

CROSS-BORDER UNITIZATION AND JOINT DEVELOPMENT AGREEMENTS: AN INTERNATIONAL LAW PERSPECTIVE*

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An understanding of the framework of the governing laws, regulations, model contracts, and existing agreements within the survey states as set forth in the earlier sections of this Article, as well as the practical advice in Section 5 of this Article, provides the international oil and gas practitioner with the necessary tools to negotiate a unitization agreement. However, when a reservoir straddles the boundary between two sovereign states, the complexities of any proposed unitization increases.

Petroleum deposits often extend across national boundaries in such a manner that “either portion can be exploited, wholly or in part, from the other side of the line.”¹ Transboundary oil and gas deposits “do not conform to property lines, licensing demarcations, or political boundaries.”²

The exploitation of those deposits in a joint, coordinated operation by respecting the common nature of petroleum reservoirs regardless of the boundaries they cross would seem to be the ideal strategy to undertake their development from a technical, conservationist, and environmental perspective. From a legal perspective, however, the development of common deposits straddling international boundaries raises complex and far-reaching issues. Under application of the fundamental principle that the territorial sovereignty or exclusive sovereign rights of states do not extend beyond their border, each state exercises exclusive authority over its own territory, and any infringement across an international boundary constitutes a

1. Rainer Lagoni, *Oil and Gas Deposits Across National Frontiers*, 73 AM. J. INT’L LAW 215, 215–16 (1979).

2. Albert E. Utton and Paul D. McHugh, *On an Institutional Arrangement for Developing Oil and Gas in the Gulf of Mexico*, 26 NAT. RESOURCES J. 717, 722 (1986).

violation of another state's territorial sovereignty or "exclusive sovereign rights."³ Since the development of deposits straddling international boundaries involves two or more sovereign states, it will be subject to different legal regimes and, consequently, different terms and conditions for exploration, exploitation, and transportation of oil and gas.⁴

The legal difficulties posed by the application of different statutes to a common reservoir can be overcome by the impacted states entering into a cooperative arrangement for its development. The principle of respect for the preservation of the "unity of the deposit"⁵ as a means of resolving the problems of common petroleum deposits that straddle the boundary between states is reflected in the bilateral practice of entering into cooperative agreements.

The absence of agreements to cooperate in the development of deposits straddling international boundaries raises thorny legal issues as "there is no developed, crystallised [sic]," or express rule or custom under international law requiring unitization for apportioning such common petroleum deposits.⁶

It is important to draw a distinction between "cross-border unitization" and "joint petroleum development." Both cross-border unitization and joint petroleum development are cooperative practices designed to preserve the unity of the deposit while respecting the inherent, sovereign rights of the interested states.⁷ However, cross-border unitization in the strict sense covers situations where a common reservoir is underlying the delimited boundary between two states, and it involves the treatment of an identified deposit—that is, a specific petroleum reservoir or field—as a single deposit.⁸ By

3. Lagoni, *supra* note 1, at 216.

4. *See id.*

5. Memorandum, U.N. Secretariat for the Int'l Law Comm'n, Regime of the High Seas, U.N. Doc. A/CN.4/32 (1950), reprinted in [1950] 2 Y.B. Int'l L. Comm'n 67, 112, para. 337, U.N. Doc A/CN.4/SER.A/1950/Add.1.

6. William T. Onorato, *Apportionment of an International Common Petroleum Deposit*, 26 INT'L & COMP. L.Q. 324, 327 (1977).

7. *Id.* at 332–33.

8. *See id.* (explaining that unitization is a simple process used to promote a "maximum efficient recovery" in both production and revenue according to a plan between "separate interest owners").

contrast, joint petroleum development agreements refer to arrangements between two states to develop and share in agreed proportions the petroleum found within a geographic area whose sovereignty is disputed.⁹ By definition, this kind of geographic area is an overlapping area under dispute, with boundaries that have not yet been defined, or to which two states are entitled under international law.¹⁰ While this geographic area is most commonly a designated zone of seabed and subsoil of the continental shelf or Exclusive Economic Zone (EEZ),¹¹ such zones do not have to be limited to offshore situations. In some cases, JDZs have been established as part of a boundary delimitation agreement.¹² The concepts of joint development and unitization are not mutually exclusive, because a JDZ could be subdivided into separate contract areas so that deposits may occur across its internal boundaries. In addition, deposits may be found that cross the boundary of the JDZ into an area where one of the states exercises exclusive sovereign rights.

Experts predict that demand for petroleum, a relatively cheap energy source and chemical feedstock will grow significantly in spite of the fact that prediction of future oil prices are often wrong.¹³ This prediction appears to be confirmed by the current high price for oil.¹⁴ Consequently, the pressure to

9. See HAZEL FOX ET AL., JOINT DEVELOPMENT OF OFFSHORE OIL AND GAS—A MODEL AGREEMENT FOR STATES FOR JOINT DEVELOPMENT WITH EXPLANATORY COMMENTARY 45 (1989) (discussing a model agreement utilized when parties claim conflicting sovereign rights because of disagreement over rights to oil and gas resources in a designated zone).

10. See *id.*

11. *Id.*

12. See *e.g.*, Kuwait-Saudi Arabia Neutral Zone Agreement, Kuwait-Saudi Arabia, July 7, 1965, translated in Sayed M. Hosni, *The Partition of the Neutral Zone*, 60 AM. J. INT'L L. 735, 744–49 (1966). The neutral zone is also called the “Partition Zone,” and part of it lies onshore. *Id.* at 745.

13. Alberto Szekely et al., *Transboundary Hydrocarbon Resources: The Puerto Vallarta Draft Treaty*, 31 NAT. RESOURCES J., 609, 613 (1991); Thomas Walde, *The Oil Price—The Higher It Goes, The Deeper It May Fall*, ALEXANDERS GAS AND OIL CONNECTIONS, http://www.gasandoil.com/goc/speeches/theoilprice_Thomas_Walde_07-09-00.htm (last visited Feb. 2, 2007).

14. Associated Press, *Oil Prices Inch Up*, HOUSTON CHRONICLE, Feb. 2, 2007, available at <http://www.chron.com/disp/story.mpl/ap/fn/4521382.html>.

locate and exploit petroleum deposits that cross international borders or lie in disputed areas will also increase. This may lead to conflicts among neighboring states unless consistent, obligatory practices and binding legal regimes are established. Therefore, the development of cross-border petroleum reserves needs an adequate legal regime in order to prevent future conflicts.¹⁵ Promoting states' efficient and environmentally sound exploitation of these resources must also be a consideration of these legal regimes.¹⁶ Hence, this area of law has increasingly attracted the attention of legal scholars and the international legal community.¹⁷

I. BASIC CONCEPTS

Before moving on to the fundamentals of delimitation of international maritime boundaries and the definitions of cross-border unitization agreements and joint petroleum development agreements, this brief section will review some basic concepts of public international law, as they are instrumental to the analysis in the next sections. The two main concepts are the international law sources, which are rather different than those of municipal legal systems, and the ideas of sovereignty, territory, and boundaries, which define essential attributes of states.

A. Sources of International Law

Unlike national legal systems, the international legal system lacks authority to "adopt universally binding legislation" or to make "compulsory [the] jurisdiction of international courts and tribunals without the consent of states."¹⁸ It is essentially a

15. Szekely, *supra* note 13. As to the relevance of joint development agreements, it is estimated that only one-third of the world's maritime boundaries have been agreed on. See also G.H. Blake & R.E. Swarbrick, *Hydrocarbons and International Boundaries: A Global Overview*, in BOUNDARIES AND ENERGY: PROBLEMS AND PROSPECTS (G. Blake et al. eds., 1998) (discussing various means of preventing conflicts over oil and gas deposits).

16. Szekely, *supra* note 13, at 613.

17. See *id.* at 609–11.

18. PETER MALANCZUK, *AKEHURST'S MODERN INTRODUCTION TO INTERNATIONAL LAW* 35 (7th ed. 1997).

decentralized, nonhierarchical system, in which the subjects create the law under which they are bound.¹⁹ Hence, the identification of the law raises important challenges.²⁰ Article 38(1) of the Statute of the International Court of Justice (ICJ or the Court)²¹ is often referred to for the sources of international law. These sources are:

- international conventions, whether general or particular, establishing rules expressly recognized by the contesting States;
- international custom, as evidence of a general practice accepted as law;
- the general principles of law recognized by civilized nations;
- [subject to the provisions of Article 59], judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.²²

International custom has historically been the core source of international law, and has remained so in some areas of the law despite efforts of codification and creation of multilateral treaties in important subjects.²³ International custom derives its force from two essential elements: the concurrence of uniform state practice and a subjective belief that adherence to these rules is obligatory (*opinio juris*).²⁴ Actual state practice is the basis for customary law; this can also be found in the writings of learned international lawyers and in judicial decisions of national and international courts.²⁵ Resolutions of the United

19. *Id.*

20. *Id.* at 36.

21. Statute of International Court of Justice, art. 38 (June 26, 1945), available at http://www.un.org.yu/download/22/222-statute_intl_court_eng.pdf.

22. *Id.*

23. MALANCZUK, *supra* note 18.

24. Vincy Fon & Francesco Parisi, *Customary Law and Articulation Theories: An Economic Analysis 3* (George Mason Univ. School of Law, Law and Economics Working Paper Series, Paper No. 02-24, 2002), available at http://ssrn.com/abstract_id=335220 (enumerating the two well-known elements of customary law).

25. MALANCZUK, *supra* note 18, at 39 (observing that both learned writings and judicial decisions can have a role not only as evidence of customary law but also in creating or developing new law).

Nations General Assembly (UNGA) can be evidence of customary law as they reflect the views of the majority of member states.²⁶ Their normative value might be determined, inter alia, on the basis of their general acceptance.²⁷

It is important to note that the decisions of the ICJ are “not governed by the principle of *stare decisis*.”²⁸ Article 59 of the Statute of the ICJ states that Court decisions are not binding except between the parties to a case and in connection to that particular case only.²⁹ However, this does not mean that the Court ignores precedent. As quoted above, Article 38 (1)(d) of the Statute of the ICJ requires the Court to apply judicial decisions, subject to the provisions of Article 59, as a “subsidiary means” for the determination of rules of law.³⁰ It uses precedent as a persuasive argument rather than a binding one. From a practical standpoint, if the Court does not follow previous case precedent in rendering a decision, then those prior cases are likely to be distinguished from the case currently before the Court.³¹

B. *Sovereignty, Territory, and Boundaries*

Sovereignty, territory, and boundaries are key concepts of public international law. They define essential attributes of a state, the primary subject of international law.³² Sovereignty represents “the basic constitutional doctrine of the law of nations, which governs a community consisting primarily of states having a uniform legal personality.”³³ Sovereignty means that states have “1) jurisdiction, prima facie exclusive, over a

26. *Id.* at 22.

27. David M. Ong, *Joint Development of Common Offshore Oil and Gas Deposits: “Mere” State Practice or Customary International Law?*, 93 AM. J. INT’L L. 771, 780 (1999).

28. Paul D. McHugh, *International Law—Delimitation of Maritime Boundaries*, 25 NAT. RESOURCES J. 1025, 1032 (1985).

29. Statute of the International Court of Justice, *supra* note 21, art. 59.

30. *Id.* art. 38(1)(b).

31. *See, e.g.*, McHugh, *supra* note 28, at 1025.

32. J. P. Bouvet, *L’Unité de Gisement* (Jan. 13, 1997) (Doctoral thesis at Université Pantheon-Assas-Paris, vol. I.5) (on file with author).

33. IAN BROWNLIE, *PRINCIPLES OF PUBLIC INTERNATIONAL LAW* 287 (4th ed. 1990) (1966).

territory and the permanent population living there; 2) a duty of non-intervention in the area of exclusive jurisdiction of other States; and 3) the dependence of obligations arising from customary law and treaties on the consent of the obligor.”³⁴ Furthermore, “[t]he territorial sovereignty of states extends to the mineral resources in the soil and subsoil of their land territory and territorial sea to an unlimited depth.”³⁵ States have exclusive sovereign rights rather than full territorial sovereignty over mineral resources located in the continental shelf.³⁶ Sovereign rights of a coastal state for the purpose of exploring and exploiting the natural resources extend to the EEZ.³⁷

Territorial integrity is a “necessary corollary to the principle of territorial sovereignty.”³⁸ It protects the sanctity of a state’s territory from unauthorized invasion or interference from operations conducted in another state.³⁹ It follows that no state may exercise rights over mineral resources of other states without their consent.⁴⁰

The fundamental principle is that territorial sovereignty of states does not extend beyond their borders; each state exercises exclusive authority on its own territory and any infringement across an international boundary would constitute a violation of another state’s territorial sovereignty or exclusive sovereign rights.⁴¹

34. *Id.* (emphasis added).

35. Lagoni, *supra* note 1, 216 (citing L. OPPENHEIM, INTERNATIONAL LAW 462 (H. Lauterpacht, 8th ed. 1955); P. FAUCHILLE, TRAITE DE DROIT INTERNATIONAL PUBLIC 99 (H. Bonfils, 8th ed. 1925)).

36. *Id.* (citing North Sea Continental Shelf Cases (F.R.G. v. Den.), 1969 I.C.J. 3, 22 (Feb. 20) (addressing the rights of a coastal state with regards to the Continental Shelf) and Geneva Convention on the Continental Shelf art. 2, Apr. 29, 1958, 15 U.S.T. 471, 499 U.N.T.S. 311).

37. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 21 I.L.M. 1261, 1280 [hereinafter UNCLOS]; see discussion *infra* Part II.B (defining EEZ).

38. Lagoni, *supra* note 1, at 217.

39. *See id.*

40. *See id.* at 216.

41. *North Sea Continental Shelf Cases*, 1969 I.C.J. at 22; see also Lagoni, *supra* note 1, at 216 (stating that “any mineral deposit that extends across a boundary line . . . falls under the authority of the superjacent state”).

II. DELIMITATION OF INTERNATIONAL MARITIME BOUNDARIES

“Maritime boundary delimitation is as old as the concept of offshore jurisdiction itself.”⁴² Subsurface petroleum deposits located offshore pose a set of problems that usually concern the delimitation of the boundaries of the continental shelf and the EEZ between the bordering states.⁴³

A. *Delimitation of the Continental Shelf*

“The concept of national jurisdiction over a continental shelf beyond the territorial sea is relatively modern in origin, usually being traced to the 1945 Truman Proclamation.”⁴⁴ The 1940s and 1950s saw pressures on the legal structure that previously had recognized only the three mile territorial sea limit, and even that was not universally accepted.⁴⁵ Coastal states became interested in gaining control over an extended area of the sea and its resources.⁴⁶ The Truman Declaration of 1945 was a major influence in boundary delimitation. The Truman Declaration proclaimed, “[T]he Government of the United States regards the natural resources of the subsoil and sea bed of the continental shelf beneath the high seas but contiguous to the coast of the United States as appertaining to the United States, subject to its jurisdiction and control.”⁴⁷ Because of the likely existence of oil resources, it also included a provision, that “[w]here the continental shelf extends to the shores of another State . . . the boundary shall be determined by the United States and the State concerned in accordance with equitable principles.”⁴⁸

42. NICKY BEREDJICK ET AL., *PETROLEUM INVESTMENT POLICIES IN DEVELOPING COUNTRIES* 129 (1988).

43. Lagoni, *supra* note 1, at 217.

44. Ernst Willheim, *Australia-Indonesia Seabed Boundary Negotiations: Proposals for a Joint Development Zone in the “Timor Gap,”* 29 NAT. RESOURCES J. 821, 826 (1989).

45. C. D. Beeby, *The United Nations Conference on the Law of the Sea: A New Zealand View*, 16 PAC. VIEWPOINT 113, 116 (1975).

46. *Id.* at 116–17.

47. Press Release, White House, Proclamation by the President with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf (Sept. 28, 1945) reprinted in *Official Documents*, 40 AM. J. INT’L L. SUPP. 45, 46 (1946).

48. *Id.*

The 1958 Geneva Convention on the Continental Shelf⁴⁹ seemed to depart from the principles of the Truman Declaration. Instead, following deliberations by the International Law Commission (ILC) that examined several methods of delimitation, the Geneva Convention stated:

In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary [between adjacent nations] shall be determined by application of the principle of equidistance from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.⁵⁰

Similarly this principle, known as the equidistance principle, is further explained in Article 6(1):

[W]here the same continental shelf is adjacent to the territories of two or more States whose coasts are opposite each other In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary is the median line, every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.⁵¹

The Geneva Convention defined the continental shelf as:

[T]he seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas.⁵²

In the *North Sea Continental Shelf Cases*, the ICJ stated that the Truman Declaration's principle of delimitation by mutual agreement and delimitation in accordance with equitable principles had become the basis of the subject. The ICJ

49. See generally Geneva Convention on the Continental Shelf, *supra* note 36, arts. 2–6.

50. *Id.* art. 6(2).

51. *Id.* art. 6(1).

52. ZDENEK SLOUKA, INTERNATIONAL CUSTOM AND THE CONTINENTAL SHELF 89 (1968).

further decided that the ILC had not intended the equidistance principle to be a departure from the Truman Declaration: the “special circumstances” exception in Article 6 equated to the Truman Declaration’s words effected on “equitable principles.”⁵³ This led the Court to the conclusion that there was no obligatory rule of continental shelf delimitation.⁵⁴ The ICJ defined the continental shelf of the coastal state as a “[n]atural prolongation of its land territory’ existing ‘*ipso facto* and *ab initio*, by virtue of its sovereignty over the land, and as an extension of it an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources.”⁵⁵

The rules regarding continental shelf delimitation were clarified in the 1982 United Nations Convention on the Law of the Sea (UNCLOS).⁵⁶ UNCLOS stated:

[A coastal state is entitled to a continental shelf extending] throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance [subject to delimitation with opposite and adjacent states with an entitlement over the same area of the continental shelf.]⁵⁷

The outer limit of the continental shelf is subject to an overall maximum of 350 nautical miles or 100 nautical miles beyond the 2,500 meter isobath.⁵⁸ UNCLOS stressed that the coastal state is entitled to exercise sovereign rights “for the purpose of exploring [the shelf] and exploiting its natural

53. *North Sea Continental Shelf Cases* (F.R.G. v. Den.), 1969 I.C.J. 3, 32–33 (Feb. 20).

54. *Id.* at 45–46.

55. See Willheim, *supra* note 44, at 826 (citing *North Sea Continental Shelf Cases*, 1969 I.C.J. at 22).

56. See UNCLOS, *supra* note 37, at 1285 (defining the outer limits of continental shelf extension).

57. *Id.* at 1285–86.

58. *Id.* (defining the 2,500 metre [sic] isobath as “a line connecting the depth of 2,500 metres [sic].”)

resources.”⁵⁹ These rights are exclusive and no other state may carry out such activities without the express consent of the coastal state.⁶⁰

In the *Malta-Libya Continental Shelf Case* the ICJ recognized for the first time the continental shelf concept from UNCLOS as part of international customary law.⁶¹ As a result, each coastal state, whether or not a signatory to UNCLOS, was entitled to a 200 nautical mile legal continental shelf, regardless of whether the shelf was continuous or extended that far.⁶² For those states fortunate enough to have a continental shelf extending beyond 200 nautical miles, natural prolongation of their land territory remains the criteria, subject to Article 76, which determines the limits of their claims.⁶³

The potential for significant seabed and subseabed resources is often unknown or poorly researched.⁶⁴ Any benefit, whether resource-based or opportunistic expansion of sovereign rights, must be weighed against the cost of surveys to determine the limits of the legal continental shelf.⁶⁵ The difficulty of exploration for potential resources, and enforcement of sovereign rights in remote and hostile maritime environments, will also factor into decisions made by coastal states with potential claims.⁶⁶ Although resource potential can be at the root of delimitation disputes, it has not been a factor applied in the delimitation process itself.⁶⁷

The rights of states to their continental shelves may give rise to overlapping claims where there is a disputed marginal or

59. *Id.*

60. *Id.*

61. *Continental Shelf (Libya v. Malta)*, 1985 I.C.J. 13, 55–56 (June 3).

62. *Id.*

63. UNCLOS, *supra* note 37, at 1285.

64. *Our Seabed Frontier: Challenges and Choices* (1989) Commission on Engineering and Technical Systems, *available at* http://www.nap.edu/openbook.php?record_id=1413&page=1.

65. Note that UNCLOS Annex II, Article 4 requires that claims must be submitted to the Commission on the Limits of the Continental Shelf within ten years of the entry forcing UNCLOS for a state. UNCLOS, *supra* note 37, at 1286.

66. *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Can. v. U.S.)*, 1984 I.C.J. 246, 340 (Oct. 12).

67. *Id.*

fringe area. These claims would be legally valid if two opposite coastal states were less than 400 nautical miles apart or where islands under one state's sovereignty exist within coastal areas of another state.⁶⁸ Article 83 of UNCLOS deals specifically with the delimitation of the continental shelf between states with opposite or adjacent coasts.⁶⁹ In essence, it says that states engaged in the delimitation of adjacent or opposite boundaries of their continental shelves shall do so by agreement in accordance with Article 38 of the Statute of the ICJ "[i]n order to achieve an equitable solution."⁷⁰ In interpreting "equitable solution" with regards to petroleum resources, the courts have stressed that "only if [the oil concessions and oil wells] are based on express or tacit agreement between parties may they be taken into account."⁷¹

The adoption of a bargaining process, rather than a more mathematical approach to delimiting the continental shelf area, leads some experts to believe that Article 83 was intentionally left vague by the states during negotiations.⁷² Under the current system it may be possible for states with stronger bargaining positions to end up with more than their fair share of the continental shelf and its resources at the expense of others.⁷³ However, in many instances, it is probable that an agreement will not be reached, and this will result in a dispute, gridlock, or submission to the ICJ for resolution.⁷⁴ For disputed areas with potential for petroleum endowment, negotiation remains a better option than arbitration or litigation. Where amicable

68. See e.g., UNCLOS, *supra* note 37, art. 4; Continental Shelf (Libya v. Malta), 1985 I.C.J. at 35.

69. UNCLOS, *supra* note 37, art. 83.

70. *Id.*

71. See Richard Meese, The Relevance of the Granting Oil Concessions in a Maritime Delimitation: The Jurisprudence of the International Court of Justice, *Trans Nat'l Dispute Management*, (Feb. 2004), available at http://www.transnational-dispute-management.com/samples/freearticles/tv1-1-article_39.htm.

72. See Szekely, *supra* note 13, at 626.

73. See LOUIS HENKIN *ET AL.*, INTERNATIONAL LAW: CASES AND MATERIALS 1233 (1993) (discussing perceived inequities after the United States refused to ratify UNCLOS, as some developing nations felt they had made concessions in order to secure rights to offshore mining).

74. *Id.* at 1283.

delimitation is not possible in the short term, those states could consider forming a joint petroleum development area.

B. Delimitation of the Exclusive Economic Zone

Articles 55–58 of the 1982 UNCLOS establish and define the EEZ as not more than 200 nautical miles from the baseline of the territorial sea.⁷⁵ The EEZ gives the coastal state sovereign rights, but not sovereignty over certain activities such as exploring, exploiting, conserving, and managing the natural resources on the surface and subsurface of the seabed.⁷⁶ The EEZ also gives coastal states rights to conduct other activities with a view to explore and extract economic benefits from the zone.⁷⁷ All other states enjoy freedom of navigation, fly over rights, and other lawful acts associated with the operation of ships, aircraft, submarine cables, and pipelines that are compatible with UNCLOS.⁷⁸ Under UNCLOS, the method of delimitation of EEZs set forth in Article 74 is the same as the continental shelf under Article 83.⁷⁹ It lays down that “the delimitation of the [EEZ] between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the [ICJ], in order to achieve an equitable solution.”⁸⁰

If no agreement can be reached within a reasonable period of time, the states concerned shall resort to the dispute settlement procedures⁸¹ provided for in the convention.⁸² “Where there is an agreement in force between the States concerned, questions relating to the delimitation of the [EEZ] shall be determined in accordance with the provisions of that agreement.”⁸³ Thus, the provisions of UNCLOS provide little direction, except to advise states to negotiate.

75. *Id.* at 1292–93.

76. *Id.* at 1293.

77. *Id.*

78. *Id.*

79. UNCLOS, *supra* note 37, art. 74.

80. *Id.*

81. *Id.*

82. *Id.* art. 74(2).

83. *Id.* art. 74(4).

C. *The Concept of Cross-Border Unitization*

As discussed earlier, the principle of unitization originated in the United States for the efficient development of common petroleum reservoirs by the owners of the rights in the separate tracts overlying the reservoir.⁸⁴ Practice in the survey states indicates that this principle has subsequently been accepted and practiced in other parts of the world.

Any cross-border unitization will need to be agreed to at two levels: (1) the impacted states will need to reach an agreement and (2) the respective license holders will need to enter into a unit operating agreement. The purpose of the first agreement is to set out the rights and obligations of each state with respect to the field development and incorporate procedures requiring agreement of both states to minimize conflicts.⁸⁵ In a cross-border field, the unit operating agreement between the licensees will follow the normal pattern in most respects. However, it will be subject to the provisions of the relevant treaty so that, for example, the selection of the unit operator or a redetermination of tract participants will require the agreement of the respective states. The unit operating agreement itself will require the approval of both states in order to ensure that it embodies the requirements of the treaty. The treaty is binding only on the respective states; it does not bind the license holders directly, as they are not parties to it.⁸⁶

D. *The Concept of Joint Petroleum Development Agreements*

The joint petroleum development agreement refers to an arrangement between two states to develop and share jointly in agreed proportions the petroleum found within a designated zone of seabed and subsoil of the continental shelf or EEZ, to which both states are entitled under international law.⁸⁷ By contrast, as explained before, a cross-border unitization arises in a situation dealing with the treatment of an identified deposit,

84. See Larry Eubanks and Michael Mueller, *An Economic Analysis of Oklahoma's Oil and Gas Forced Pooling Law*, 26 NAT. RESOURCES J. 469, 469-70 (1986).

85. JOHN WILKINSON, INTRODUCTION TO OIL AND GAS JOINT VENTURES 51 (1997).

86. *Id.*

87. See *supra* text accompanying note 9.

that is a specific petroleum reservoir or field that lies across a delimited boundary line.⁸⁸

The Joint Development Zone (JDZ) is generally established as a temporary solution for a specified period of time, without prejudice to subsequent delimitation, but it can be a permanent solution in place of a delimited boundary.⁸⁹ Even where the border has been delimited, a JDZ may be created as part of the boundary settlement, but this is a less common alternative because states where boundaries are delimited tend more towards the unitization of specific fields.⁹⁰

Nevertheless, before such a zone is created, the states must be able to: (i) accept pooling together of sovereign rights over the area or zone; (ii) have a consensus *ad idem* on all the major policy matters *ab initio*; and (iii) never lose sight of the paramount objective—exploring for and producing oil and gas.⁹¹

There are a number of economic and practical reasons why states may choose joint petroleum development. The primary reasons are: (i) a strong desire to exploit any resources that may exist in the area as soon as possible, (ii) an understanding that alternative approaches, such as delimitation, are likely to lead to significant delays with, potentially, a serious negative impact on bilateral relations, and (iii) a recognition that the approach has been demonstrated to work and that the body of existing agreements can serve as a useful basis for formulating any new agreement.⁹²

An examination of previous joint development agreements reveals some variation in the handling of important policy matters, but common issues include the fundamental agreement to cooperate, the percentage share of the costs and profits, the

88. See, e.g., Onorato, *supra* note 6, at 333–36.

89. IAN TOWNSEND-GAULT & WILLIAM STORMONT, *Offshore Petroleum Joint Development Arrangements: Functional Instruments? Compromise? Obligation?*, in THE PEACEFUL MANAGEMENT OF TRANS-BOUNDARY RESOURCES 51 (Gerald Blake et al. eds., 1995).

90. See *id.* at 51–52.

91. *Id.* at 70–71.

92. See, e.g., *id.* at 51.

definition of the zone and specific resources to be developed, and the legal and fiscal framework.⁹³

The joint petroleum development agreement recognizes the rights both states have to the continental shelf, EEZ, or area in question under international law.⁹⁴ These rights in general may give rise to overlapping claims, where there is a disputed marginal or fringe area. These rights—now recognized in two major treaties: the 1958 Geneva Convention on the Continental Shelf and the 1982 UNCLOS—also form customary international law. The JDZ agreement creates a binding agreement with legal obligations between contracting states.⁹⁵ This is in line with the Vienna Convention on the Law of Treaties (VCLT), which is recognized as customary international law.⁹⁶ Article 26 of the VCLT embodies one of the fundamental principles of customary international law, *pacta sunt servanda*, which means every treaty in force is binding upon the parties to it and must be performed in good faith.⁹⁷ It may be necessary to incorporate the terms of the treaty into national law to avoid conflict between existing national laws applicable to the zone or its resources.⁹⁸

E. Rules Applicable to Develop Common Deposits

Lagoni observes that the legal literature is divided into three main positions with regard to the rules applying to the exploitation of cross-border petroleum deposits.⁹⁹ The idea that specific rules apply to this situation is most often based on the fluid, migratory nature of oil and gas, which in some cases justifies specific rules and obligations restricting territorial

93. See generally *id.* at 51–71 (discussing the framework of existing development agreements and comparing policy objectives and goals achieved).

94. *Id.* at 51.

95. See *id.* at 70–71; see *infra* text accompanying note 183.

96. Vienna Convention on the Law of Treaties, May 23, 1969, 8 I.L.M. 679, 679–82.

97. *Id.*

98. David Lerer, *Joint Development Zones: Negotiating and Structuring a Joint Development Agreement*, 101 OIL & GAS J. 38, 38 (2003).

99. Lagoni, *supra* note 1, at 219.

sovereignty, as opposed to “solid” minerals, where the fundamental principle of territorial sovereignty applies.¹⁰⁰

A first position advocates the application of the “*prior appropriation rule*, i.e., the rule that the first to undertake extraction has the right to exploit the whole deposit.”¹⁰¹ Called the “rule of capture”¹⁰² under the municipal law of the United States, this principle would result in competitive drilling, with consequent economic and physical waste of resources.

A second position is represented by Juraj Andrassy who suggests that in the absence of an agreement on cooperation or production sharing of common deposits between nations, the rule of sovereignty over the subsoil applies.¹⁰³ It follows that, in order to avoid the problems that competitive drilling would raise, special rules applicable to these deposits should be developed.¹⁰⁴

A third position argues for cooperation and against competitive drilling, as this is considered by some to be contrary to international law. Julio Barberis contends that the interplay of the following principles and obligations provide a response to the management of common deposits under international law:

- The principle of territorial integrity, which would be violated by unauthorized mining beyond the boundary line;
- The obligation not to cause material damage to another state; and,
- The obligation to exchange information and consult another state on issues relevant to common deposits, an obligation based on United Nations General Assembly (UNGA) Resolutions.¹⁰⁵

100. *Id.* at 215–16, 219. Bouvet contends that this physical criterion should be replaced by a technical criterion—the engineering methods and techniques—based on the method of exploitation of a deposit rather than on its nature. Bouvet, *supra* note 32.

101. Lagoni, *supra* note 1, at 219 (emphasis added).

102. *Id.* at 219 n.19.

103. Lagoni, *supra* note 1, at 220 (citing J. Andrassy, *Les Relations Internationales de Voisinage*, 79 Recueil Des Cours 77, 127 (1951)).

104. *Id.*

105. See discussion *infra* Part III (describing relevant UNGA Resolutions).

William Onorato also contends that the cooperation rule should apply to these deposits, albeit on different grounds.¹⁰⁶ Fundamental tenets of Onorato's position are as follows:

- States possess a mutual right of disposal over cross-border petroleum deposits;
- The nature of such a right is that of "an affirmative, vested interest in situ;"¹⁰⁷
- Unilateral exploitation of such deposits is a deviation from the existing international legal norms;
- Exploitation of those deposits must proceed only by mutual agreement between the relevant states;¹⁰⁸ and,
- As there is no developed rule of international law governing the development of common deposits, the application "by analogy" of de facto cooperation rules that are used in respect of other natural resources with similar physical properties of fluidity and mobility, such as water, should proceed.¹⁰⁹

Jean-Pierre Bouvet observes two phases in the development of this position.¹¹⁰ In the first stage, the analysis is focused on identifying whether a general rule of international law applicable to "fluid" resources exists.¹¹¹ In the second stage, the analysis shifts from the use of analogy to reliance on emerging international practice, which, according to the author, has been reflected in the increasingly common inclusion of clauses in maritime boundary delimitation treaties that oblige two states to cooperate in the exploitation, and apportionment of benefits from any common deposits.¹¹² Lagoni notes that this practice is "extensive and virtually uniform" and "may be a step in the emergence of a customary rule of international law that would

106. Onorato, *supra* note 6, at 327–29.

107. *Id.* at 328. See Lagoni, *supra* note 1, at 221 (discussing the difficulties to recognizing "joint property rights" as a general practice).

108. Onorato, *supra* note 6, at 329–30.

109. *Id.* at 330.

110. Bouvet, *supra* note 32, at 507.

111. *Id.*

112. *Id.*

require States to cooperate in the exploration and exploitation of common deposits of liquid minerals.”¹¹³

III. IS THERE AN OBLIGATION TO COOPERATE UNDER CUSTOMARY INTERNATIONAL LAW?

Following from the last position described above, the key question relevant to our analysis is whether there is an obligation to cooperate with regard to common petroleum deposits under customary international law. If there is no international convention or crystallized rule of customary international law on the subject, the legal basis of a general international obligation to cooperate requires the analysis of secondary sources of international law. These secondary sources, although less authoritative, include U.N. instruments like UNGA resolutions, relevant international conventions, international case law, and the writings of the experts.¹¹⁴

The general principle of cooperation between states sharing natural resources is enshrined in some UNGA resolutions that were passed following the failure of the 1972 Stockholm U.N. Conference on the Human Environment to accept similar provisions.¹¹⁵ On December 13, 1973, UNGA adopted Resolution 3129 on “[c]o-operation in the field of the environment concerning natural resources shared by two or more States.”¹¹⁶ It drew attention to the need to establish “adequate international standards for the conservation and harmonious exploitation of natural resources common to two or more States,” with such cooperation being developed “on the basis of a system of information and prior consultation . . .”¹¹⁷ This was supported by Article 3 of the 1974 Charter of Economic Rights and Duties of States, Resolution 3281, which provides that: “In the exploitation of natural resources shared by two or more countries, each State must co-operate on the basis of a system of information and prior consultations in order to achieve optimum

113. Lagoni, *supra* note 1, at 233.

114. Ong, *Joint Development*, *supra* note 27, at 780.

115. Lagoni, *supra* note 1, at 234.

116. G.A. Res. 3129 (XXVIII), U.N. Doc. A/RES/28/3129 (Dec. 13, 1973).

117. Lagoni, *supra* note 1, at 233.

use of such resources without causing damage to the legitimate interest of others.”¹¹⁸ It is important to note that even though this passed by a large margin, most of the OECD states either voted against or abstained from this resolution.¹¹⁹

Following the actions of the UNGA and its underlying environmental theme, the United Nations Environmental Program drafted principles in 1978 that encouraged states sharing natural resources to cooperate in the equitable utilization of shared natural resources as well as to avoid, to the maximum extent possible, the adverse environmental effect of such utilization.¹²⁰

Although the UNGA resolutions stress cooperation, by their very nature, they do not create obligations of a legal character.¹²¹ It could, however, be argued that this is indicative of the international community’s willingness to be guided by the principles contained in the resolutions. This general obligation to cooperate is stressed in the 1982 UNCLOS.¹²² In a reference to joint development within the continental shelf and EEZs, the Convention sets forth “the States concerned, in a spirit of understanding and co-operation shall make every effort to enter into *provisional arrangements of a practical nature* and, during this transitional period not to jeopardize or hamper the reaching of the final agreement. Such arrangements shall be without prejudice to the final delimitation.”¹²³ UNCLOS provides for the possibility of a provisional arrangement relating to an undelimited area prior to the conclusion of final delimitation;

118. G.A. Res. 3281 (XXIX), U.N. Doc. A/RES/29/3281 (Dec. 12, 1974).

119. It passed 120-6, with 10 abstentions. Charles N. Brower & John B. Tepe, Jr., *The Charter of Economic Rights and Duties of States: A Reflection or Rejection of International Law?*, 9 INT’L L. 295, 295 (1975). Resolutions that are sanctioned by an overwhelming majority and not opposed by any significant group of states are considered to indicate the willingness of the international community to accept the principles of such resolutions, even if they are not legally binding on them.

120. U.N. Gov. Coun. for Environment Programme, *United Nations Environmental Program: Governing Council Approval of the Report of the Intergovernmental Working Group of Experts on Natural Resources Shared by Two or More States*, May 19, 1978, reprinted in 17 I.L.M. 1091, 1098 (1978).

121. See G.A. Res. 3129, *supra* note 116.

122. UNCLOS, *supra* note 37, arts. 74(3) & 83(3) (emphasis added).

123. *Id.* (emphasis added).

however, the courts have interpreted “every effort” to mean that attempts at negotiation should have taken place, but stressed that this did not imply a successful negotiation.¹²⁴ This indicates that this provision, though strongly commending provisional arrangements such as JDZs, cannot serve as a source of legal obligation on states to develop jointly.

Article 123 of UNCLOS indicates: “States bordering an enclosed or semi-enclosed sea should co-operate with each other in the exercise of their rights and in the performance of their duties under this Convention.”¹²⁵ In the conservation and management of marine natural resources, the principle of regional cooperation with respect to semi-enclosed seas can be regarded as a “progressive development towards fulfilling the general requirement to cooperate.”¹²⁶ Nonetheless, there are some factors in Article 123 that detract from its potential binding nature in connection with the duty to cooperate.¹²⁷ The wording of Article 123 of the UNCLOS is exhortatory rather than obligatory, and does not contain any specific and legally enforceable obligations.¹²⁸ Also, the requirements for cooperative efforts fail to specify or make any reference to exploitation of common petroleum reservoirs.¹²⁹ Nevertheless, this cooperative principle serves as a useful analogy to cooperative development of common petroleum reservoirs.¹³⁰

Article 142 of UNCLOS contains another provision, which concerns the analogous situation of resource deposits lying across the boundary between the area, defined as “the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction,” and an area that is subject to national jurisdiction.¹³¹ It establishes explicit guidelines for the conduct of interested parties. Activities within the area of such deposits

124. Land and Maritime Boundary Between Cameroon and Nigeria, 2002 I.C.J. at 424 (citing preliminary judgment of June 11, 1998, 1998 I.C.J. Reports 321, 322).

125. UNCLOS, *supra* note 37, art. 123.

126. Ong, *Joint Development*, *supra* note 27, at 782.

127. *Id.*

128. *Id.*

129. *Id.*

130. *Id.* at 783.

131. UNCLOS, *supra* note 37, arts. 1, 142.

“shall be conducted with due regard to the rights and legitimate interests of any coastal State across whose jurisdiction such deposits lie.”¹³² Again, it calls for a system of prior notification and consultation to avoid infringement of rights and interests: “In cases where activities in the Area may result in the exploitation of resources lying within national jurisdiction, the prior consent of the coastal State concerned shall be required.”¹³³

The economic interest of states is also a compelling reason for cooperation in the joint development of common reservoirs that straddle international boundaries. A state may be interested in a cooperative approach because it prevents its neighboring states from unilaterally extracting petroleum from the common petroleum reservoir. Another motivating factor for a state could be the objective of lowering their extraction costs and achieving maximum production rates.¹³⁴ States may also be incentivized to cooperate in situations where it is the only viable way to protect their sovereign rights to the petroleum in place, without prejudicing their rights against one another.¹³⁵ There seems to be sufficient motivation for states to seek a cooperative solution to joint exploration and development of cross-boundary petroleum resources.¹³⁶

In many cases, cross-border unitization has been, or will be in the future, a practical implementation of an existing obligation of the two states to cooperate in the exploitation of a common deposit that is incorporated in the relevant delimitation treaty. The first example of an international agreement containing a commitment regarding cooperative development of straddling petroleum reservoirs is the delimitation agreement between United Kingdom and Norway in 1965.¹³⁷ Since that

132. *Id.* art. 142.

133. *Id.*

134. Lagoni, *supra* note 1, at 234.

135. *Id.* at 234–35.

136. North Sea Continental Shelf Cases (F.R.G. v. Den.), 1969 I.C.J. 3, 48 (Feb. 20). For a classification of cooperation agreements in practice, see Lagoni, *supra* note 1, at 222–27.

137. DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA OFFICE OF LEGAL AFFAIRS (U.N.), HANDBOOK ON THE DELIMITATION OF MARITIME BOUNDARIES 80 (2000).

time a “resource-deposit clause” has been incorporated in most delimitation and JDZ treaties, though the form can vary significantly and, generally, it does not explicitly refer to unitization.¹³⁸ In the U.K.-Norway delimitation treaty it is stipulated that if any petroleum deposit crosses the boundary between the two states, and such deposit is exploitable from either side wholly or partly, the two states are obliged to seek to reach an agreement in order to exploit and apportion the reserves most effectively.¹³⁹

The North Sea continental shelf has several examples of cross-border unitization agreements. The first example is the 1976 unitization treaty between the United Kingdom and Norway for the Frigg gas field.¹⁴⁰ Subsequent agreements for the Murchison and Statfjord fields,¹⁴¹ signed in 1979, were largely based on the Frigg Agreement.¹⁴² Until relatively recently, the only other example of a cross-border unitization in the North Sea was the Markham field agreement of 1992, between the United Kingdom and the Netherlands.¹⁴³ There are also instances of cross-border unitizations in other parts of the world.

In order to remove the need for a field-specific treaty to cover every cross-border unitization and to facilitate other aspects of cross-border cooperation, the U.K. and Norway signed a Framework Agreement in 2005 that provides the basis for

138. *Id.*

139. Agreement Relating to the Delimitation of the Continental Shelf Between the Two Countries, U.K.-Nor., art. 4, May 10, 1965, 551 U.N.T.S. 213 [hereinafter U.K.-Norway Delimitation Agreement].

140. Agreement Relating to the Exploitation of the Frigg Field Reservoir and the Transmission of Gas Therefrom to the United Kingdom, U.K.-Nor., May 10, 1976, 1098 U.N.T.S. 4 [hereinafter Frigg Agreement].

141. Agreement Relating to the Exploration of the Murchison Field Reservoir and the Offtake of the Petroleum Therefrom, U.K.-Nor., Oct. 16, 1979, 1249 U.N.T.S. 173; Agreement Relating to the Exploitation of the Statfjord Field Reservoirs and the Offtake of Petroleum Therefrom, U.K.-Nor., Oct. 16, 1979, 1254 U.N.T.S. 380 [hereinafter Statfjord Agreement]; Jim Ross, *Unitization Lesson From the North Sea*, SPETT NEWS (Soc’y for Petroleum Eng’rs, Trin. & Tobago), Sept. 2003, at 6.

142. G. Campbell, *Unitisation: A UK State Perspective on UK and Median-line Fields*, 1 OGLTR 5 (1983) (on file with author).

143. Ross, *supra* note 141, at 6.

subsequent cross-border unitizations between the two states.¹⁴⁴ Since then, two fields, Blane and Enoch, have been unitized under the terms of this agreement.¹⁴⁵

Although the global trend with regard to exploitation of cross-border deposits is in favor of cooperative development, the rule of customary international law requiring unitization is not yet established. Unitization is a specialized form of cooperative development where a strong degree of political consensus is a prerequisite for its implementation.¹⁴⁶ While there is the existence of a procedural requirement to cooperate under international customary law, cross-border unitization and joint development are among several possible legal outcomes.¹⁴⁷ International law cannot compel a state to accept the idea of unitization with regard to exploitation of common petroleum deposits if the state is not willing to do so.

In spite of the increase in international practice in concluding bilateral joint petroleum development agreements, there is no legal obligation for states to cooperate and agree to develop a disputed area jointly.¹⁴⁸ Therefore, the concept of joint petroleum development cannot be considered international customary law.¹⁴⁹ At best there is a general obligation to consult and negotiate about a provisional arrangement pending final delimitation.¹⁵⁰ It therefore remains the prerogative of each state to choose whether to consent to a joint petroleum development agreement. Nonetheless, several international cases decided before the ICJ and the international tribunals

144 Framework Agreement Between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Norway Concerning Cross-Boundary Petroleum Cooperation, *available at* http://www.og.dti.gov.uk/upstream/infrastructure/nfa_2005.doc [hereinafter Framework Agreement].

145 Press Release, Government News Network, First Strike for UK Norway Deal (July 1, 2005), <http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=162035&NewsAreaID=2>.

146. Ian Townsend Gault, *Petroleum Development Offshore: Legal and Contractual Issues*, in *PETROLEUM INVESTMENT POLICIES IN DEVELOPING COUNTRIES* 101, 147 (Nicky Beredjick & Thomas Wälde eds., 1988).

147. Ong, *Joint Development*, *supra* note 27, at 797.

148. *Id.*

149. *Id.*

150. *Id.* at 798.

have also strongly recommended JDZs.¹⁵¹ Furthermore, increasing international practice demonstrates that it is viewed as a viable legal alternative to the maritime boundary delimitation process, at least as a “provisional arrangement of a practical nature.”¹⁵² These agreements can now be found in many different parts of the world including the North and South Atlantic, the Middle East, East and Southeast Asian regions, West Africa, and the Caribbean.

A. *International Case Law*

1. *The North Sea Continental Shelf Cases*

The 1969 ICJ decision of the *North Sea Continental Shelf Cases* is very important, as it establishes fundamental principles of maritime boundary delimitation in international case law. The *North Sea Continental Shelf Cases*, and particularly Judge Jessup’s separate opinion, are illustrative of the judicial response to the issues of delimitation and cross-border petroleum deposits. The Court referred to the possibility of the parties deciding on “a régime of joint jurisdiction, user, or exploitation for the zones of overlap or any part of them.”¹⁵³

Prior to this case, a partial delimitation of the continental shelf had been in effect by agreements between Denmark, Netherlands, and Germany, on the basis of equidistance from the nearest points on the baselines of the territorial seas of those states.¹⁵⁴ An agreement could not be reached on the remainder of the boundaries because of differences over the rules to be applied.¹⁵⁵ The Netherlands and Denmark asserted that due to lack of agreement between the parties, and absent special circumstances, the principle of equidistance should be used.¹⁵⁶ The equidistance principle determines the continental shelf

151. *Id.* at 785–87.

152. UNCLOS, *supra* note 37, art. 74.

153. *North Sea Continental Shelf Cases* (F.R.G. v. Den.), 1969 I.C.J. 3, 53 (Feb. 20).

154. *Id.* at 16–17.

155. *Id.* at 17–18.

156. *Id.* at 17.

boundaries by means of an equidistant line or a median line, where every point on such line is the same distance from the baselines from which the breadth of the territorial seas for each of the impacted states is measured.¹⁵⁷ Germany responded that the equidistance method would not lead to a just and equitable solution and delimitation should be governed by equitable principles. Such principles, they argued, would provide a “just and equitable share” of the available continental shelf, in proportion to the length of its coastline and extending out to the central point of the North Sea.¹⁵⁸

The ICJ left the final solution of delimitation to the parties and limited itself to providing criteria that the parties should take into account during negotiations including “the physical and geological structure, and natural resources, of the continental shelf areas involved.”¹⁵⁹ The Court further stated that the parties should resolve their differences by agreement, “or failing that by an equal division of the overlapping areas, or by agreements for joint exploitation, the latter solution appearing particularly appropriate when it is a question of preserving the unity of a deposit.”¹⁶⁰ The Court also stated that it “[did] not consider that unity of deposits constitute[d] anything more than a factual element which it is reasonable to take into consideration in the course of the negotiations for a delimitation.”¹⁶¹ The Court did recognize that any delimitation agreement should leave to each state the portion of the continental shelf that constituted a natural prolongation of its territorial land to the extent possible.¹⁶² Even at this early stage of resolving transboundary issues, the Court appeared to recognize the need to preserve the unity of the deposit for the economical and efficient exploitation of petroleum resources. However, it was not sufficient to be classified as a special

157. *Id.* at 17, 20.

158. *North Sea Continental Shelf Cases*, 1969 I.C.J. at 20–22.

159. *Id.* at 55.

160. *Id.* at 52.

161. *Id.*

162. *Id.* at 53.

circumstance, which would necessitate an alteration of the boundary delimitation.¹⁶³

After considering the U.K.-Norway Continental Shelf Agreement of 1965 and the Supplementary Agreement to the Treaty Concerning Arrangements for Co-operation in the EMS Estuary,¹⁶⁴ the Court noted:

To look no farther than the North Sea, the practice of States shows how this problem has been dealt with, and all that is needed is to refer to the undertakings entered into by the coastal States of that sea with a view to ensuring the most efficient exploitation or the apportionment of the products extracted.¹⁶⁵

The ICJ also held that joint exploitation agreements were “particularly appropriate when it is a question of preserving the unity of a deposit” in areas of overlapping, but equally justifiable, claims.¹⁶⁶ Judge Jessup, in a separate opinion,¹⁶⁷ noted that agreements in the Persian Gulf, unlike the North Sea and Ems Estuary agreements, provided for joint exploitation or profit sharing in areas where the international boundaries were undetermined, or had recently been agreed upon, subject to the conclusion of arrangements for joint interests.¹⁶⁸ In his view, the principle of joint exploitation might have a wider application in agreements on overlapping areas of the continental shelf that are disputed—that is, yet to be delimited—especially where

163. *Id.* at 45–46.

164. Supplementary Agreement to the Treaty Concerning Arrangements for Co-operation in the Ems Estuary (Ems-Dollard Treaty 1960), Neth.-F.R.G., May 14, 1962, 509 U.N.T.S. 140.

165. *North Sea Continental Shelf Cases*, 1969 I.C.J. at 51–52.

166. *Id.* at 52.

167. *Eritrea v. Yemen* (Perm. Ct. Arb. 1999), <http://pca-cpa.org/PDF/EY Phase II.PDF>. Judge Jessup in his separate opinion referred to an article by William T. Onorato and cited examples of such cooperation; and in the last thirty years there has grown up a significant body of cooperative state practice in the exploitation of resources that straddle maritime boundaries. *Id.* (citing *North Sea Continental Shelf Cases* (F.R.G.-Den.), 1962 I.C.J. 66 (Feb. 20) (separate opinion of Judge Jessup); William T. Onorato, *Apportionment of an International Petroleum Deposit*, 17 ICLQ 85 (1958); Masahiro Miyoshi, *The Joint Development of Offshore Oil & Gas in Relation to the Maritime Boundary Delimitations*, INT'L BOUNDARIES RES. UNIT (1999)).

168. *North Sea Continental Shelf Cases*, 1969 I.C.J. at 66–67 (separate opinion of Judge Jessup).

interested states have equally justifiable claims.¹⁶⁹ He also observed, “[C]learly the principle of co-operation applies to the stage of exploration as well as that of exploitation.”¹⁷⁰

Ong suggests that these observations, being *obiter dictum*, can only be regarded as “an endorsement of such arrangements.”¹⁷¹ However, for a relatively new concept, like cross-border unitization or joint development, these pronouncements “serve to ‘aid the identification of rules created by states’”¹⁷² and thereby “contribute to ‘the general principles of law recognized by civilized nations’ on this subject.”¹⁷³

2. *The Iceland/Norway Conciliation Recommendations on the Continental Shelf Area Between Iceland and Jan Mayen Island*

In May 1980 Iceland and Norway concluded an agreement concerning fisheries and continental shelf questions, but left open the issue concerning Iceland’s claim to an economic zone on the continental shelf extending beyond the 200 nautical mile limit in the area near Jan Mayen Island. Jan Mayen Island is an inhabited volcanic island approximately 290 miles off the coast of Iceland under Norwegian sovereignty.¹⁷⁴ Although Norway’s title to Jan Mayen was by act of Parliament in 1929, Norway did not claim a 200 nautical mile EEZ around the island when it established one around the mainland.¹⁷⁵ When Norway tried to correct its omission in 1978, there were immediate objections from Iceland.¹⁷⁶

169. *Id.*

170. *Id.* at 83.

171. Ong, *Joint Development*, *supra* note 27, at 785.

172. *Id.* (quoting R. R. CHURCHILL & A. V. LOWE, *THE LAW OF THE SEA* 10 (2d. rev. ed. 1988))

173. Statute of the International Court of Justice, *supra* note 21, art. 38(1)(C).

174. CONCILIATION COMMISSION ON THE CONTINENTAL SHELF AREA BETWEEN ICELAND AND JAN MAYEN, REPORT AND RECOMMENDATIONS TO THE GOVERNMENTS OF ICELAND AND NORWAY (May 1981), *reprinted in* 20 I.L.M. 797, 798 (1981) [hereinafter CONCILIATION COMMISSION].

175. Elliot Richardson, *Jan Mayen in Perspective*, 82 AM. J. INT’L L. 443, 443–44 (1988).

176. *Id.* at 444.

The states provided for the establishment of a Conciliation Commission to consider the issue of the boundary of the continental shelf area between Iceland and Jan Mayen Island.¹⁷⁷ The Commission was to “take into account Iceland’s strong economic interests [in this region of the continental shelf,] existing geographical and geological factors and [any] other special circumstances.”¹⁷⁸ The recommendations of the Commission had to be unanimous and were not binding on Iceland and Norway, but reasonable regard had to be paid to any such recommendations by those states during any further negotiations.¹⁷⁹ The recommendation of the Commission was to form a joint development arrangement for that area where there was significant hydrocarbon prospectivity.¹⁸⁰ Each of the parties would appoint one member, and the third would be jointly selected.¹⁸¹

A scientific committee was assembled to determine the potential for petroleum deposits in the disputed area.¹⁸² The Commission ultimately suggested a detailed JDZ, which comprised the areas with the highest potential for hydrocarbon recovery.¹⁸³ This approach was indeed adopted in the subsequent 1981 Agreement on the Continental Shelf between Iceland and Jan Mayen.¹⁸⁴ The treaty provided for unitization if a cross-border deposit was discovered, either across the delimitation line or across the boundary of the southern part of the JDZ. The Commission, as did the ICJ in the *North Sea Continental Shelf Cases*, recognized the importance of, and in fact depended on, unitization for the most effective economic recovery.¹⁸⁵

177. CONCILIATION COMMISSION, *supra* note 174, at 798–99.

178. *Id.*

179. *Id.*

180. *Id.* at 825–26.

181. *Id.* at 799.

182. Agreement on the Continental Shelf between Iceland and Jan Mayen, Ice.-Nor., Oct. 22, 1981, 21 I.L.M. 1222, 1223.

183. CONCILIATION COMMISSION, *supra* note 174, at 826.

184. Agreement on the Continental Shelf between Iceland and Jan Mayen, *supra* note 182, art. 3.

185. *Id.* art. 8; *see also* Richardson, *supra* note 175, at 448.

3. *The U.K./France Arbitration*

France and the United Kingdom submitted to arbitration the issue of the delimitation of the international boundary between those states on the continental shelf.¹⁸⁶ There were notable differences between this case and the *North Sea Continental Shelf Cases*. Here an arbitral tribunal was asked to decide this matter between states in accordance with the rules of international law, and draw an international boundary line.¹⁸⁷ Both states were parties to the 1958 U.N. Convention on the Continental Shelf.¹⁸⁸ The third state affected, Ireland, was not a party to the proceedings.¹⁸⁹

France and the United Kingdom engaged in negotiations between 1970 and 1974, with the purpose of delimiting the continental shelf that lies between them.¹⁹⁰ The negotiations resulted in limited agreement only, and the dispute was submitted to an arbitration commission by agreement in 1979.¹⁹¹ The matter at issue in the arbitration had to do with the meaning of "special circumstances."¹⁹² Although the ICJ in the *North Sea Continental Shelf Cases* stated there "[i]s no legal limit to the considerations which States may take account of for the purpose of making sure that they apply equitable procedures,"¹⁹³ it subsequently determined that the presence of petroleum within the continental shelf alone was not sufficient to invoke special circumstances unless the parties provided otherwise by agreement.¹⁹⁴

186. *Delimitation of the Continental Shelf (Fr. v. U.K.)* (Perm. Ct. Arb. 1977), reprinted in 18 I.L.M. 397 (1979).

187. *Id.* at 400.

188. *Id.* at 406.

189. *Id.* at 398.

190. *Id.*

191. *Id.*

192. *Delimitation of the Continental Shelf (Fr. v. U.K.)*, 18 I.L.M. at 507.

193. I.C.J. Decision in *North Sea Continental Shelf Cases*, Feb. 20, 1969, 8 I.L.M. 340, 381.

194. *Id.* at 422 (dissenting opinion of J. Lachs).

4. *The Greece/Turkey Aegean Sea Continental Shelf Case*

Turkey granted petroleum exploration permits in 1974 and began to explore for petroleum in the portion of the Aegean Sea that lay outside Greece's territorial waters.¹⁹⁵ Greece did not recognize Turkey's claim to that portion of the seabed.¹⁹⁶ Subsequent to unsuccessful negotiations,¹⁹⁷ Turkey proceeded to send further scientific expeditions to the area, with warships available to respond to any attacks on the expeditions.¹⁹⁸ This action prompted Greece to submit the dispute to the ICJ in 1976.¹⁹⁹ In justification of its request for interim measures, Greece alleged that the granting of petroleum exploration permits and the exploring of the vessel MTA Sismik I by Turkey constituted infringements of its exclusive sovereign rights to the exploration and exploitation of its continental shelf, and that the breach of the right of a coastal state's to exclusivity of knowledge of its continental shelf constituted irreparable prejudice. Furthermore, the activities complained of would, if continued, aggravate the dispute.²⁰⁰

Turkey avoided the ICJ proceedings on jurisdictional grounds, but contended through communication to the Registry of the Court that these activities "[could not] be regarded as involving any prejudice to the existence of any rights of Greece over the disputed areas" and that, even if they could, there would be no reason why such prejudice could not be compensated and that "Turkey [had] no intention of taking the initiative in the use of force."²⁰¹

The ICJ, viewing the matter in the context of Article 41 of its Statute, held that it was unable to find such a risk of irreparable prejudice to Greece's rights as might require interim measures of protection.²⁰²

195. Aegean Sea Continental Shelf Case (Greece v. Turk.), 1976 I.C.J. 3 (Sept. 11), reprinted in 15 I.L.M. 985, 989 (1976); see also HENKIN, *supra* note 73, at 820.

196. Aegean Sea Continental Shelf Case, 1976 I.C.J. at 3.

197. *Id.*

198. *Id.*

199. *Id.* at 985.

200. *Id.* at 986, 989.

201. *Id.* at 990.

202. Aegean Sea Continental Shelf Case (Greece v. Turk.), 1976 I.C.J. 3 (Sept. 11),

5. *The Tunisia/Libya Continental Shelf Case*

Tunisia and Libya submitted their question to the ICJ to determine the exact principles and rules of international law that may be applied in delimiting the continental shelf between them. Both states also wanted the Court to specify the most practical application of those principles in order to accomplish the delimitation without difficulty.²⁰³

In this case, the Court reiterated the natural prolongation principle but did not specify the concept of “equitable principles” or “special circumstances.”²⁰⁴ For that reason the two dissenting judges on the Court criticized the judgment as lacking in legal principle.²⁰⁵ The Court came to the conclusion that the existing economic status of the parties may not be taken into consideration as part of the relevant circumstances when delimiting the boundary.²⁰⁶ However, “the presence of oil-wells in an area to be delimited, . . . may, depending on the facts, be an element to be taken into account in the process of weighing all relevant factors to achieve an equitable result.”²⁰⁷

Judge Evensen, in his dissenting opinion, proposed a system of joint development of petroleum resources.²⁰⁸ In his view, joint development represented an equitable alternative solution to the maritime boundary dispute.²⁰⁹ After the verdict was issued, “the maritime boundary dispute was settled amicably.”²¹⁰ The two states signed three agreements: one on delimitation of the continental shelf boundary, as indicated in the 1982 judgment, which was signed on August 8, 1988; another on the designation

reprinted in 15 I.L.M. 985, 996 (1976).

203. Special Agreement for the Submission of the Question of the Continental Shelf between the Two Countries to the ICJ (Libya-Tunis.), June 10, 1977, 18 I.L.M. 49, 51.

204. Case Concerning the Continental Shelf (Tunis. v. Libya) 1982 I.C.J. 18 (Feb. 24), *reprinted in* 21 I.L.M. 225, 229 (1982).

205. *See id.* at 288, 295.

206. *Id.* at 255.

207. *Id.*

208. *Id.* at 316 (dissenting opinion of Judge Evensen).

209. *Id.*

210. Ong, *Joint Development*, *supra* note 27, at 786–87.

of a joint exploration zone in the Gulf of Gabes area,²¹¹ including actions for managing joint development;²¹² and a third on the participation of Tunisia in ten percent of the income from the future production in the E1 Bouri oil fields on the Libyan side of the continental shelf.²¹³ It is noteworthy that Judge Evensen's suggestions were apparently implemented in the Tunisia-Libya 1988 joint development agreement.²¹⁴

6. *The Australia/Indonesia Seabed Case*

Australia and Indonesia disputed rights to a portion of the common continental shelf between them. Because most of the border had been established in 1972 based largely on continental shelf principles, the dispute concerned only a part of the boundary, known as the Timor Gap.²¹⁵ The gap had arisen because, in 1972, East Timor was still governed by Portugal and negotiations between Australia and Portugal had not been concluded.²¹⁶ In 1975 East Timor was annexed by Indonesia, requiring Australia and Indonesia eventually to negotiate the Timor Gap Treaty.²¹⁷ The need for a JDZ stemmed from the fact that Indonesia relied on the 1982 UNCLOS to claim a median line basis for delimitation based on the 200 nautical mile EEZ,²¹⁸ whereas Australia maintained delimitation should be based on the principle of natural prolongation of territorial land as proposed in the *North Sea Continental Shelf Cases*.²¹⁹ Under the 1982 UNCLOS the extension of the landmass borders to the shelf appears to be a primary basis for continental shelf jurisdiction on the basis of sovereign rights and not

211. *Id.*

212. *Id.* at 787.

213. *Id.*

214. *Id.*

215. Willheim, *supra* note 44, at 821–22. Note that this 1972 agreement predated the 1982 UNCLOS.

216. *Id.*

217. Treaty on the Zone of Cooperation in an Area Between the Indonesian Province of East Timor and Northern Australia (Austl.-Indon.), Dec. 11, 1989, 1654 U.N.T.S. 105, reprinted in 29 I.L.M. 475 (1990) [hereinafter Timor Gap Treaty].

218. Willheim, *supra* note 44, at 828.

219. *Id.*

sovereignty.²²⁰ Also, the 200 nautical mile EEZ is based on sovereign rights so it might be argued that these two states are on equal footing regarding their assertions of jurisdiction.

The states chose to resolve their differences in the disputed area by adopting a temporary three-part Zone of Cooperation. Within this zone, joint development activities were to proceed under different legal and economic sharing regimes.²²¹ It has been reported that unitization is also provided for deposits straddling the boundaries of the joint development area.²²²

7. *The Eritrea v. Yemen Tribunal Phase II Decision*

This case was about a dispute between Eritrea and Yemen over sovereignty of the Red Sea area between them.²²³ In regard to petroleum arrangements and the maritime boundary between the parties in the Red Sea, the Tribunal agreed with the ICJ judgment in the *North Sea Continental Shelf Cases* that delimitation of the States' areas of continental shelf may lead to an overlapping of the areas appertaining to them.²²⁴

[S]uch a situation must be accepted as a given fact and resolved either by an agreement, or failing that by an equal division of the overlapping areas, or by agreements for joint exploitation, the latter solution appearing particularly appropriate when it is a question of preserving the unity of a deposit.²²⁵

220. *Id.*

221. Legal Regime of Joint Development and Management Zones, <http://www.unu.edu/unupress/unupbooks/uu15oe/uu15oe0j.htm> (last visited Jan. 29, 2007).

222. *Id.*

223. Eritrea v. Yemen (Perm. Ct. Arb. 1999), [http://pca-cpa.org/PDF/EY/Phase II.pdf](http://pca-cpa.org/PDF/EY/Phase%20II.pdf). The dispute was examined before the Arbitral Tribunal under the auspices of the Permanent Court of Arbitration. See Adaeze Ifesi, *Offshore Delimitation of Resource Deposits Situated Across National Boundaries: The International Court of Justice Decision in Cameroon v. Nigeria Lending Clarity or Compromise?*, TRANSNAT'L DISP. MGMT., Feb. 2004, http://www.transnational-dispute-management.com/samples/freearticles/tv1-1-article_36.htm.

224. *North Sea Continental Shelf Cases* (F.R.G. v. Den.), 1969 I.C.J. 3, 52 (Feb. 20).

225. Eritrea v. Yemen (Perm. Ct. Arb. 1999), para. 84, <http://pca-cpa.org/ENGLISH/RPC/EY/2ch3ER-YE.htm>.

The Tribunal noted that this is of particular relevance to Yemen and Eritrea, because they face each other across a relatively narrow compass and benefit from a culture of free movement of fishermen, a wide-ranging trade, a common rule, and a common religion.²²⁶ This, in essence, suggests that where Eritrea and Yemen discover significant oil reserves straddling a boundary, a joint user approach is advised.

B. International Treaties and Agreements

1. Cross-Border Unitization Agreements

Some examples of bilateral unitization agreements can now be found in different parts of the globe, both across delimited borders and across the boundary of JDZs.²²⁷ It is noteworthy that unitization treaties between states generally follow the same practice used in domestic unitization agreements and provide for two distinct binding dispute resolution mechanisms. Common practice has been to subject most disputes to arbitration, except for disputes over technical issues, such as the redetermination of the apportionment ratio, which are subject to expert determination.²²⁸

2. Unitization Treaties

a. Agreements in the North Sea

There are four examples of field-specific agreements between states regarding the exploitation of straddling petroleum reservoirs by way of unitization in the North Sea.²²⁹

226. *Id.* para. 85.

227. Nine examples of cross-border unitization of offshore petroleum fields have been identified by the Authors. *See infra* text accompanying notes 144, 145 and 268.

228. *See, e.g.*, Agreement Relating to the Unitization of the Sunrise and Troubadour Fields, Austl.-Dem. Rep. Timor-Leste, Mar. 6, 2003, <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/AUS-TLS2003UNI.PDF> (entered into force Feb. 23, 2007) [hereinafter Sunrise and Troubadour Agreement].

229. In addition, in a recent Exchange of Notes between the United Kingdom and Norway, an agreement has been reached to not unitize two fields with minor extensions across the border (one with a small extension into Norway and the other with a small

It should be noted that these unitization agreements got their legal force from the bilateral delimitation agreements signed between the United Kingdom and Norway on March 10, 1965 and between the United Kingdom and the Netherlands on October 6, 1965. The first explicit provision for action to be taken in the event of the discovery of a cross-border petroleum deposit was made in the 1965 U.K.-Norway agreement. The agreement contained a commitment to cooperate in the development of petroleum deposits that straddle the boundary between the two states. The agreement stipulated:

If any single petroleum reservoir extends across the dividing line and the part of such reservoir, which is situated on one side of the dividing line, is exploitable, wholly or in part, from the other side of the dividing line, the two states are obliged, in consultations with the licensees, if any, to seek to reach agreement as to the manner in which the petroleum reservoir shall be most effectively exploited and the manner in which the proceeds deriving therefrom shall be apportioned.²³⁰

There is no specific obligation to cooperate through unitization; however, this is the approach that has been adopted as the best possible option for the exploitation of the cross-border petroleum deposits in all of the agreements between states concerning the North Sea.²³¹ The U.K.-Norway Delimitation Treaty provided the basis for the unitization of three international cross-border petroleum fields on the U.K.-Norway boundary line.²³² The most important example, in terms of oil volume and associated gas, is the Statfjord Agreement. The

extension into the United Kingdom) in a quid pro quo arrangement. Secretary of State for Foreign & Commonwealth Affairs, Exchange of Notes between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway Concerning the Playfair and Boa Petroleum Fields, Oct. 4, 2004, http://www.fco.gov.uk/Files/Kfile/992259_CM6412.pdf.

230. U.K.-Norway Delimitation Agreement, *supra* note 139, art. 4.

231. There is now a specific obligation to unitize cross-border fields between the U.K. and Norway pursuant to a 2005 Framework Agreement. Two other fields (Blane and Enoch) have subsequently been unitized. See Framework Agreement, *supra* note 144; Press Release, *supra* note 145.

232. Gault, *supra* note 146, at 143; see also Peter D. Cameron, *The Rules of Engagement: Developing Cross-Border Petroleum Deposits in the North Sea & the Caribbean*, INT'L & COMP. L.Q. 559, 571 (2006).

Statfjord Agreement, and the Murchison agreement of the same year, largely followed the pattern of the earlier Frigg Agreement.²³³ The other example of unitization across an international boundary in the North Sea was the Markham agreement.

i. Frigg Agreement, 1976

“The Frigg Gas Field lies across the Norway-U.K. continental shelf boundary.”²³⁴ A consortium led by Elf Aquitaine Norway discovered the field in 1969.²³⁵ By May 1972 it was ascertained that the reservoir straddled the boundary line, which divided the continental shelf between the United Kingdom and Norway.²³⁶ Pursuant to Article 4 of the U.K.-Norway Delimitation Treaty the states were obliged “in consultation with the licensees, if any, [to] seek to reach agreement as to the manner in which the structure or field shall be most effectively exploited and the manner in which the proceeds deriving therefrom shall be apportioned.”²³⁷ The governments of both states confirmed a series of arrangements entered into by the consortia and signed the Frigg Agreement on May 10, 1976,²³⁸ which placed the unitization of the field on the level of public international law.²³⁹ Article 2 of the Frigg Agreement provided:

The two Governments shall consult with a view to agreeing a determination of the limits and estimated total reserves of the Frigg Field Reservoir and an apportionment of the reserves therein as between the Continental Shelf appertaining to the United Kingdom and the Continental Shelf appertaining to the Kingdom of Norway. For this purpose the licensees shall be

233. Cameron, *supra* note 233, at 572.

234. Gault, *supra* note 146, at 146.

235. *Id.*

236. J.C. Woodlitttle, *International Unitisation of an Offshore Gas Field*, 26 INT'L & COMP. L.Q. 338, 339 (1977).

237. U.K.-Norway Delimitation Agreement, *supra* note 139, art. 4.

238. Frigg Agreement, *supra* note 140. The Frigg Field Agreement came into force on July 22, 1977. *Id.* at 4 n.1.

239. Gault, *supra* note 146, at 146.

required to submit to the Governments a proposal for such determinations.²⁴⁰

The Article further provided:

The two Governments shall endeavour to agree to the apportionment of the reserves of the Frigg Field Reservoir before production of the reserves commences. If they are not able to do so, then pending such agreement, the production shall proceed on the provisional basis of a proposal for the apportionment submitted by the licensees, or, if there is none, on the provisional basis of equal shares. Such provisional apportionment shall be without prejudice to the position of either Government.²⁴¹

The Frigg Agreement allocated the proceeds derived from the field, and the costs of development, according to portion of the deposit lying within the jurisdiction of the respective parties.²⁴² A special commission was established to supervise the whole operation.²⁴³ Each government was obligated to require its licensees to submit a scheme to conserve the Frigg field reservoir for productive operations. This scheme was subject to approval of the two governments.²⁴⁴ This field production depletion scheme had to be reviewed at intervals of not more than four years and any resulting revision of the scheme also had to be submitted to the governments for their approval.²⁴⁵ The governments were given the duty of ensuring that their licensees implemented any approved scheme.²⁴⁶ There was no unitization, joining or merging in the matter of jurisdiction.²⁴⁷ To mitigate the effect of separate jurisdictions, the Frigg Agreement provided for consultation between the two governments in order to ensure that all installations were

240. Frigg Agreement, *supra* note 140, art. 2.

241. *Id.* art. 3.

242. *Id.* arts. 1, 2.

243. Gault, *supra* note 146, at 146.

244. Frigg Agreement, *supra* note 140, art. 4(1).

245. *Id.*

246. *Id.* art. 4(2).

247. *Id.* art. 29.

subject to uniform safety and construction standards.²⁴⁸ Regarding fiscal matters, the respective jurisdictions were also kept separate.²⁴⁹

In case any production license was cancelled in whole or in part, the government was obliged to ensure that the exploitation of the Frigg gas continued in accordance with the terms of the Frigg Agreement and the agreements between the licensees.²⁵⁰ In such situations the government was required to issue a new license in replacement of the expired, surrendered, or revoked license; or conduct operations as if it were a licensee itself; or take any other action to continue operations as agreed by the two governments.²⁵¹

ii. Statfjord Agreement, 1979

Oil was discovered in July 1971 in the Brent Formation in the subsoil of the Norwegian continental shelf.²⁵² Later, oil was also discovered in the underlying Statfjord and Dunlin Formations.²⁵³ It was established in 1975 that the oil and associated gas deposits extended across the line dividing the continental shelf between the United Kingdom and Norway.²⁵⁴ As in the case of the Frigg Agreement, the provisions of Article 4 of the U.K.-Norway Delimitation Treaty were applicable.²⁵⁵ In this context, the two governments constructed an agreement to exploit the petroleum reservoirs including, a regulation for the offtake of production.²⁵⁶ The Statfjord Agreement between the United Kingdom and Norway was signed on October 16, 1979,²⁵⁷ and followed the pattern of the earlier Frigg Agreement to a significant extent.

248. *Id.* art. 17.

249. *Id.* art. 9.

250. *Id.* art. 11.

251. *Id.*

252. *Brent*, SCANDANVIAN OIL-GAS MAGAZINE ONLINE, http://www.scandoil.com/moxie_field/uk/production_UK/brent.shtml.

253. Ross, *supra* note 141, at 5.

254. *Id.* at 5–6.

255. See U.K.-Norway Delimitation Agreement, *supra* note 139, art. 4.

256. See Frigg Agreement, *supra* note 140.

257. Statfjord Agreement, *supra* note 141.

The basic feature of the Frigg Agreement—exploitation of the reservoirs as a single unit—was unchanged in the Statfjord Agreement; however, the Statfjord Agreement is more simple, clear and consistent.²⁵⁸ For example, in the Statfjord Agreement the term “reserves” was properly defined unlike in the Frigg Agreement.²⁵⁹ Also, the time schedule envisaged for a redetermination of the Statfjord field reservoirs was much more elaborate than the Frigg schedule. There was also a requirement of a work program to be approved by the two governments.²⁶⁰ The main difference between the agreements was found in the rules for the transportation and destination of the products; there was no specific provision on means of transportation or destination of the products under the Statfjord Agreement.²⁶¹

iii. Unitization of the Sunrise and Troubadour Fields, 2003

The International Unitization Agreement (IUA) between the Government of Australia and the Government of the Democratic Republic of Timor-Leste, formerly East Timor, relating to the Unitization of the Sunrise and Troubadour fields, signed at Dili on March 6, 2003, provides a comprehensive framework for the joint exploitation of the Sunrise and Troubadour Fields (the Greater Sunrise field).²⁶² The general facts and background to this agreement will be analyzed in the section on Joint Development Agreements below. Basically, Article 9(a) on Unitization of the Timor Sea Treaty, entered into by and between both governments, established that “[a]ny reservoir of petroleum that extends across the boundary of the [joint petroleum development area] shall be treated as a single entity for management and development purposes.”²⁶³ Section (b) of

258. See *Current Legal Developments: Norway-United Kingdom, Continental Shelf*, 26 INT'L & COMP L.Q. 225 (1977); see also Ross, *supra* note 141, at 6.

259. Compare Statfjord Agreement, *supra* note 141, art. 23 (defining reserves as “the volume of oil present in the Statfjord Field Reservoirs before the start of production”) with Frigg Agreement, *supra* note 140, art. 30(1) (defining reserves as the “naturally occurring gas-bearing sand formations” located in the Frigg Field Reservoir).

260. See *id.* art. 11.

261. Compare Frigg Agreement, *supra* note 140 with Statfjord Agreement, *supra* note 141.

262. Sunrise and Troubadour Agreement, *supra* note 229.

263. Timor Sea Treaty, Austl.-E. Timor, art. 9, May 20, 2002, 2003 Austl.

the same Article states that the parties “shall work expeditiously and in good faith to reach agreement on the manner in which the deposit will be most effectively exploited and on the equitable sharing of the benefits arising from such exploitation.”²⁶⁴ In Annex E, under Article 9(b), both parties agreed to unitize the Greater Sunrise field, setting the basis for the distribution of production.²⁶⁵ The parties concluded the separate IUA identified above on March 6, 2003.²⁶⁶

The IUA covered matters such as administration of the unit area; establishment of a commission to facilitate the implementation of the IUA; applicable law; taxation and apportionment of production; approval of a development plan; abandonment; point of sale; valuation of petroleum recovered from the field; employment and training; occupational health and safety; environmental protection; customs; security arrangements; and dispute resolution mechanisms.²⁶⁷

Although Australia had exercised jurisdiction over the part of the field lying to the east of the joint petroleum development area (JPDA), that jurisdiction had been pursuant to a prior delimitation agreement with Indonesia that East Timor did not recognize.²⁶⁸ The IUA was therefore without prejudice to the maritime claims of the two states and their ongoing negotiations on a permanent boundary delimitation.²⁶⁹ However, there are clearly some significant disagreements with respect to these overlapping maritime claims, which may be one reason why East Timor only recently ratified the IUA.²⁷⁰

T.S. No. 13, <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/AUS-TLS2002TST.PDF> [hereinafter Timor Sea Treaty].

264. *Id.* art. 9(b).

265. *Id.* at Annex E.

266. Sunrise and Troubadour Agreement, *supra* note 229.

267. *Id.*

268. See MIYOSHI, *supra* note 167, at 18; Sarah Derrington & Michael White, *Australian Maritime Law Update: 2002*, 34 J. MAR. L. & COM. 363, 366 (2003).

269. See Sunrise and Troubadour Agreement, *supra* note 229, art. 2.

270. The IUA was ratified in conjunction with the Treaty on Certain Maritime Arrangements in the Timor Sea (CMATS Treaty). Fact Sheet, Australia-East Timor Maritime Agreements, Australian Government Dep't. of Foreign Affairs and Trade, http://www.dfat.gov.au/geo/east_timor/fs_maritime_arrangements.html (last visited Feb. 4, 2007). The CMATS Treaty is available at http://www.dfat.gov.au/geo/east_timor/treaty_120113.pdf.

iv. Other Offshore Cross-Border Unitizations

In addition to the six North Sea cross-border unitizations and the Greater Sunrise IUA discussed above, other examples include the Fairley Baram field, between Malaysia (Sarawak) and Brunei Darussalam,²⁷¹ and the Ekanga/Zafiro field between Nigeria and Equatorial Guinea.²⁷² In addition, Venezuela and Trinidad & Tobago agreed in a 2003 Memorandum of Understanding to unitize their cross-border fields.²⁷³

b. Interlicensee Unitization Agreements

In addition to the unitization treaty between two states, there will also be an agreement between the licensees on each side of the border.²⁷⁴ These agreements are not in the public domain but are similar to a typical unitization and unit operating agreement found in domestic unitizations, except that they must be consistent with the terms of the treaty. Hence, they will be subject to the approval of both states.²⁷⁵ The primary differences will be the requirement for certain key

271. The agreement for the Fairley-Baram field is actually an agreement between Brunei Shell Petroleum (BSP) and Sarawak Shell Berhad (SSB), both of which are subsidiaries of Royal Dutch Shell; there is no known published agreement between Malaysia and Brunei. In Brunei, BSP operates under Petroleum Mining Agreements with the government of Brunei, giving exclusive production rights for Brunei's oil and gas to BSP. In the state of Sarawak, Malaysia, SSB operates as a production sharing contractor to Petronas, the state-owned oil company given custody of all petroleum deposits in Malaysia. See Fairley-Baram, http://www.bsp.com.bn/PanagaClub/pnhs/Geology/htm/oil&gas/fields/baram/baram1_1.htm (last visited Feb. 4, 2007) (giving statistics for Fairley-Baram field and discussing the unitization agreement between BSP and SSB); History of Oil and Gas, http://www.bsp.com.bn/main/aboutbsp/about_oil_gas.asp (last visited Feb. 4, 2007) (discussing the history of BSP and the Petroleum Mining Agreement between BSP and Brunei); Shell in Malaysia—About Shell Malaysia EP, http://www.shell.com/home/Framework?siteId=my-en&FC2=/myen/html/iwgen/about_shell/smep/smep_what_we_do.html (last visited Feb. 4, 2007) (discussing the contract between Petronas and SSB).

272. See, e.g., Rejoinder of the Federal Republic of Nigeria (Cameroon v. Nigeria: Equatorial Guinea Intervening), Jan. 2001, http://www.icj-cij.org/icjwww/idocket/icn/icnpleadings/icn_rejoinder/icn_ipleadings_nigeria_rejoinder_20010101_Ch09.htm.

273. See Trinidad and Tobago Ministry of Energy and Energy Industries, <http://www.energy.gov.tt/applicationloader.asp?app=documentlibrary&pid=0&category=15> (last visited Feb. 4, 2007).

274. See, e.g., Frigg Agreement, *supra* note 140, art. 1(2).

275. *Id.* art. 5.

issues like selection of operators, approval of the development plan, initial apportionment ratio and any redeterminations thereof, and changes to the unit area to be subject to the approval of both states and the licensees.

In the case of the U.K.-Norway unitization treaties, there were also deeds signed between the licensees and their respective governments binding the licensees to uphold the obligations placed on them by the treaty because they were not parties to the treaty itself.²⁷⁶

3. *Joint Development Agreements*

The following summary of cases is not exhaustive of the list of joint petroleum development agreements, but a sufficient number is covered in detail to provide practical illustrations of the fundamental characteristics of such agreements.²⁷⁷

a. *Japan-South Korea Agreement, 1974*

Japan and the Republic of Korea (South Korea) concluded two maritime agreements in 1974. The first agreement was a delimitation agreement for the area through the southern part of the Sea of Japan and the Tsushima/Korea Strait.²⁷⁸ The second agreement was a joint development agreement for the

276. Campbell, *supra* note 142, at 6.

277. For a complete list up to 1999, see MIYOSHI, *supra* note 167, at 7–40. More recent agreements include those between Nigeria and São Tomé e Príncipe (2001), Australia and Timor-Leste (2003), and Barbados and Guyana (2003). See, e.g., Treaty Between the Federal Republic of Nigeria and the Democratic Republic of São Tomé e Príncipe on the Joint Development of Petroleum Other Resources, in Respect of Areas of the Exclusive Economic Zone of the Two States, in Nig.-São Tomé e Príncipe, Feb. 21, 2001, available at <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/STP-NGA2001.PDF>; Agreement Between the Government of Australia and the Government of the Democratic Republic of Timor-Leste Relating to the Unitization of the Sunrise and Troubadour Fields, Austl.-Timor-Leste, Mar. 6, 2003, available at <http://www.un.org/Depts.los/LEGISLATIONANDTREATIES/PDFFILES/TREATIES/AUS-TLS2003UNI.PDF>; Exclusive Economic Zone Co-Operation Treaty Concerning the Exercise of Jurisdiction in Their Exclusive Economic Zones in the Area of Bilateral Overlap Within Each of Their Outer Limits and Beyond the Outer Limits of the Exclusive Economic Zones of Other States, Barb.-Guy., Dec. 2, 2003 2277 U.N.T.S. 202.

278. Agreement Concerning the Establishment of Boundary in the Northern Part of the Continental Shelf Adjacent to the Two Countries, Japan-S. Korea, Jan. 30, 1974, 1225 U.N.T.S. 103.

part of the continental shelf extending southwards into the northern part of the East China Sea,²⁷⁹ which is an area where petroleum development is complicated by the overlapping claims not only of these two states, but also of North Korea and China as well.²⁸⁰

In the Japan-Korea Agreement, the JDZ was subdivided into subzones and each state was required to authorize one or more concessionaires with respect to each subzone.²⁸¹ However, if a state authorized more than one concessionaire with respect to one subzone, all such concessionaires would be represented, for the purposes of the agreement, by a single concessionaire.²⁸² Therefore, there were two concessionaires for each subzone, one authorized by each state. One of the concessionaires was selected as operator.²⁸³ Laws and regulations were applied within each subzone on the basis of the state that authorized the concessionaire that acted as operator.²⁸⁴

Expenses incurred in the exploration and exploitation phases were shared equally between the two concessionaires, as was the production.²⁸⁵ Each concessionaire was responsible only to its state with respect to any taxes that were imposed.²⁸⁶

For the purpose of liaison between the two states, a Joint Commission was established with two members appointed by each state.²⁸⁷ The Joint Commission acted as a consultative body, without the level of authority seen in some other joint development agreements.²⁸⁸

279. Agreement Concerning Joint Development of the Southern Part of the Continental Shelf Adjacent to the Two Countries, Japan-S. Korea, Jan. 30, 1974, 1225 U.N.T.S. 136, *reprinted in* NEW DIRECTIONS IN THE LAW OF THE SEA 117 (Robin Churchill & Myron Nordquist eds., 1975) [hereinafter Japan-Korea Agreement].

280. Choon-Ho Park, *Continental Shelf Issues in the Yellow Sea and the East China Sea*, R.I.L. OF THE SEA INST., Sept. 1972 at 20, 25, 29–30.

281. Japan-Korea Agreement, *supra* note 280, arts. III–IV.

282. *Id.* art. IV.

283. *Id.* art. VI.

284. *Id.* art. XIX.

285. *Id.* art. IX.

286. *Id.* art. XVII.

287. *Id.* art. XXIV.

288. Compare Japan-Korea Agreement, *supra* note 280, art. XXIV, with Agreement Relating to the Joint Exploitation of the Natural Resources of the Sea-bed and Sub-soil

The duration of the agreement was specified as fifty years.²⁸⁹ It automatically continued in force beyond this until either state gave three years notice of its termination.²⁹⁰ However, it could also be terminated prior to fifty years “when either Party recognize[d] that natural resources [were] no longer economically exploitable in the Joint Development Zone,” provided that the other state concurred with this view.²⁹¹

*b. Sudan-Saudi Arabia, 1974*²⁹²

In 1974 Saudi Arabia and Sudan created a common zone in the central part of the Red Sea that lies between the two states.²⁹³ The agreement established each state’s exclusive sovereign rights over the seabed up to a line where the water depth was less than 1000 meters.²⁹⁴ This left an area extending down the middle of the Red Sea where the water depth exceeded 1000 meters, which was designated as the common zone.²⁹⁵ In this area, both states possessed equal and exclusive sovereign rights in all the natural resources.²⁹⁶

The agreement established a Joint Commission as a corporate body with legal capacity to carry out all its assigned functions in both states.²⁹⁷ These functions included, among others, the consideration and decision on applications for licenses and concessions for exploration and exploitation in accordance with its own prescribed conditions.²⁹⁸ The Joint

of the Red Sea in the Common Zone, Sudan-Saudi Arabia, May 16, 1974, 952 U.N.T.S. 197 [hereinafter Sudan-Saudi Arabia Agreement].

289. Japan-Korea Agreement, *supra* note 280, art. XXXI.

290. *Id.*

291. *Id.*

292. See Sudan-Saudi Arabia Agreement, *supra* note 289.

293. *Id.* arts. V, XVII.

294. *Id.* arts. III–IV.

295. *Id.* art. V. “The Red Sea has three distinct zones of depth: the shallow reef studded shelves of less than 50m, the deep shelves of 500–1000m and the central trench of more than 1000m.” EMBASSY OF THE REPUBLIC OF SUDAN IN LONDON, SUDANESE RED SEA, <http://www.sudan-embassy.co.uk/infobook/redsea.php>.

296. *Id.* arts. V–VI.

297. *Id.* arts. VII–VIII.

298. Sudan-Saudi Arabia Agreement, *supra* note 289, art. VII.

Commission could establish regulations as considered necessary for the discharge of its functions.²⁹⁹

*c. Thailand-Malaysia, 1979/1990*³⁰⁰

Unable to agree to a complete delimitation of their continental shelf boundary, Malaysia and Thailand signed a Memorandum of Understanding (MOU) in 1979 in which they established a JDZ in the Gulf of Thailand.³⁰¹ Later that same year they concluded delimitation agreements in regard to the territorial sea and continental shelf boundaries as far as the western edge of the JDZ, pledging to continue negotiations with a view to completing the delimitation process at some time in the future.³⁰²

The MOU is for a period of fifty years and provides for a powerful Joint Authority with each state designating a cochairman and an equal number of members.³⁰³ The Joint Authority was given all the rights and responsibilities on behalf of both states for the exploration and exploitation of the nonliving resources of the seabed and subsoil of the JDZ.³⁰⁴ Further, it was given all administrative and developmental powers incidental to or connected with the discharge of its petroleum operations functions.³⁰⁵ The issue of criminal jurisdiction was handled by dividing the JDZ into north and south areas, with Thailand having jurisdiction over the north and Malaysia having jurisdiction over the south.³⁰⁶ However, this line was not to be construed as indicating the border or prejudicing the sovereign rights of either state within the JDZ.³⁰⁷

299. *Id.*

300. David Ong, *Thailand/Malaysia: The Joint Development Agreement 1990*, 6 INT'L J. OF ESTUARINE & COASTAL L. 61, 61-66 (1991).

301. *Id.* at 61.

302. *Id.*

303. *Id.* at 62.

304. *Id.*

305. *Id.*

306. *Id.* at 62-63.

307. *Id.* at 63.

The terms of the MOU made a practical implementation difficult in the establishment of a petroleum fiscal regime for the JDZ. At the time, Malaysia operated a Production Sharing Contract (PSC) system, while Thailand used a tax and concession system.³⁰⁸ Resolving this and other issues led to a substantial delay in the conclusion of the subsequent Agreement on the Constitution and Other Matters Relating to the Establishment of the Malaysia-Thailand Joint Authority, which was eventually signed in 1990.³⁰⁹ This agreement established a production sharing system for the petroleum fiscal regime within the JDZ and set out the primary contract terms, which included a duration, not to exceed thirty-five years; royalty, of ten percent of gross production, payable to the Joint Authority for remittance of an equal share to the two states; a cost recovery limit of fifty percent of gross production; and a profit share requiring the balance of gross production to be shared equally between the contractor and the Joint Authority.³¹⁰ The 1990 agreement also confirmed the juristic personality of the Joint Authority and such capacity as provided for in the acts of parliament to be enacted by both states.³¹¹

This joint development area has already witnessed significant petroleum activity with several gas discoveries. In 1994, the Malaysia-Thailand Joint Authority (MTJA) awarded production sharing contracts for Block A-18 to Petronas Carigali (JDA) Sdn. Bhd. and Triton Oil Company of Thailand (wholly-owned by Amerada Hess). The other two blocks, Block B-17 and Block C-19, were awarded to Petronas Carigali (JDA) Sdn.

308. See Coordinating Committee for Geoscience Programmes (CCOP), *Evolution of Malaysian PSC*, http://www.ccop.or.th/epf/malaysia/malay_terms.html (last visited Feb. 4, 2007) (discussing the evolution of the production sharing contract in Malaysia). See generally Ratana Poonsombudlert et al., *Thai Petroleum Concessions*, Sept. 27, 2005, <http://www.ctlo.com/tpc.htm> (discussing Thailand's petroleum industry and legislative history of petroleum concessions and taxes).

309. Ong, *Thailand/Malaysia*, *supra* note 301, at 64; David M. Ong, *The 1979 and 1990 Malaysia Joint Development Agreements: A Model for International Legal Cooperation in Common Offshore Petroleum Deposits?*, 14 INT'L J. MARINE & COASTAL L. 207, 227 (1999).

310. *Id.* at 66.

311. *Id.* at 64.

Bhd. and PTTEP International Limited.³¹² In both cases, the contractors formed joint operating companies to act as operator.³¹³ Those parts of the JDZ that were not agreed by MTJA as part of the “Gas Field Holding Area”—that is containing significant gas discoveries—were relinquished back to the MTJA in 2002, including the whole of C-19.³¹⁴

Petronas and the Petroleum Authority of Thailand (PTT), as buyers, and MTJA and the A-18 contractors, as sellers, concluded a gas sales and purchase agreement for Block A-18.³¹⁵ Under the agreement, Petronas and PTT would buy gas from the JDZ on a 50:50 basis and then bring their respective share of gas back for use.³¹⁶ Gas purchases from Block A-18 were expected to amount to 390 million standard cubic feet per day and commercial delivery of gas was scheduled to commence in 2002, when the offshore production facilities were completed.³¹⁷ However, work on the Thailand-Malaysia gas pipeline and processing plant project in southern Thailand was expected to be completed by early 2005, with the pipeline going online by the middle of 2005 transporting natural gas from the MTJA area.³¹⁸

*d. Tunisia-Libya, 1988*³¹⁹

Tunisia and Libya have signed three agreements in relation to the disputed border. As discussed earlier, the first one was a delimitation agreement in accordance with the ICJ judgment of 1982, while the second and third agreements related to the joint development undertaking.³²⁰ This agreed scheme appears to

312. See Malaysia-Thailand Joint Authority (MTJA), <http://www.mtja.org/main.htm> (follow “Contractors/Operators” hyperlink) (last visited Feb. 4, 2007).

313. *Id.*

314. *Id.*

315. *Id.* (follow “Development” hyperlink).

316. See *id.* (follow “Contractors/Operators” hyperlink).

317. *Id.* (follow “Development” hyperlink).

318. See *Work on Thai-Malaysian Gas Project Not Affected*, ASIAN ENERGY BUS. TIMES, May 6, 2004, http://www.aseanenergy.org/information/news_service/2004/may/48th_issue/news_14.htm.

319. Official text of the joint development agreements are not in the public domain. However, information has been gathered from published sources such as *NEW DIRECTION IN THE LAW OF THE SEA 187–90* (Robin Churchill & Myron Nordquist, eds., 1977).

320. Ong, *Joint Development*, *supra* note 27, at 786–87.

have followed the dissenting judgment of Judge Evensen.³²¹ The second agreement established a JDZ in the Gulf of Gabes area, split into two parts by the delimited continental shelf boundary.³²² It imposed measures for joint development activities, including the creation and financing, of joint-venture projects for oil exploration and exploitation.³²³ A joint Libyan-Tunisian exploration company was established in Tunisia and was given the special status of an offshore enterprise to explore the gas field in the northwestern part of the JDZ.³²⁴ The third agreement established the right of Tunisia to ten percent of the income from future production in the oilfields in the southeast part of the joint zone, that is, within the Libyan continental shelf.³²⁵

*e. Timor Gap Treaty (Australia-Indonesia), 1989*³²⁶

The origin of this JDZ is the agreements between Australia and Indonesia over much of the maritime boundary between them in 1971 and 1972, which gave significant emphasis to Australia's claim based on continental shelf principles.³²⁷ However, there remained a part of the boundary that was not settled at that time, which became known as the Timor Gap.³²⁸ As discussed earlier, this gap arose because in 1972 East Timor was still governed by Portugal and negotiations between Australia and Portugal had not been concluded.³²⁹ In 1975, East Timor was invaded by Indonesia, and Australia and Indonesia eventually negotiated a JDZ in the Timor Gap Treaty of 1989,

321. *See id.* at 787 (indicating the influence that ICJ decisions, albeit dissenting ones, have on state practice).

322. *See id.* (serving as an example of a JDZ established in conjunction with a delimited border).

323. *Id.*

324. *Id.*

325. *Id.*

326. Treaty on the Zone of Cooperation in an Area Between the Indonesian Province of East Timor and Northern Australia, Austl.-Indon., Dec. 11, 1989, 29 I.L.M. 469 [hereinafter Treaty on the Zone of Coop.]

327. *Id.* at 469. Under this approach, Australia had the advantage because there is a deep trough located close to the island of Timor.

328. *Id.* at 469.

329. *See* Willheim, *supra* note 44.

which came into force in 1991.³³⁰ The need for a JDZ stemmed from the fact that Indonesia claimed a median line basis for delimitation, whereas Australia maintained its position based on the continental shelf, reflecting the principle of natural prolongation of its territorial land, as promulgated in the *North Sea Continental Shelf Cases*.³³¹

The Timor Gap Treaty is considered to be one of the most comprehensive joint development agreements, extending to thirty-four articles and four annexes. It established a Zone of Cooperation, which comprised three distinct areas: Area A under joint control, Area B under Australian jurisdiction, and Area C under Indonesian control.³³² Area A, where there was shared jurisdiction, was managed by a Ministerial Council and a Joint Authority, with equal representation by each state and equal sharing of the resources.³³³ In Areas B and C each state retained exclusive sovereign rights subject to notifications and remittance of ten percent of Indonesian income tax, to Australia, and ten percent of Australian resource rent tax, to Indonesia.³³⁴

The definition of the boundaries of the three areas illustrates the position of the states with respect to their maritime claims and demonstrates a potential solution to other situations where a “simple” joint-sovereignty JDZ alone is not sufficient to satisfy one or both states. The boundaries of the zones approximate, from north to south:

- The bathymetric axis of the Timor Trough (being the northern limit of Area C);
- The 1500m water depth line (the boundary between Areas A and C);
- The median line (the boundary between Areas A and B);
- The southern limit of the EEZ (200 nautical miles) of East Timor (being the southern boundary of Area B).³³⁵

330. *See id.*; *supra* text accompanying note 217.

331. Willheim, *supra* note 44, at 828.

332. Treaty on the Zone of Coop., *supra* note 327, at 478–79.

333. *Id.*

334. *Id.* Taxes were collected from contractors (corporations) producing petroleum in the specified areas. *Id.*

335. *See, e.g.*, Willheim, *supra* note 44, at 828–29.

The Joint Authority had juridical personality and legal capacity under the laws of both states as required in order to exercise its powers and functions.³³⁶ It was responsible to the ministerial council.³³⁷ Petroleum operations were to be carried out through production sharing contracts entered into between the Joint Authority and the limited liability corporations.³³⁸ For Area A the annexes included a taxation code, a petroleum mining code, and a model production sharing contract.³³⁹ The Ministerial Council had the overall responsibility for exploration and exploitation in Area A and could give directions to the Joint Authority, amend the petroleum mining code, and modify the model production sharing contract.³⁴⁰

Several production sharing contracts were issued and oil and gas discoveries were made prior to the agreement being nullified by the independence of East Timor and replaced with a new treaty negotiated between Australia and East Timor.³⁴¹

*f. Guinea-Bissau-Senegal, 1993/1995*³⁴²

The Management and Cooperation Agreement of 1993 was an outline agreement that only set out the fundamental principles of the arrangement between the impacted states of Guinea-Bissau and Senegal.³⁴³ This was supplemented by the 1995 Protocol of Agreement relating to the Organization and Operation of the Agency for Management and Cooperation, which established the International Agency that was responsible for management of the zone.³⁴⁴

These agreements were concluded after a history of maritime boundary litigation before an arbitral tribunal and the

336. Treaty on the Zone of Coop., *supra* note 327, at 481.

337. *Id.*

338. *Id.* at 478.

339. *Id.* at 498, 513–36.

340. *Id.* at 480.

341. *See infra* Section III.B.iii.(h).

342. Management and Cooperation Agreement, Guinea-Bissau-Sen., Oct. 14, 1993, reprinted in *Div. Ocean Affairs & Law of the Sea Office of Legal Affairs (U.N.)*, 31 L. SEA BULL. 40–42 (1996) [hereinafter Guinea-Bissau-Senegal Agreement].

343. *Id.*

344. Ong, *Joint Development*, *supra* note 27, at 792.

ICJ.³⁴⁵ In the absence of a satisfactory settlement of the boundary of their EEZ claims, the parties decided to establish a JDZ beyond their territorial sea within a designated area around Cape Roxo.³⁴⁶ This zone served the dual purposes of exploiting both fishery, petroleum and mineral resources.³⁴⁷ The fishery resources were to be shared equally, but the petroleum and minerals were split with eighty-five percent going to Senegal and fifteen percent going to Guinea-Bissau.³⁴⁸ These proportions were subject to revisions in the event of discovery of additional resources.³⁴⁹ The agreement was without prejudice to the claims of the two states to the nondelimited areas and the agreement would be effective for an initial period of twenty years.³⁵⁰

The protocol established the Agency for Management and Cooperation of the JDZ, based in Dakar.³⁵¹ With regard to petroleum activities, the agency was required to carry out all relevant petroleum operations or make arrangements to have them carried out.³⁵² This included overall responsibility for all activities related to the exploration for and exploitation of petroleum resources, including the promotion of such activities and the marketing of petroleum resources that were produced from the area.³⁵³ The agency was also charged with monitoring the rational exploitation of these resources and environmental protection within the joint zone.³⁵⁴

The agency held exclusive mineral and oil titles and could act alone or in association with other companies or international organizations, but was subject to the guidance and instructions of the joint governmental authority consisting of the heads of the

345. Guinea-Bissau-Senegal Agreement, *supra* note 343, at 41; Colter Paulson, *Compliance with Final Judgments of the International Court of Justice Since 1987*, 98 AM. J. INT'L L. 434, 453 (2004) (discussing the history of the agreement).

346. *Id.* at 40.

347. *Id.*

348. *Id.*

349. *Id.*

350. *Id.* at 41.

351. Management and Cooperation Agreement, *supra* note 343, at 47.

352. *Id.*

353. *Id.* at 47.

354. *Id.* at 48–49.

impacted governments or their delegates.³⁵⁵ The applicable law with regards to mining and petroleum was the law of Senegal, with the law of Guinea-Bissau applying to the fishery resources.³⁵⁶

*g. Argentina-U.K. Joint Declaration, 1995*³⁵⁷

The history of this area reflects the long-standing dispute between Argentina and the United Kingdom over sovereignty of the Falkland/Malvinas Islands, which culminated in war in 1982.³⁵⁸ Subsequently, there was a series of agreements, mainly with respect to fishing, in the disputed area between the islands and Argentina. These agreements were followed on September 27, 1995, by the Joint Declaration on Cooperation over Offshore Activities in the South West Atlantic.³⁵⁹ This declaration defined a “Special Area” to the southwest of the islands within which the states agreed to cooperate in the exploration for and exploitation of hydrocarbons.³⁶⁰

As is usual in such agreements, it is without prejudice to any sovereignty or maritime delimitation claims by the states. The declaration indicates that nothing in the conduct or content must be interpreted as a change in the position of either party with regard to the sovereignty, territorial, or maritime jurisdiction over the Falkland/Malvinas Islands, South Georgia, the South Sandwich Islands, and the surrounding maritime areas.³⁶¹ However, “the two [states] agreed to cooperate in order to encourage offshore activities in the [specified area.]”³⁶² Exploration for and exploitation of petroleum was to be implemented:

355. *Id.* at 48.

356. *Id.* at 56.

357. Joint Declaration on Cooperation Over Offshore Activities in the South West Atlantic, Arg.-U.K., Sept. 27, 1995, 35 I.L.M. 301.

358. *Id.*

359. See Robin R. Churchill, *Falkland Islands: Maritime Jurisdiction and Cooperative Arrangements with Argentina*, INT'L & COMP. L.Q. 463, 463–67 (1997).

360. Joint Declaration on Cooperation Over Offshore Activities in the South West Atlantic, *supra* note 358, at 302.

361. *Id.* at 304.

362. *Id.* at 304–05.

- (i) “[B]y means of the establishment of a Joint Commission, composed of delegations from both sides;” and,
- (ii) “[B]y means of coordinated activities in up to 6 tranches, each of about 3,500 square kilometers.”³⁶³

The Joint Commission was to submit recommendations and proposed standards for the protection of the marine environment to both governments, to coordinate activities in the tranches through an established subcommittee, to promote the exploration for and exploitation of petroleum, and to submit recommendations on any related matters that may arise in the future.³⁶⁴

A subcommittee acting under the supervision of the Joint Commission was in charge of coordination of activities in the tranches.³⁶⁵ It was established to encourage activities in each tranche by means of joint ventures; seek nominations from companies; make recommendations on proposals to both governments for development projects; seek coordination of all aspects of operations such as level of fees, royalties, charges, taxes, the harmonization of timing, commercial terms and conditions, and compliance with recommended standards; and recommend additional tranches on the basis of geological data known to both sides.³⁶⁶ The expectation was that joint petroleum development would proceed on a 50:50 licensing basis between the Falklands/Malvinas Islands government and the Argentina government.³⁶⁷

The joint declaration did not specify the duration of the arrangement and did not provide for criminal jurisdiction over exploration and exploitation in the Special Area.

363. *Id.* at 305.

364. *Id.* at 305–06

365. T. W. Wälde and Andrew McHardy, Introductory Note, *Argentina-United Kingdom: Joint Declaration on Cooperation over Offshore Activities in the South West Atlantic*, 35 I.L.M. 301, 302 (1996).

366. *Id.*

367. *Id.*

*h. Timor Sea Treaty (Australia-East Timor), 2001*³⁶⁸

The validity of the Timor Gap Treaty between Australia and Indonesia had been called into question by several political events. Portugal had challenged Indonesia's authority to conclude such a treaty as, in its view, the annexation of East Timor was illegal under international law.³⁶⁹ Then in 1999, the East Timorese people voted for independence and this set a chain of events in motion for a renegotiation of the treaty.³⁷⁰

The United Nations Transitional Administration of East Timor (UNTAET) took over government functions on behalf of East Timor on October 25, 1999.³⁷¹ An MOU was agreed between UNTAET and Australia on February 10, 2000, and was to take effect on October 25, 1999. The MOU permitted the continued operation of the JDZ established between Australia and Indonesia in 1989, with UNTAET representing the position of East Timor.³⁷² The sharing basis of 50:50 of the prior Australia-Indonesia agreement³⁷³ was maintained by this temporary arrangement.³⁷⁴ However, in March 2000, negotiations were started between UNTAET (with representation from the East Timor Transitional Administration) and Australia, and this led to another MOU on July 5, 2001.³⁷⁵ The second MOU provided for a continuation of the joint development principle over the renamed JPDA, covering only Area A of the Australia-Indonesia agreement, but

368. Timor Sea Treaty, *supra* note 263.

369. Case concerning East Timor (Port. v. Austl.), 1995 I.C.J. 90, 117–19 (June 30).

370. Faisal Chaudhry, *Minding the Timor Gap*, DOLLARS & SENSE: THE MAGAZINE OF ECONOMIC JUSTICE, July/Aug. 2006, <http://www.dollarsandsense.org/archives/2006/0706chaudhry.html>.

371. See S.C. Res. 1272, U.N. Doc. S/RES/1272 (Oct. 25, 1999).

372. Memorandum of Understanding Concerning the Continued Operation of the Treaty Between Australia and the Republic of Indonesia on the Zone of Cooperation in an Area Between the Indonesian Province of East Timor and Northern Australia, Austl.-UNTAET, Feb. 10, 2000, *available at* <http://www.austlii.edu.au/au/other/dfat/treaties/2000/9.html>.

373. Timor Gap Treaty, *supra* note 217.

374. *Id.*

375. Memorandum of Understanding, Austl.-UNTAET, July 5, 2001, <http://www.austlii.edu.au/au/other/dfat/special/MOUTSA.html>.

with a significantly modified basis for sharing of benefits: ninety percent to East Timor and ten percent to Australia.³⁷⁶

On achieving full independence on May 20, 2002, East Timor (now the Democratic Republic of Timor-Leste) signed the Timor Sea Treaty with Australia, replacing the interim agreement between UNTAET and Australia.³⁷⁷ An Exchange of Notes on the same date allowed the continued operations until the treaty was ratified by both states and came into force on May 20, 2002.³⁷⁸

Administration of the JPDA is based on a three-tiered structure, with a Ministerial Council, a Joint Commission, and a Designated Authority.³⁷⁹ The Ministerial Council consists of an equal number of Ministers from each state, but East Timor has the right to appoint one more commissioner than Australia to the Joint Commission.³⁸⁰ “The Joint Commission shall establish policies and regulations relating to petroleum activities in the JPDA and shall oversee the work of the Designated Authority.”³⁸¹ After the first three years of the treaty, unless otherwise agreed, “the Designated Authority shall be the East Timor Government Ministry responsible for petroleum activities or, if so decided by the Ministry, an East Timor statutory authority.”³⁸² The Designated Authority is responsible to the Joint Commission and carries out the day-to-day regulation and management of petroleum activities.³⁸³

The treaty is explicitly based on the 1982 UNCLOS requirement for states with opposite or adjacent coasts to enter into “provisional arrangements of a practical nature,” pending

376. *Id.* at II.2(c).

377. Timor Sea Treaty, *supra* note 263.

378. Exchange of Notes Constituting an Agreement Between the Government of Australia and the Government of the Democratic Republic of Timor-Leste Concerning Arrangements for Exploration and Exploitation of Petroleum in an Area of the Timor Sea between Australia and East Timor, Austl.-E. Timor, May 20, 2002, 2002 Austl. T.S. No. 11.

379. Timor Sea Treaty, *supra* note 263.

380. *Id.*

381. *Id.*

382. *Id.*

383. *Id.*

agreement on boundary delimitation.³⁸⁴ As is usual in JDZ treaties, the agreement is without prejudice to the eventual delimitation. In this case, however, the treaty is automatically terminated if agreement is reached on the permanent seabed delimitation prior to its duration of thirty years.³⁸⁵ Notwithstanding any termination of the treaty, ongoing petroleum activities “shall continue even if the Treaty is no longer in force under conditions equivalent to those in place under the Treaty.”³⁸⁶ Negotiations on permanent maritime delimitation between the two states are ongoing, though reports indicate that little or no progress has been made due to the diametrically opposed views of the two states.

*i. Nigeria-São Tomé e Príncipe, 2001*³⁸⁷

The two states were unable to reach agreement on their maritime boundary due to their conflicting positions. In 2001, they established a JDZ in their overlapping EEZs covering seabed, subsoil, and adjacent waters.³⁸⁸ The zone extended from the median line towards São Tomé e Príncipe and provides for a 60:40 split in favor of Nigeria.³⁸⁹ As is usual for JDZ agreements, the treaty contained a “without prejudice” clause stating that nothing in the treaty shall be interpreted as a renunciation of any right or claim to the area in whole or part.³⁹⁰

As with the Timor Gap Treaty, this treaty established a Joint Ministerial Council³⁹¹ as well as a Joint Authority. The Joint Authority was governed by a board made up of four

384. UNCLOS, *supra* note 37, art. 74(3); *see* Timor Sea Treaty, *supra* note 263.

385. Timor Sea Treaty, *supra* note 263, art. 22. The duration of the Timor Sea Treaty has now been modified to align with the fifty-year duration of the CMATS Treaty. *See* CMATS Treaty, *supra* note 270.

386. *Id.*

387. Treaty on the Joint Development of Petroleum and Other Resources in Respect of Areas of the Exclusive Economic Zone of the Two States, Nig.-São Tomé & Príncipe, Feb. 21, 2001, <http://www.nigeriasaotomejda.com/PDFs/treaty.pdf> [hereinafter Nigeria-São Tomé e Príncipe Treaty].

388. *See id.* art 2.2.

389. *Id.* arts. 2.2, 3.1.

390. *See id.* art. 4.1.

391. *See id.* art. 6.1.

executive directors; two appointed by the heads of state of each state.³⁹² The Joint Authority was responsible to the Ministerial Council.³⁹³ The Joint Authority had juridical personality in international law and under the law of each of the states, and legal capacities under the law of both states as were necessary for the exercise of its powers.³⁹⁴

The Joint Authority was to prepare, for the approval of the ministerial council, a regulatory and tax regime consistent with this treaty, which became the applicable law relating to the exploration for and exploitation of petroleum in the JDZ.³⁹⁵ This was prepared in 2003.³⁹⁶ Only petroleum activities undertaken in the JDZ pursuant to a petroleum development contract between the Joint Authority and one or more contractors were valid.³⁹⁷ The 2003 licensing round with nine blocks on offer received thirty-three bids from twenty-three companies.³⁹⁸

C. General Structure of Agreements

Establishing the area to be covered by a joint development agreement is not a trivial exercise. Although such agreements are invariably without prejudice to subsequent delimitation, it is important that each state ensures that its claim is reflected in the area covered by the JDZ, to the extent that the claim is valid under international law. In some cases, it may be appropriate to establish more than one zone in the agreement, with different terms applying to each area.

Existing joint petroleum development agreements show a wide variation in structure. However, six major issues can be

392. *See id.* arts. 9.1, 10.1.

393. *See* Nigeria-São Tomé e Príncipe Treaty, *supra* note 388, art. 11.1.

394. *See id.* art. 9.2.

395. *See id.* art. 21.1.

396. NIGERIA-SÃO TOMÉ E PRÍNCIPE JOINT DEVELOPMENT AUTHORITY, PETROLEUM REGULATIONS 2003, Apr. 4, 2003, <http://www.nigeriasaotomejda.com> (follow "Petroleum Legislation" link, then "The Petroleum Regulations" link) [hereinafter PETROLEUM REGULATIONS]; NIGERIA-SÃO TOMÉ E PRÍNCIPE JOINT DEVELOPMENT AUTHORITY, TAX REGULATIONS 2003, Apr. 4, 2003, <http://www.nigeriasaotomejda.com> (follow "Petroleum Legislation" link, then "The Tax Regulations" link).

397. PETROLEUM REGULATIONS, *supra* note 397, reg. 3.1.

398. *23 Firms Bid for Nigeria-Sao Tome Oil Blocks*, DAILY TRUST (ABUJA) (Oct. 29, 2003), <http://www.sidsnet.org/archives/trade-newswire/2003/frm00387.html>.

identified as being particularly important for any such agreement. These key issues are the (i) sharing of resources, (ii) management of joint development, (iii) applicable law, (iv) operator and position of contractors, (v) financial provisions, and (vi) dispute resolution.³⁹⁹

1. *Sharing of Resources*

The sharing of resources from the JDZ is a key element to the success of the joint agreement as the perception that the basis for sharing is equitable and fundamental to the ongoing relationship between the two states. There is overwhelming support for the principle of equal sharing.⁴⁰⁰ In practice, this is the most common arrangement, though variations do exist. For example, the Senegal-Guinea-Bissau agreement of 1993 (85:15 split in favor of Senegal for petroleum resources, but 50:50 for fishing rights); the 2001 Nigeria-São Tomé e Príncipe JDZ (60:40 split in favor of Nigeria) and the 2002 Australia-Timor-Leste Timor Sea Treaty (90:10 split in favor of Timor-Leste).⁴⁰¹

2. *Management*

Since the JDZ is generally an area where jurisdiction is disputed, the management structure must provide a satisfactory basis for the protection of the rights (and obligations) of both states. This includes the management of exploration and exploitation activities within the JDZ. Three categories of management structure have been identified:

- (i) Single state model:⁴⁰² One state managing on behalf of both states.⁴⁰³ An example of this arrangement is the Bahrain-Saudi Arabia agreement of 1958. As part of the delimitation agreement, the border was

399. See FOX, *supra* note 9, at 386–416 (outlining and explaining a model for states' joint development agreements); David Lerer, *Seven Fundamental Issues Frame JDA Negotiations*, OIL & GAS J., Sept. 15, 2003, at 65, available at <http://www.ogj.com/currentissue/index.cfm?p=7&v=101&i=35> (subscription required).

400. See Lerer, *supra* note 98.

401. Guinea-Bissau-Senegal Agreement, *supra* note 343, art. 2; Nigeria-São Tomé e Príncipe Treaty, *supra* note 388, art. 3.1; Timor Sea Treaty, *supra* note 263, art. 4.

402. Lerer, *supra* note 98, at 65.

403. FOX, *supra* note 9, at 54.

positioned to avoid crossing the Fasht Abu-Sa'fah field which, as a result, became wholly within the jurisdiction of Saudi Arabia.⁴⁰⁴ However, in return, Saudi Arabia was obliged to grant to Bahrain fifty percent of the net revenues from the field;⁴⁰⁵

- (ii) Two states/joint venture model:⁴⁰⁶ Each state nominates its own concessionaire, which enters into a joint venture with the concessionaire of the other state. An example of this type of agreement is the Japan-South Korea JDZ;⁴⁰⁷
- (iii) Joint Authority model:⁴⁰⁸ Both states delegate power to a single body, which becomes responsible for the overall supervision of petroleum activities in the zone. It may be given a legal personality. This model can vary significantly with respect to the powers given to the Joint Authority: it can be strong, almost like a separate state, or a weaker, purely administrative entity. Developing international practice has favored the Joint Authority approach, including the Thailand-Malaysia agreement (1979/1990),⁴⁰⁹ the Australia-Indonesia Timor Gap Treaty (1989),⁴¹⁰ the Nigeria-São Tomé e Príncipe JDZ (2001)⁴¹¹ and the Australia-East Timor Sea Treaty (2002).⁴¹² This model may also contain more than one level of authority. For example, administration of the Timor Sea Treaty is based on a three-tier structure: a ministerial council, a Joint Commission and a designated authority.⁴¹³

404. *Id.*

405. *Id.*

406. Lerer, *supra* note 98, at 65.

407. FOX, *supra* note 9, at 57–58.

408. Lerer, *supra* note 98, at 65.

409. FOX, *supra* note 9, at 61.

410. Timor Gap Treaty, *supra* note 217.

411. Nigeria-São Tomé e Príncipe Treaty, *supra* note 388, art. 2.1.

412. Timor Sea Treaty, *supra* note 263, arts. 3, 6.

413. *Id.*; Timor Sea Office, About TSO, <http://www.timorseaoffice.gov.tp/aboutus.htm> (last visited Feb. 4, 2007).

The Timor Gap Treaty of 1989 is noteworthy in that it actually combines two of the above models. The area covered by the agreement is subdivided into three parts of which Area A is a JDZ based on the Joint Authority model.⁴¹⁴ Areas B and C, however, are consistent with the single-state model described above.⁴¹⁵ In these two areas, jurisdiction is exercised solely by one state but with an obligation to share with the other state a proportion of benefits (ten percent of petroleum taxation revenues) arising from petroleum activities in that area.⁴¹⁶

3. *Applicable Law*

Because each state will have its own legal system, including a petroleum fiscal regime that encompasses production sharing contracts, which will very likely be significantly different from each other, it is necessary to establish the legal system that will apply within the JDZ in the agreement. This should include the petroleum licensing regime, laws governing civil and criminal jurisdiction over individuals in the zone, and rules and regulations governing health, safety and environmental issues.

The petroleum licensing guidelines and other regulations may be specified in the agreement or could be left to the Joint Authority to establish. Criminal jurisdiction is generally handled by applying the criminal law of the state corresponding to the nationality of the individual if that individual is a national of either of the two states, or by other agreement between states,⁴¹⁷ but it may be applied by separating the JDZ into two parts with each state exercising criminal jurisdiction in its side of that boundary line.⁴¹⁸

4. *Operator/Position of Contractors*

The joint petroleum development agreement will either specify the basis for licensing the area of the JDZ or will

414. Timor Gap Treaty, *supra* note 217, art. 2(a).

415. *Id.* art. 2(2)(b–c).

416. *Id.*

417. *See generally* Timor Sea Treaty, *supra* note 263, art. 14 (providing an example).

418. Ong, *Thailand/Malaysia*, *supra* note 301.

designate to some body, for example the Joint Authority, the obligation to develop the rules for selecting contractors to undertake petroleum exploration and exploitation activities on behalf of the two states.

For example, the Nigeria-São Tomé e Príncipe JDZ agreement defines “contractor” as a party to a development contract other than the Joint Authority.⁴¹⁹ “Development contract” means any agreement, including leases, licenses, production sharing contracts, and concessions entered into between the Joint Authority and a contractor in relation to a development activity.⁴²⁰ It also defines “operator” as a contractor appointed and acting as operator under the terms of an operating agreement.⁴²¹ In this JDZ agreement, the functions of the Joint Authority include, for example:

- (i) [T]he division of the Zone into contract areas, and the negotiation, tendering for and issue and supervision of contracts with respect to such areas;
- (ii) [E]ntering into development contracts with contractors, subject to the approval of the [joint ministerial] [c]ouncil;
- (iii) Oversight and control of the activities of contractors[.]⁴²²

5. *Financial Provisions*

States may agree to adopt the taxation regime of the other or apply a contractor to the regime of the state that approved the contractor. Alternatively, they may delegate to the Joint Authority the obligation to formulate and negotiate the fiscal terms applying to petroleum activities. In the latter case, the Joint Authority will develop and apply its own tax regime. Where this is not the case, and the contractor has financial obligations to both states, taxation will apply at a discounted rate, such that the contractor is liable for taxes only on a

419. Nigeria-São Tomé e Príncipe Treaty, *supra* note 388 art. 1(5).

420. *Id.* art. 1(8).

421. *Id.* arts. 1(15), (16).

422. *Id.* arts. 9.6(a)–(c).

proportion of its profits to one state and the remainder to the other state.

6. *Dispute Resolution*

Each joint petroleum development agreement should provide for a dispute resolution mechanism. This will usually involve internal mechanisms that should be pursued prior to resorting to external or third party resolution. These agreements and treaties utilize a wide range of mechanisms, including consultation, negotiation, conciliation, and binding commercial arbitration.

The Nigeria-São Tomé e Príncipe JDZ agreement of 2001 illustrates a possible approach. The Treaty covers the resolution of deadlocks and settlement of disputes in Articles 47, 48, and 49.⁴²³ Article 47 refers to the “settlement of disputes between the [joint] authority and private interests.”⁴²⁴ This is subject to binding commercial arbitration under the UNCITRAL rules sitting in Lagos, Nigeria.⁴²⁵ Article 48 refers to the resolution of disputes arising in the work of the Joint Authority or Joint Ministerial Council.⁴²⁶ Where such a dispute arises (with respect to the functioning of the treaty), the first attempt to resolve it should be by the board that governs the Joint Authority.⁴²⁷ If this is unsuccessful the matter is to be referred to the Joint Ministerial Council, and if it is still unsuccessful it is referred to the heads of the states.⁴²⁸ Under Article 49, where there are unresolved disputes between states, it will be referred to an arbitral tribunal for a decision that is final and binding on the states.⁴²⁹ This tribunal is expected to sit at the Permanent Court of Arbitration in The Hague.⁴³⁰ Each state is to appoint an arbitrator and then both arbitrators appoint a third to act as

423. *Id.* arts. 47–49.

424. *Id.* art. 47.

425. Nigeria-São Tomé e Príncipe Treaty, *supra* note 388, art. 47.

426. *Id.* art. 48.

427. *Id.* art. 48.1.

428. *Id.* arts. 48.2, 48.4.

429. *Id.* art. 49.2.

430. Nigeria-São Tomé e Príncipe Treaty, *supra* note 388, art. 49.3(f).

president.⁴³¹ Where this is not possible, it falls to the president of the ICJ to appoint the third arbitrator.⁴³²

IV. SUMMARY AND CONCLUSIONS

The concept of cross-border unitization is the outcome of two principles:

- (i) [T]he principle of unitization as developed in the domestic law of the U.S. and subsequently practiced in other parts of the world; and,
- (ii) [T]he principle of cooperation between neighboring states that is emerging in international law and the provisions of international law relating to exploitation of cross-border common natural resources having physical properties analogous to those of petroleum.⁴³³

There are no binding rules or customs under international law governing unitization, but there is a trend towards an international consensus on an acceptable practice to that end. Unitization is a specialized form of cooperative development where “[a] strong degree of political consensus is a prerequisite for [its implementation].”⁴³⁴ Under international law, states are not obligated to develop a disputed zone jointly. There is a general obligation, however, to consult and negotiate, with encouragement to “enter into provisional arrangements of a practical nature”⁴³⁵ pending final delimitation. But, it remains the prerogative of each state to choose to consent to a joint development agreement.

Several international cases decided before the ICJ and persistent international practice indicate that JDZs are strongly recommended as suitable provisional arrangements to avoid inaction or the uncertainty of third party dispute resolution on boundary delimitation where petroleum resource potential is known or believed to exist.

431. *Id.* art. 49.3(a).

432. *Id.* art. 49.3(b).

433. See FOX, *supra* note 9, at 34; Onorato, *supra* note 6, at 327–28.

434. Gault, *supra* note 146, at 147.

435. *Id.* at 137 (citing UNCLOS, *supra* note 37).

The law and practice of cross-boundary petroleum development continues to evolve. Though unitization is a concept largely developed in the United States, it is typically utilized only late in the life of oil and gas fields, and sometimes only on a partial basis because of the unique regulatory history there. The international setting is not burdened by these shortcomings.

Over the last three decades, as petroleum exploration activity has moved outside of North America to states where the State holds the mineral rights, the fundamental principle of unitization has also been widely adopted in the remainder of the world, but with modifications to better reflect the local setting. Outside the United States, unitization is commonly undertaken at the time of initial field development, and may be supplemented by a redetermination of the relative interests of the parties later in the field's life. The widespread development of unitization in the international context is further evidenced by the twelve-state comparative analysis presented in this Article, which provides many examples of the application of unitization in an international setting. A rule of international customary law requiring unitization is not yet established because states are only obligated to negotiate, but not to reach a successful conclusion. Where states decide to cooperate, cross-border unitization and joint development agreements are among several possible legal outcomes.

This detailed analysis of the legal framework for unitization sets the stage for the oil and gas practitioner to successfully apply the practical advice presented in this Article on the necessary elements of a unitization agreement and on the interaction between the unitization agreement and the existing contractual structure in a typical petroleum development.

In conclusion, the evolving trend in international practice is moving toward unitization in situations where common petroleum reservoirs straddle the boundary between ownership interests of two or more parties. This trend is true regardless of whether these parties are foreign oil companies or government oil companies in one state or if the parties are two or more separate sovereign states. The practicalities, motivations, operational efficiencies, and near-term viability of unitization or

joint development will continue to drive oil companies and sovereign nations alike to the same ultimate conclusion: unitization of a common reservoir makes the most sense. In light of this growing trend, the Authors hope that this Article can be a guidepost through the challenges facing anyone negotiating a unitization or joint development agreement.