed in monetary terms. When a human life is at stake, moral factors, more than any other consideration, should dominate decision making.[329]

Laws and regulations which seek to protect Nigerian waters from oil should adopt the command-and-control approach and ignore the concerns about the cost and the possibility of harming the development of the petroleum industry by discouraging investment.[330] The need to protect the health of Nigerians who rely on these waters should clearly override all of these concerns. The role of oil in Nigeria's economy is recognized, but investment and economic prosperity should not be attained at the expense of a large segment of the population.[331] The experiences of other

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quito with a shotgun and stated that "it's just not necessary." INT'L PETROLEUM ENCYCLOPEDIA 26 (1990). On his part, the chairman of the International Association of Independent Tanker Owners, Andreas Ugland, criticized the U.S. liability laws as being so stringent that given a situation where an oil tanker in U.S. waters were to hit a passenger ship or run aground and cause a spill, the liability scheme made "accidentally killing 2,000 people on the passenger ship the better choice." 23 ENVTL. L. REP. 2867 (1993). Ken Derr, Chairman of Chevron, also lamented the regulatory scheme which he said was leading the loss of jobs in the oil industry. "The upstream half of the industry has been devastated. The downstream half is coming under enormous financial pressure. In both cases, the root cause is not economic factors, not technical factors, but political or regulatory factors . . . ." INT'L PETROLEUM ENCYCLOPEDIA 192 (1993). But a recent study by the Economic Policy Institute (Jobs and the Environment: The Myth of a National Trade-Off, 1995) disputes the claims that environmental protection leads to job losses; rather, it found that environmental protection raises employment levels. 25 ENVTL. L. REP. 1745 (1995).

328. Rodgers, Jr., *supra* note 326, at 194-95.

329. Questions have been raised about the moral propriety and the practicability of placing monetary values on human lives and other intangible goods. Rodgers, *supra* note 326 at 197; Kirschten, *Can Government Place a Value on Saving a Human Life?*, NAT'L J. 252 (1979); Baram, *Cost-Benefit Analysis: An Inadequate Basis for Health, Safety, and Environmental Regulatory Decision-making*, 8 ECOLOGY L.Q. 473 (1980).

330. B.A. Osuno, *Impact of Oil Industry on the Environment, in* Proceedings of Environmental Awareness Seminar For National Policy Makers, Lagos 51, 57 (1982). *See also* Omobolaji Adewale, *Environmental Pollution in the Petroleum Industry*, 12 JUST. 9 (1991) (expressing fears that adoption of high environmental standards might discourage the development of the petroleum industry in Nigeria).

331. *See* Akanle, *supra* note 163, at 18. Nigeria no doubt is in need of development, but it should equally be interested in protecting the environment and the health of her citizens. Most developing countries have been faced with the cruel choice between environmental quality and development. The losers in these conflicts between environmental quality and development are usually those who suffer more than their fair share of the health, property, and ecosystem damage costs of pollution. *See* World Comm'n on Environment and Development, Our Common Future 48 (1987). In the case of the oil industry in Nigeria, the losers have obviously been the oil-producing communities who have been made to bear far more than their fair share of the burden of Nigeria's reliance on oil. But environmental quality and development are not necessarily mutually exclusive; they can co-exist under the princi-

developing countries, which placed premium on investment, employment, and economic development over safety and environmental concerns, should serve as lessons for Nigeria. Worth recalling is the 1984 tragic industrial accident in Union Carbide plant in Bhopal, India, blamed in part on weak regulations and lax enforcement machinery, which killed over 3,300 people and maimed over 200,000 people for life.[332] Nigeria should not wait for the deaths and injuries from water pollution by oil to reach such catastrophic proportions before acting. The time to act is now.

VI. RECOMMENDATIONS

In order to enhance the protection of the waters from oil and its products and wastes, the following recommendations are put forward in addition to others already noted in the foregoing sections. Some are also being merely restated here for clarity and emphasis. The recommendations, unless otherwise stated, apply to Nigeria.

a) The law should impose more detailed and realistic standards including the outright banning of discharges of oil, its products and wastes into, at least, inland waters in view of the uses to which these waters are put, and setting stringent limits for offshore waters.

b) The law should set deadlines for compliance with its mandates by all affected.

c) The confusion, created by Section 23 of the FEPA Act, over which agency has authority to regulate the petroleum industry should be cleared. It is suggested that both FEPA and the Department of Petroleum Resources should be vested with authority, but the problem of oil pollution in Nigeria requires concerted actions and pooling of resources.

d) The regulatory agencies should be removed substantially from ministerial control under which they currently operate. They should be able to enact and enforce regulations without reference to a minister in order to minimize political influences and red tape.

e) The scope of the FEPA Act should be expanded to cover not only "waters of Nigeria," but all waters in Nigeria.

f) The defenses allowed under the Oil in Navigable Waters Act should be significantly curtailed.

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ples of sustainable development which ensure that development takes place to meet the needs of the present without compromising the ability of future generations to meet their own needs. *See* the Rio Declaration on Environment and Development, 31 I.L.M. 874 (1992), adopted by the United Nations Conference on Environment and Development (the "Earth Summit") in June 1992 at Rio de Janeiro. For an examination of the dilemma between development and environmental quality and the concept of sustainable development, *see* LAKSHMAN GURUSWAMY ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND WORLD ORDER 306-320, 924-929 (1994).

332. *See generally* C.M. Abraham & Sushila Abraham, *The Bhopal Case and the Development of Environmental Law in India*, 40 INT'L & COMP. L.Q. 334 (1991); Meera Nanda, *Waiting for Justice-Union Carbide's Legacy in Bhopal*, MULTINATIONAL MONITOR 15 (July/August 1991).

g) The law should raise the liability of polluters to include civil or administrative penalties and damages for loss of subsistence, including impairment of earning capacity.

h) Statutory provisions should be incorporated to allow for private right of action by victims and for citizen suits.

i) Liability of polluters for payment of damages to victims should be based on strict liability, with the recognized exceptions of acts of God, acts of war and, within a restricted scope, acts of third parties.[333]

j) An oil spill liability trust fund similar to that under the U.S.'s OPA should be adopted in Nigeria. The initial amount, probably less than the $1 billion mark set by OPA, should be raised through an allocation by the Federal Government and taxes on every barrel of oil produced in Nigeria. Subsequently, all penalties and fines should be paid into the fund.

k) The U.S.'s CWA should extend the traditional defenses of acts of God, acts of war, and acts of third parties to liability for civil or administrative penalties.

l) The U.S. law on the subject should be streamlined to minimize the confusion and uncertainty that characterize the present law.[334] This may mean preemption of certain state laws.

m) For both the U.S. and Nigeria, the focus should shift to spill prevention, away from response and liability.

n) More appropriately for Nigeria, the agencies should rise to the challenge of faithfully and conscientiously enforcing the statutes and regulations. In this regard, considerable efforts and resources should be devoted to the training of monitoring and enforcement officers and the acquisition of basic working equipment.[335]

(o) The home governments of the transnational oil corporations and oil consumer nations should become seriously involved in the conditions under which oil is produced and bring pressure to bear on corporations to enhance these conditions. Such home governments could require their resident corporations to observe stipulated minimum environmental standards in their operations in foreign countries. The developed nations should assist the developing countries in defending the right of all peoples to safe and sufficient drinking water.[336]

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333. The imposition of strict liability for oil pollution damage seems to be the current trend and is reflected in recent environmental statutes applying to oil pollution, e.g., U.S. OPA, United Kingdom's Merchant Shipping (Salvage and Pollution) Act, 1994.

334. Preemption of state laws, however, seems unlikely at least for now. *See supra* notes 251-252 and accompanying text.

335. Akanle, *supra* note 163, at 28.

336. In the Mar del Plata Action Plan adopted by the United Nations Water Conference in 1977, the international community accepted as a basic premise that "all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic

VII. CONCLUSION

This article's comparison of the laws and policies of the United States and Nigeria, dealing with oil pollution of water, reveals a yawning gap in approach, commitment, and effectiveness between the two countries. The American approach includes detailed regulatory standards, a tough enforcement scheme, and broad citizen participation rights. These attributes have no equivalent in Nigeria. Instead, Nigeria chose a different course, marked largely by discretion, informality and almost total indifference to the profound detriment of the environment and the people. It is, however, desired that a new spirit of changes in Nigeria, signalled by the Federal Environmental Protection Agency Act of 1988, will be kept alive and that Nigerian law can be redirected along the lines suggested in this article, implemented with greater intensity and dedication for the enduring benefit of the Nigerian environment and the well-being of its people.

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needs." *See* The Report of the United Nations Water Conference, Mar del Plata, 14-25 March, 1977 U.N. Sales No. E.77 II.A.12, pt. one, ch.1, resolution II.