Cornell International Law Journal

Volume 7
Issue 1 *December 1973*

Article 4

The Distance Plus Joint Development Zone Formula: A Proposal for the Speedy and Practical Resolution of the East China and Yellow Seas Continental Shelf Oil Controversy

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THE "DISTANCE PLUS JOINT DEVELOPMENT ZONE" FORMULA: A PROPOSAL FOR THE SPEEDY AND PRACTICAL RESOLUTION OF THE EAST CHINA AND YELLOW SEAS CONTINENTAL SHELF OIL CONTROVERSY

The discovery in the broad continental shelf beneath the Yellow and East China Seas of one of the world's most prolific petroleum deposits[1] gave rise to an immediate scramble for oil rights among the adjoining coastal nations of Taiwan, Japan, and South Korea.[2] Although plans were eventually initiated for cooperative development by business groups from the three countries,[3] and although concession contracts for such development were concluded with some seven major Western oil firms,[4] mainland China's belated protest and strong counter-claim of sovereignty over substantial portions of the disputed shelf area[5] brought negotiations

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1. The initial discovery was the result of a geophysical survey conducted in late 1968 and 1969 by the Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP). The Committee's report stated that "a high probability [exists] that the continental shelf between Taiwan and Japan may be one of the most prolific oil reservoirs in the world . . . . A second most favorable area for oil and gas is beneath the Yellow Sea." CCOP/ECAFE, *Geological Structure and Some Water Characteristics of the East China Sea and the Yellow Sea*, 2 TECH. BULL., TECHNICAL ADVISORY GROUP REPORT 39-40 (1969); *see* CCOP/ECAFE Report of the Sixth Session of the Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas, 26 U.N. ECOSOC, U.N. Doc. E/CN.11/L.239 (1970).

2. At present, out of seventeen separately designated concession blocks, only four remain uncontested, largely by virtue of their marginal location. *See* Park, *Oil Under Troubled Waters: The Northeast Asian Sea-Bed Controversy*, 14 HARV. INT'L L.J. 212, 219 (1973) (Map).

3. As early as July, 1970, the Japan-Taiwan Cooperation Committee suggested in a communique that the two countries, together with Korea, join efforts to develop the surrounding seabed. *See* Yomiuri Shinbun, Oct. 10 & Nov. 3, 1970, in Park, *supra* note 2, at 228 nn.46 & 47 and accompanying text. At a non-governmental, inter-state meeting held in Seoul on November 11-12, 1970, a three-party liaison committee was formed and an agreement concluded to jointly found an ocean development corporation. Prompting the agreement was a desire to "suspend" jurisdictional differences so that the committee's oil groups could proceed with their plans to develop the continental shelves. The liaison committee met again in Tokyo on December 21, 1970, when a special committee for cooperative ocean development was formally organized and its operational procedures stipulated in detail. *See* Chung-yang Jihpao, Mar. 6 & Apr. 10, 1971, *quoted in* Park, *id.* at 228 n.48 and accompanying text.

4. At least four major Japanese oil companies, as well as a large number of Western oil firms (including Gulf, Texaco, Phillips, Royal Dutch Shell, Amoco, Oceanic Exploration, and Clinton), have concluded concession contracts with various coastal states. *See* Park, *supra* note 2, at 223 n.33, 224 n.37, 226.

5. *See* Peking New China News Agency International Service in English, Dec. 3, 1970; Dec. 24, 1970; Dec. 29, 1970; Dec. 31, 1970. The original Chinese may be found in Jen-min Jih-pao, Dec. 4, 1970; and in 13 PEKING REV., No. 50, at 15-16 (1970). In the

to an impasse that has persisted, with minor exceptions, to date. In addition to China's thus far intransigent position, the general uncertainty and inadequacy of international law and practice concerning continental shelf boundary delimitation, as well as the complexity of the particular geographical issues involved, have combined to prolong the dispute.

Recent studies[6] of the Northeast Asian oil dispute, while amply highlighting the respective economic interests and competing geographical claims involved, have stopped short of proposing any viable, mutually accommodating solution. Underlying these studies, moreover, is the unquestioned assumption that the rules governing rival claims to a common continental shelf must be based upon either the equidistance principle recommended by Article 6 of the 1958 Geneva Convention,[7] or "the natural prolongation of land territory" principle believed by most commentators to represent the holding of the International Court of Justice in the 1969 *North Sea Continental Shelf Cases.*[8] Application of either principle, however, would necessitate relinquishment by Japan of virtually all of her present claims,[9] and would lead to protracted stalemate over the factors to be considered (or not considered) in arriving at such claims. In short, the instant controversy presents the kind of exceptional situation which warrants, indeed requires, intensive reconsideration of international continental shelf doctrine in an effort to derive from it suitable alternatives for effecting a much-needed speedy and practical settlement. It will be the purpose of this Note to undertake such reconsideration.

Accordingly, Part I will examine the pertinent provisions of the Convention on the Continental Shelf and demonstrate their inability to provide a satisfactory solution to the instant controversy. Part II will show that the *North Seas Cases,* contrary to prevailing opinion, contain an interpretation of customary international law which expressly sanctions agreement between disputant States based upon "equitable principles"

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wake of the Chinese statement, the tri-state meeting scheduled for Tokyo on December 21, 1970, lost much of its impetus and resulted in little save a new Chinese protest on December 30. *See* Peking New China News Agency International Service in English, Dec. 31, 1970; for original Chinese text of release, see Jen-min Jih-pao, Dec. 31, 1970; 14 PEKING REV., No. 1, at 12 (1971).

6. To date, there have been only two published studies of the Northeast Asian oil controversy: Park, *supra* note 2; Allen & Mitchell, *The Legal Status of the Continental Shelf of the East China Sea,* 51 OREG. L. REV. 789 (1972).

7. Convention on the Continental Shelf, *done,* April 29, 1958, [1964] 1 U.S.T. 471, T.I.A.S. No. 5578, 499 U.N.T.S. 311 [hereinafter referred to as the Convention].

8. [1969] I.C.J. 3. *See* note 14 *infra.*

9. *See* note 16 *infra* and accompanying text.

wherever "special circumstances" may so justify. Part III contains a proposal for just such an agreement, drawn from principles announced in the *North Sea Cases* and tailored to meet the special problems presented by the Northeast Asian oil dispute.

I

THE INTERNATIONAL LAW OF CONTINENTAL SHELF BOUNDARY DELIMITATION

A. The Geneva Convention and the "Equidistance Principle"

While articulation of jurisdictional claims over continental shelf resources began with the Truman Proclamation,[10] no definitive statement of international law on the subject emerged until representatives of eighty-six nations met in Geneva at the 1958 United Nations Conference on the Law of the Sea and adopted the Convention on the Continental Shelf.[11] Article 1 of the Convention defines the shelf to refer:

> (a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas . . . .

In addition, Articles 2 and 3 vest the coastal state with exclusive sovereignty over its continental shelf, but do not affect the legal status of the waters above the shelf. Of particular pertinence to the instant dispute is Article 6 of the Convention, which provides as follows:

> 1. Where the same continental shelf is adjacent to the territories of two or more States whose coasts are opposite each other, the boundary of the continental shelf appertaining to such States shall be determined by agreement between them. 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.

Translated into Conventional terms, the Northeast Asian seabed con-

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10. Proc. No. 2667, 3 C.F.R. 67, 68 (Comp. 1943-1948). The proclamation was accompanied by Exec. Order No. 9633, 3 C.F.R. 437 (Comp. 1943-1948), which vested administrative responsibility for the continental shelf in the Secretary of the Interior.

11. Convention on the Continental Shelf, *supra* note 7. Three related conventions were also concluded on the same date: Convention on the High Seas, *done*, April 29, 1958, [1962] 2 U.S.T. 2312, T.I.A.S. No. 5200, 450 U.N.T.S. 82; Convention on the Territorial Sea and the Contiguous Zone, *done*, April 29, 1958, [1964] 2 U.S.T. 1606, T.I.A.S. No. 5639, 516 U.N.T.S. 205; Convention on Fishing and Conservation of the Living Resources of the High Seas, *done*, April 29, 1958 [1966], 1 U.S.T. 138, T.I.A.S. No. 5969, 559 U.N.T.S. 285. A useful summary of the substance of these conventions is found in Freeman, *Law of the Continental Shelf and Ocean Resources—An Overview*, 3 Cornell Int'l L.J. 105, 113 n.31 (1970).

troversy is essentially one to determine the legal status of certain offshore islands and troughs for the purpose of computing baselines from which to measure the territorial sea and hence the continental shelf of each of the respective states. Application of this four-stage (i.e., from islands and troughs to baselines to territorial sea to continental shelf) median-line approach to the Northeast Asian situation, however, presents at least two major difficulties: problems of "adjacency" and the problem of determining which islands are to be used in the construction of baselines.

B. The "Adjacency" Problem

The concept of "adjacency," as used in Article 6 of the Convention, is apparently derived from the stereotype of a shelf that gradually falls away from the coast to the abyssal ocean floor.[12] This stereotype bears little relationship to the extended shelf of the East China Sea which, surrounded by claimant states, nowhere descends below the 200-meter isobath except at the Okinawa Trough.[13] Closely allied to this concept, moreover, is the principle, generally assumed to represent the Court's holding in the *North Sea Cases,* that the extent of a nation's exclusive sovereignty over the continental shelf is to be regarded as coterminous with the extent to which the shelf area constitutes the "natural prolongation of land territory."[14] Significantly, it is this latter principle which China, Taiwan, and, in part, Korea have sought to apply over the strict median-line approach vigorously espoused by Japan.[15]

Under the "natural prolongation" principle, China would be entitled to claim substantial portions of the vast continental shelf ranging 150 to 360 nautical miles eastward from its coast. In contrast, a major obstacle to Japan's claims is the Okinawa Trough which lies east of the shelf area and shoals northeastward from Taiwan, almost the entire length of Japan. Reaching a depth of 1,270 fathoms, the Trough effectively terminates any

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12. *See* Goldie, *A Lexicographical Controversy—The Word "adjacent" in Article 1 of the Continental Shelf Convention,* 66 Am. J. Int'l L. 829 (1972).

13. *See* U.S. Naval Oceanographic Office, Taiwan to Sea of Japan, Chart No. H.O. 5597 (3d ed. 1970).

14. *See* Park, *supra* note 2, at 236. *See generally* Friedmann, *The North Sea Continental Shelf Cases—A Critique,* 64 Am. J. Int'l L. 229 (1970); Ely, *Seabed Boundaries: The Effect to be Given Islets as "Special Circumstances,"* 6 Int'l Law. 219 (1972); Grisel, *The Lateral Boundaries of the Continental Shelf and the Judgment of the International Court of Justice in the North Sea Continental Shelf Cases,* 64 Am. J. Int'l. L. 562 (1970); Nordquist, *The Legal Status of Articles 1-3 of the Continental Shelf Convention According to the North Sea Cases,* 1 Calif. W. Int'l L.J. 60 (1970); and Jennings, *The Limits of Continental Shelf Jurisdiction: Some Possible Implications of the North Sea Cases Judgment,* 18 Int'l & Comp. L.Q. 819 (1969).

15. *See* Park, *supra* note 2, at 246.

natural prolongation of either the Japanese or the Ryuku Islands coastlines to areas beyond it.[16] Even under the median-line principle, however, literal application of the "adjacency" concept would limit Japanese claims to the narrow strip of seabed circumscribed by the Trough. In short, a major disability of the Conventional approach is that, by strict adherence to either the median-line or the "natural prolongation" principle, Japan would be left with only the most negligible portion of its present claims. This would indeed be unacceptable to the economic and technological giant of Asia.

C. The Islands Problem

The second difficulty presented by application of either the equidistance principle *or* the "natural prolongation" principle concerns determination of which islands may be used in constructing baselines for the measurement of continental shelf boundaries. Under Conventional methods, if a state is permitted to advance its baseline to fringe or other islands, its jurisdiction over the shelf will likewise be extended.[17] Of singular importance, then, is the legal status of the coastal fringe islands off China and Japan, as well as South Korea's Dheju Do, Japan's Danjo Gunto, Gotto Retto, and Tori Shima island groups, and the disputed Senkaku (or Tiao-y-T'ai) Islands. Ownership, for example, of the last-named islands, which lie approximately ninety-five miles northeast of Taiwan and lack "stepping-stone" islands linking them with the large land masses, would —if used as basepoints—give the owner-state vast new areas of continental shelf founded on an insignificant geologic protrusion of the ocean floor.[18]

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16. *See* CCOP/ECAFE, *supra* note 1, at 35-36: The Okinawa Trough, for example, is much deeper and wider than its Norwegian counterpart. It does not follow the Japanese coast closely, but leaves a fairly wide belt of continental shelf along the irregular coast of Kyushu. The Okinawa Trough, moreover, is not simply a narrow channel, but is highly irregular, banked on the seaward side with a chain of volcanic elevations which constitute a bumpy ridge, cut across by grooves far exceeding 200 meters in depth at many points, and fronted, immediately beyond, by one of the world's deepest oceanic trenches. Park, *supra* note 2, at 246.

17. Convention on the Continental Shelf, *supra* note 7, art. 6.

18. The Japanese position is discussed in Okuhara, *The Territorial Sovereignty over the Senkaku Island, and Problems on the Surrounding Continental Shelf*, 15 Jap. Ann. Int'l L. 97 (1971); *see also* Statement of the Japanese Foreign Ministry, March 8, 1972, in J. Cohen & H. Chiu, People's China and International Law: A Documentary Study IV (1973) (Eng. transl.); Ming-Pao, No. 77, at 2-12 (May 1972); 15 Peking Rev., No. 19, at 18-22 (1972) (dissenting opinions in Chinese and English). An English translation of the Chinese position is presented in 13 Peking Rev., No. 50, at 15-16 (1970); 14 Peking Rev., No. 1, at 22 (1971); *id.* No. 2, at 15-16 (1971); *id.* No. 19, at 14 (1971); 15 Peking Rev., No. 1, at 12-14 (1972); *id.* No. 10, at 14-16 (1972); *id.* No. 13, at 17-18 (1972). For English translations of the Taiwan argument, see Ming-Pao, No. 75, at 2-16 (Mar. 1972); *id.* No. 78, at 53-64 (June 1972). An excellent discussion of the Tiao-y-T'ai dispute in the context of international law on the acquisition of territory is found in Note, 52 B.U. L. Rev. 763 (1972).

While such criteria as adherence to the general direction of the coast, sufficient connection with the neighboring land domain,[19] and long-standing economic interests have been asserted on various occasions to be determinative,[20] such criteria unfortunately require subjective judgments not readily agreed upon by adverse parties. A baseline connecting the islands off the coast of China, for example, should follow the general direction of China's north-south coastline. Such a baseline would encompass an area of long-standing economic interest to the Chinese. Yet, it is difficult to accept the conclusion that a baseline extending to an island such as T'ung Tao, sixty-nine miles off the main Chinese coast, follows the "general direction" of the coastline.

In sum, under Conventional approaches to shelf boundary delimitation as currently understood and applied, neither the problem of protracted stalemate over determination of island basepoints nor the problem of the untenable relinquishment of Japanese claims due to adjacent troughs appears readily susceptible of speedy and practical resolution. If the growing energy crisis, the environmental hazards of unrestricted and competitive exploitation, and the risk of international confrontation are effectively to be averted, alternative approaches must quickly and appropriately be derived from international law. Contrary to prevailing interpretations, the *North Sea Cases,* it is submitted, provide just such an alternative.

II

THE NORTH SEA CASES AND THE "EQUITABLE PRINCIPLES" DOCTRINE

A. The Issues

At issue before the Court in the 1969 *North Sea Cases*[21] was Germany's dissatisfaction, given the concave shape of its North Sea coastline, with

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19. *See* Convention on the Territorial Sea and the Contiguous Zone, *supra* note 11, art. 5.

20. *See* 1 A. Shalowitz, Shore and Sea Boundaries 215 (1962); *Anglo-Norwegian Fisheries Case* (United Kingdom v. Norway), [1951] I.C.J. 116 [requiring baselines to be moderate and drawn in a reasonable manner]. One writer indicates that the Chinese have relied upon both the *Fisheries Case* and the Territorial Sea Convention to justify their own declaration: Cheng, *Communist China and the Law of the Sea,* 63 Am. J. Int'l L. 47, 58 (1969), in Law In Chinese Foreign Policy: Communist China and Selected Problems of International Law 79, 85 (S. Leung & H. Chiu eds. 1972).

21. [1969] I.C.J. 3. Although separate cases were instituted between (1) Denmark and

rigid application of the median-line principle in determining its continental shelf lateral boundaries vis-à-vis Denmark and the Netherlands. Against the Danish and Dutch assertion that, absent agreement or the existence of "special circumstances," delimitation among opposite and adjacent states is to be effected in accordance with the equidistance formula expressed in Article 6 of the Geneva Convention,[22] Germany contended that, on the contrary, delimitation should be governed by the principle that each coastal state is entitled to a just and equitable share. Since application of the equidistance method would not result in a just and equitable apportionment under the circumstances, it argued, delimitation should be settled by alternative means, based on a consideration of all relevant factors.[23]

The Court, by eleven votes to six, found that use of the equidistance method of delimitation was not obligatory in light of the "special circumstances" involved, since its application would produce inequity by magnifying the irregularity of the coastline; one must abate the effects of an incidental special feature from which an unjustifiable difference of treatment could result.[24] In lieu of equidistance, the Court asserted, delimitation should "be effected by agreement in accordance with equitable principles, and taking account of all the relevant circumstances, in such a way as to leave as much as possible to each Party."[25] Factors to be considered in arriving at such an agreement should, according to the Court, include (1) "the general configuration of [respective] coasts"; (2) "the presence of special or unusual features"; (3) "the physical and geological structure, and natural resources, of the [shelf] areas"; and (4) "the element of a reasonable degree of proportionality, which a delimitation carried out

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Germany, and (2) The Netherlands and Germany, the proceedings in the two cases were joined and it is unnecessary to distinguish between them. For critical discussion of the case, see note 14 *supra*.

22. Common Rejoinder of Denmark and the Netherlands, 1 North Sea Continental Shelf Cases, I.C.J. Pleadings 453, 474-503 (1968).

23. Memorial of the Federal Republic of Germany, 1 North Sea Continental Shelf Cases, I.C.J. Pleadings 13, 30-36 (1968).

> Any geographical factor which diverts the course of the equidistance boundary between the two States is such a manner as to cause the allocation of considerable areas of the continental shelf to one State . . . which is necessarily classified as a natural continuation of the territory of a second State, then such a factor must be regarded as a special circumstance within the meaning of Article 6, paragraph 2 of the Convention.

Argument of Professor Jaenicke, 2 North Sea Continental Shelf Cases, I.C.J. Pleadings 7, 50 (1968). *See also* Memorial of the Federal Republic of Germany, *supra*, at 68-69.

24. North Sea Continental Shelf Cases, [1969] I.C.J. 3, 49-50, paras. 89-91.

25. *Id.* at 53-54, paras. 100-01.

in accordance with equitable principles ought to bring about between the extent of the continental shelf areas appertaining to the coastal State and the length of its coast."[26]

B. The "Natural Prolongation" Principle

Although the Opinion in the *North Sea Cases* should ideally have proven, in the words of Judge Padilla Nervo, to be "a guide in other similar controversies,"[27] this has not been the case. Instead, the decision's potential precedential value has been impeded by continuing legal debate over its precise meaning. Primarily responsible for this debate has been the prevailing misconception that the case holds shelf delimitation to be necessarily based upon the principle of the "natural prolongation of land territory."[28] Under this principle, presumably, the coastal state has exclusive dominion over so much of the continental shelf as may be regarded an extension of its land-mass and thus naturally appurtenant to it.[29] At least two important factors, however, demonstrate that this principle was *not* the ultimate holding in the *North Sea Cases.*

First, when read in the context of the complete opinion, it becomes manifest that the passages which contain the "natural prolongation" principle consistently deal not with the North Sea controversy but with the Court's elucidation of the theoretical understructure of continental shelf doctrine in general.[30] Thus, the Court describes as "the most fundamental of all the rules relating to the Continental Shelf," the rule that:

> the rights of the coastal State in respect of the area of Continental Shelf that constitutes a natural prolongation of its land territory into and under the sea exist *ipso facto* and *ab initio*, by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the sea-bed and exploiting its natural resources.[31]

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26. *Id.* While the Court also held the Article 6 equidistance method purely Conventional and hence not binding upon nonsignatory states such as Germany, the Court's emphasis was clearly upon the *reasons* for the method's failure to achieve the status of customary law. In other words, the determinative factor, according to the Court, is not Germany's non-ratification of the Convention, since Articles 1 to 3 are considered binding in any event, but the inequitable result which would be produced by application of the equidistance method.

27. *Id.* at 99 (separate opinion of Padilla Nervo, J.).

28. *See, e.g.*, Park, *supra* note 2, at 236, and Allen & Mitchell, *supra* note 6; For examples of the debate, see note 14 *supra.*

29. *See, e.g.*, North Sea Continental Shelf Cases, [1969] I.C.J. 3, 31, para. 43; *see also* Jennings, *supra* note 14, at 824-25.

30. North Sea Continental Shelf Cases, [1969] I.C.J. 3, 31, para. 43. For supporting material see *id.* at 22, para. 19; *id.* at 51, paras. 95-96.

31. *Id.* at 22, para. 19.

Later in the opinion, the Truman Proclamation is cited as having been the first to enunciate the doctrine that the coastal state has "an original, natural, and exclusive (in short a vested) right to the Continental Shelf off its shores."[32] Such passages bear little relevance to the precise issue before the Court, but are merely preliminary steps in the Court's deductive process, establishing such fundamental notions as that of the coastal state's intrinsic right to sovereignty over the shelf *per se*. At no point in the opinion is it even hinted that the "natural prolongation" principle supplies a means or method for determining what portion of, or even whether, the particular continental shelf at issue may be subject to a particular coastal state's jurisdiction.

Second, the problem before the Court was not the natural prolongation or outer shelf limit of any one country, but the lateral delimitation of shelf areas adjacent to several countries. The Court ultimately decided only a narrow issue of delimitation of common shelf areas; natural prolongation was not necessary to reach its decision. How this decision was reached, and upon what principles, however, bears utmost relevance to resolution of the Northeast Asian controversy.

C. The Holding: Agreement, Equity, and Joint Jurisdiction

As noted earlier, the Court held that where "special circumstances" necessitate (as where the equidistance method would produce an unfair result) disputant states must settle their differences by mutual agreement "in accordance with equitable principles" which, in light of all the relevant factors, will apportion a just and equitable share among each of the parties.[33] Thus, as the Court elaborates in tracing this doctrine to its origins:

> With regard to the delimitation of lateral boundaries between the Continental Shelves of adjacent States . . . the Truman Proclamation stated that such boundaries "shall be determined by the United States and the State concerned in accordance with equitable principles." These two concepts, of delimitation by mutual agreement and delimitation in accordance with equitable principles, have underlain all subsequent history of the subject.[34]

To the two determinative concepts of "mutual agreement" and "equitable principles" must be added one further element of the *North Sea Cases* doctrine, namely, the concept of "joint jurisdiction, user, or exploitation"

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32. *Id.* at 33, para. 47.
33. *Id.* at 53-54, para. 101.
34. *Id.* at 33, para. 47.

for overlapping zones. Mindful that application of equitable principles in accordance with such "special circumstances" as coastal configuration, geophysical structures, and proportionality might lead to overlapping areas, the Court provided that such areas must "be divided between [the parties] . . . in agreed proportions or, failing agreement, equally, unless they decide on a regime of joint jurisdiction, user or exploitation for the zones of overlap or any part of them."[35]

In sum, from the *North Sea Cases* may be derived the sanction of international customary law for just such an alternative solution to the Northeast Asian shelf controversy, as the one which follows, combining the principles of multilateral agreement, equity, and joint development.

III

THE DISTANCE PLUS JOINT DEVELOPMENT ZONE FORMULA: A PROPOSED SOLUTION

A. The Distance Formula

Since the determination of basepoints and baselines, and the location of the 200-meter isobath, within which limits the continental shelf is to be constructed, have proven egregiously inadequate[36] and have remained a long-standing source of contention among the four parties to the instant dispute, it is urged that both baselines and isobath be abandoned as methods of delimitation, and that the continental shelf be defined in terms of simple and uniform distance from shore. The following reasons may be cited in support of this proposal.

First, economic and technological dependence on the coastal state in

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35. *Id.* at 53, para. 101(c)(2).

36. The most comprehensive critique of the 200-meter isobath and other definitional aspects of the Convention is in E. Brown, The Legal Regime of Hydrospace 3 *passim* (1971). *See also* Henkin, *International Law and "the Interests": the Law of the Seabed*, 63 Am. J. Int'l L. 504 (1970); Finlay, *The Outer Limits of the Continental Shelf: A Rejoinder to Professor Louis Henkin*, 64 Am. J. Int'l L. 42 (1970); Henkin, *The Outer Limit to the Continental Shelf: A Reply to Mr. Finlay*, 64 Am. J. Int'l L. 62 (1970).

While replacement of the baseline and isobath method of shelf delimitation by a simple and uniform distance from shore, it is argued, would promote a speedier and more equitable resolution of the instant controversy, this is not to suggest that adoption of the distance method will generate automatic accord. Coastal irregularities, among other factors, will still require negotiation and agreement. At least two features of the distance formula, however, recommend it as a more suitable and expedient alternative. First, complex negotiations over a multitude of subordinate issues, such as the ownership and legal status of individual islands, would be replaced by negotiation over the single issue of a uniform distance. Second, whatever apparent inequalities might result from application of the distance method could be readily compensated for in subsequent negotiations over the proportionate allocation of the proceeds from joint development.

exploitation of the shelf area now relates more to distance from its shore than to depth of waters.[37] Second, the reluctance of a state to have foreign installations near its coasts is also a function of distance from shore, not of depth.[38] Third, a distance criterion would serve to treat coastal nations equally regardless of geological idiosyncrasy—a principal purpose of the Convention's exploitability clause.[39] Fourth, it would eliminate the major problem of troughs and trenches generated by the present "adjacency" requirement. Fifth, the distance formula would also be generally easier to measure than depth in seas and oceans which are still very inadequately charted. Finally, it would eliminate the problem of determining which islands are to be used as basepoints. Since the distance formula in itself would not solve the concomitant problem of settling disputes over island ownership, an alternative scheme would have to be established under which questions of ownership could be temporarily deferred without interfering with the more urgent problems of providing access to the surrounding seabeds. At least one such scheme—the enclave approach[40]—has been successfully applied in recent years.

Under the enclave arrangement, effectively utilized by Saudi Arabia and Iran in their treatment of certain disputed islands in the Persian Gulf,[41] each island is recognized as an enclave of sovereignty on the shelf.

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37. Modern drilling techniques and capacities have significantly advanced in the past decade.

> Submersibles have been used in underwater oilfield operations, and offer a potential to perform at virtually unlimited depths. It is estimated that technological capabilities for production [drilling] will be achieved within five years to the same depths of 1,300 or 1,500 feet already within the capabilities of exploration drilling. Even before the middle of this decade it is expected that the *Glomar Challenger* will be able to obtain a seabed core 5,000 feet long in 30,000 of water. . . .
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> . . . Technology will have reached the point at which the water depth is no longer the determining factor. Factors of economic and political feasibility will then play the decisive role in formulating policy for offshore exploration and exploitation.

G. DUOMANI, EXPLOITING THE RESOURCES OF THE SEABED 39-40 (1971) (prepared for House Comm. on For. Aff., 92d Cong., 1st Sess.).

38. For example, the United States Department of Defense, conscious of the importance of continuing naval mobility, has fervently advocated a clear, precise and *narrow* jurisdictional limit in the seabed. *See* Gerstle, *The U.N. and the Law of the Sea: Prospects for the United States Seabeds Treaty*, 8 SAN DIEGO L. REV. 573, 581-82 (1971); *Hearings Before the Subcommittee on the Outer Continental Shelf of the Senate Committee on Interior and Insular Affairs*, 91st Cong., 1st & 2d Sess., pt. 2, at 403 (remarks of Senator C. Pell).

39. *See* E. Brown, *supra* note 36, at 7-40 ff. Goldie, *The Contents of Davy Jones's Locker—A Proposed Regime for the Seabed and Subsoil*, 22 RUTG. L. REV. 1 (1967).

40. *See* Padura, *Submarine Boundaries*, 9 INT'L & COMP. L.Q. 628, 649-50 (1960); Memorial of the Federal Republic of Germany, 1 North Sea Continental Shelf Cases, I.C.J. Pleadings 13, 70-71, para. 71.

41. 8 INT'L LEGAL MAT'LS 493-96 (1969). *See* Young, *Equitable Solutions for Offshore Boundaries: The 1968 Saudi Arabia-Iran Agreement*, 64 AM. J. INT'L L. 152 (1970).

This approach is acceptable because it avoids exaggerating the continental shelf claim of any one state while preserving the territorial sovereignty of each island's surrounding sea. It is significant that the enclave approach has already been impliedly adopted by Taiwan in the reservation to Article 6 accompanying its 1971 ratification of the Convention on the Continental Shelf.[42]

B. Objections and Counterproposals

An alternative scheme for the treatment of islands possibly meeting the needs of the instant dispute was initially suggested by a British delegate to the first United Nations Conference on the Law of the Sea.[43] Under this scheme, which modifies earlier proposals by Italy and Iran,[44] islands would be treated on their particular merits, so that very small islands or sand banks on a continuous continental shelf and outside the belts of territorial sea would not be included as legitimate base points for boundary measurement.[45] Further support for such an approach can be found in at least five of the more than twenty bilateral shelf treaties executed to date.[46] In these treaties, islands are treated primarily on the basis of their

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42. Taiwan's ratification provides:

> (2) that in determining the boundary of the continental shelf of the Republic of China, exposed rocks and islets shall not be taken into account.

In 10 Int'l Legal Mat'ls 452 (1971). Of the four states involved in the instant dispute only Taiwan has ratified the Convention on the Continental Shelf. *See also E. Brown, supra* note 36, App. I, at 212-14.

43. The scheme was proposed by Commander R. H. Kennedy and was distributed to the Geneva Conference in memorandum form. His remarks appear in 6 U.N. Conf. on the Law of the Sea, U.N. Doc. A/Conf. 13/42, at 93 (Official Records 1958). Relevant portions are reprinted in Ely, *supra* note 14, at 225-26.

44. *See* 6 U.N. Conf. on the Law of the Sea, U.N. Doc. A/Conf. 13/C.4/L.25/Rev. 1 (Official Records 1958); 6 U.N. Conf. on the Law of the Sea, U.N. Doc. A/Conf. 13/C.4/L.60 (Official Records 1958).

45. Remarks of Commander Kennedy, *supra* note 43. For the spectrum of differing opinions on the treatment of islands, see, *e.g.*, Oda, *Boundary of the Continental Shelf*, 12 Jap. Ann. Int'l L. 264 (1968); Oda, *Proposals for Revising the Convention on the Continental Shelf*, 7 Colum. J. Transnat'l L. 31 (1968); Comm'n on Marine Science, Engineering and Resources, 3 Marine Resources & Legal-Pol. Arrangements 34 (Panel Report 1969); Commission to Study the Organization of Peace, The United Nations and the Bed of the Sea 18 (2d Rep't 1970).

46. Agreement Dividing the Continental Shelf in the Persian Gulf Between Bahrain and Saudi Arabia, Feb. 26, 1958, in S. Oda, The International Law of Ocean Development 420 (1972); Agreement Concerning the Sovereignty over the Islands of Farsi and Al-Arabiyah and the Delimitation of the Boundary Seperating the Submarine Areas Between Iran and Saudi Arabia, Oct. 24, 1968, in S. Oda, *supra*, at 415; Agreement for Settlement of the Offshore Boundary and Ownership of Islands Between Abu Dhabi and Qatar, Mar. 20, 1969 in S. Oda, *supra*, at 417; Agreement Between Italy and Yugoslavia, Jan. 21, 1970, Office of the Geographer, U.S. Dep't of State, International Boundary Study (Ser. A, No. 9, 1970), cited in Park, *supra* note 2, at 242 n.80; Agreement Between Iran and Qatar, May 10, 1970, Office of the Geographer, U.S. Dep't of State, International Boundary Study (Ser. A, No. 25, 1970), cited in Park, *supra* note 2, at 242 n.81.

size and location, so that small islands (especially those situated near coastlines) are disregarded entirely as basepoints for measurement.

While the foregoing arrangement offers the advantage of treating islands according to their individual merits, speed and expedience would seem to favor adoption of the enclave approach which avoids, on the one hand, total disregard of an island's sovereignty, and on the other, the extended delay which negotiations on particular equities would inevitably produce.

Another alternative would be to apply a modification of the Convention's median-line approach. Troughs would be disregarded[47] and baselines would be constructed first, so as to include all disputed islands as basepoints, and second, so as to exclude each such basepoint. A median-line would be computed from each baseline and the area between the two median-lines, representing the minimum area of disagreement, would be a cooperative zone of joint jurisdiction. While a seemingly feasible approach, offering greater conformity to Article 6 of the Convention than would be possible under the distance formula, several objections to such a scheme may be raised.

First, the "median-line-bulge" approach would create "pockets" of joint user instead of the large, central expanse of shared seabed area which would result from application of the distance formula. While the "pocket" result would preserve perhaps larger segments of exclusive state sovereignty, it would likewise interrupt the exercise of such sovereignty at irregular and probably impractical intervals, generating the prospect of continuing conflict over precise boundary lines. The large central shared area result would offer, in contrast, the virtues of simplicity, practicality, and speed.

A second important objection to the "median-line-bulge" scheme concerns the character of the resource itself. Two petroleum characteristics

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47. Negotiations between Britain and Norway, and between Denmark and Norway, for example, produced agreements to disregard the Norwegian Trough. Agreement Between Great Britain and Norway Relating to the Delimitation of the Continental Shelf, Mar. 10, 1965, 551 U.N.T.S. 213; Agreement between Denmark and Norway Relating to the Delimitation of the Continental Shelf, Dec. 8, 1965, 634 U.N.T.S. 71. In addition, limited support for disregarding troughs is found in the United States Draft of U.N. Convention on International Seabed Area of August 3, 1970, in 9 INT'L LEGAL MAT'LS 1046, which provides in part:

> Where a trench or trough deeper than 200 meters transects an area less than 200 meters in depth, a straight boundary line . . . not exceeding the lesser of one fourth of the length of that part of that trough transecting the area 200 meters in depth or 120 nautical miles, may be drawn across the trench or trough.

Id. art. 1, para. 3.

in particular argue strongly against designation of isolated "pockets" of joint jurisdiction: (1) the relative impossibility of dividing or apportioning such fluid resources; and (2) their complete accessibility from virtually any point along a given deposit's perimeter. In light of these characteristics, difficult questions would arise under the "median-line-bulge" approach, for example, how to determine ownership of oil which underlies both "pockets" of joint jurisdiction and neighboring exclusively-controlled areas (and hence equally accessible from either location)?

In addition to the two counter-proposals discussed above, at least two objections to the distance formula warrant brief attention. First, the argument might be made that the distance rule would engender inequality, granting to some states rights beyond their continental shelf and to others rights only to a portion. While the judgment in the *North Sea Cases* has already responded to this argument, declaring the principle of equitable apportionment to be the supervening rule of customary international law,[48] a further point may be added. Whatever the original merits of extending coastal state jurisdiction to the outer limit of an adjacent continental shelf, the exploitability clause in Article I of the Geneva Convention has functioned to eliminate the efficacy of any such geologically-defined limit.[49] Under the exploitability clause, in its most extreme interpretation, the seaward reach of a coastal state's jurisdiction is determined solely by that state's technological capability of exploiting the seabed and subsoil.[50] Therefore, the Convention has exchanged inherent geographical inequality for a more invidious system of inequalities founded upon comparative technological sophistication. The distance formula, in contrast, would ameliorate both forms of inequality in favor of uniform and equal jurisdictional limits.

The second objection to the distance formula is perhaps more fundamental. In contrast to the Convention's approach, ownership of large areas of the seabed would remain undetermined. Furthermore, it is a reasonable assumption that the willingness of nations to relinquish the prospect of extensive seabed sovereignty will depend in large part upon what they are offered in return. Therefore, in place of a prolonged oil war fought on uncertain and ambiguous legal and political turf, and at potentially great economic, ecological, political, and territorial expense,

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48. *See* notes 24-26 *supra* and accompanying text.
49. *See generally* note 36 *supra*.
50. For a discussion of the current and potential state of technology in petroleum exploitation, see G. DUOMANI, *supra* note 37.

the prospect is offered of immediate, practical and peaceful resolution through *regional joint development* of undersea petroleum.

C. The Joint Development Formula

That joint or cooperative development is a feasible and proven method of reconciling national differences in the pursuit of common objectives is suggested by the extensive literature[51] applying the concept to such diverse offshore enterprises as fishing, deep sea mining, conservation and pollution control, sea-borne transportation and communications, and the utilization of non-navigational water resources. While many such projects have been conducted under United Nations auspices,[52] precedents likewise exist in such areas for bilateral and multilateral undertakings,[53] as well as for cooperative programs entirely non-governmental in character.[54] With respect to the problem of ownership, recent proposals have included the vesting of title and supervisory jurisdiction in some international agency or commission, as well as the establishment of a trustee-

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51. *See, e.g.*, Comm'n on Marine Science, Engineering and Resources, Our Nation and the Sea (1969); Brown, *Our Nation and the Sea: A Comment on the Proposed Legal-Political Framework for the Development of Submarine Mineral Resources*, in IV Sea Institute Proceedings (Alexander ed. 1970); Gordon, *The Economic Theory of Common Property Resource: The Fishery*, 62 J. Pol. Econ. 124 (1954); Pardo, *Who Will Control the Seabed?*, 47 For. Aff. 123 (1968); Pardo, *Whose is the Bed of the Sea?*, 62 Proc. Am. Soc'y Int'l L. 216 (1968) (discussing proposal for joint international ocean resources development made to United Nations General Assembly by A. Pardo, delegate from Malta). *See also*, G. Duomani, *supra* note 37, at 51-57; and E. Brown, *supra* note 36, at 114 n.88.

52. See both the analysis of the 1969 Amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, as reported in 9 Int'l Legal Mat'ls 1 (1970), and the discussion of the "Torrey Canyon" incident in E. Brown, *supra* note 36, at 130-62. *Id.* at 158-62. Brown discusses the 1969 Agreement for Co-operation in Dealing with Pollution of the North Sea by Oil (The Bonn Agreement) [1969] U.K.T.S. No. 78 (Cmnd. 4205), in Int'l Legal Mat'ls 359 (1970) and offers a particularly useful resource for the mechanics of regional cooperation as a solution to significant oil spillages.

53. *See* notes 62, 63, 68, 72-78 *infra* and accompanying text.

54. The 1965 Agreement Between the Japan-China Fisheries Association and the Chinese Fisheries Association on Fishing Operations in the Yellow Sea and the East China Sea, in 3613 Survey of Mainland China Press 27-29 (Eng. transl. 1966)—negotiated, concluded, and supervised by representatives of "non-governmental" fishery associations from the two countries—is an outstanding example of such arrangement. The 1965 Agreement provided for, among other things, salvage of fishing boats at sea, conservation of fishing resources, demarcation of fishing zones on the high seas, exchange of data and experts on such matters as fishing techniques, and limitation of boats and catches. *See* L. Lee, China and International Agreements 59-68 (1969); for a discussion of trade agreements concluded under the same non-governmental arrangement, see *id.* at 69-91. *See generally* H. Chiu, The People's Republic of China and the Law of Treaties (1972); Hsiao, *Communist China's Trade Treaties and Agreements*, 21 Vand. L. Rev. 631 (1968); and D. Johnston, The International Law of Fisheries 303-317, 431-442 (1965).

ship, buffer, or intermediate zone.[55] A more likely solution to the Northeast Asian controversy, however, would be some form of joint or common ownership,[56] with cooperative exploitation of all common seabed resources and equal or proportionate division of costs and proceeds therefrom, supervised by a four-state or regional commission, acting under a comprehensive multilateral agreement.[57] At least three factors strongly recommend adoption of the joint-development formula.

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55. The broad spectrum of such proposals, presenting the full political gamut from nationalistic exclusivity to globalism, is suggested in SPECIAL SUBCOMM. ON THE OUTER CONTINENTAL SHELF OF THE SENATE COMM. ON INTERIOR AND INSULAR AFFAIRS, 91ST CONG., 2D SESS., REPORT ON OUTER CONTINENTAL SHELF 84-85 (Comm. Print 1970). The draft conventions and proposals to date, almost by definition, have provided for some form of international regime. The United States draft, *supra* note 47, has been described as follows:

> The United States Draft creates an International Seabed Area described in article I as the common heritage of mankind, open to the use of all states . . . . Revenues from exploitation of the Area are to be directed toward benefit of all mankind and, in particular, toward developing nations [arts. 3, 5]. The character of superadjacent waters as high seas is preserved, and contracting parties are charged with the protection of the marine environment and human safety [arts. 6, 8-9].
>
> The International Seabed Area is to be comprised of all submerged lands seaward of the 200-meter isobath. No nation is to exercise or assert exclusive rights in such lands nor recognize such claims if asserted by any other nation [art. 2]. An intermediate zone, the International Trusteeship Area, is carved out of the total International Seabed Area, constituting submerged lands from 200 meters seaward to a point on the continental rise to be determined with reference to a specified gradient feature. Within the Trusteeship Area, the coastal state would enjoy only those preferential rights delineated by the Convention and in return would assume certain administrative responsibilities [art. 27]. The preferential rights would include the exclusive right to grant or deny license applications (thus effectively limiting exploitation in the Trusteeship Area to the coastal nation's nationals should the coastal state so desire) and the right to retain a portion of fees and royalties [art. 28 (d)].

Note, *Exploitation of Seabed Mineral Resources—Chaos or Legal Order?* 58 CORNELL L. REV. 575, 593 (1973). *But see* Burke, *A Negative View of United Nations Ownership*, 1 NAT. RESOURCES LAW. 42 ff. (1968); Finlay, *The Draft United Nations Convention on the International Seabed Area—American Petroleum Institute Position*, 4 NAT. RESOURCES LAW. 73 (1971); J. MERO, THE MINERAL RESOURCES OF THE SEA 291-92 (1965).

56. "Likely" in the sense of being readily susceptible of adoption. As elsewhere, this writer's emphasis is on flexibility, speed, and expedience.

57. While the specific details of such a cooperative undertaking would have to be resolved by the parties themselves, provision presumably would be made for the protection of such particular state interests not only as had already vested at the time of agreement by reason of continuing possession or otherwise, but also as to those arising from future contracts. Moreover, large-scale investment and a favorable business climate are likely to be prerequisites for the economic success of the development program. *See, e.g.*, Stevens, *The Future of Our Continental Shelf and Seabeds*, 4 NAT. RESOURCES LAW. 597, 617-20 (1971). As declared one commentator:

> First [business] will be concerned with the degree to which the proposed regime offers them security against the risks involved in submarine exploration. For example, they would require security against risks arising from an uncertain legal regime, such as unresolved claims to an extensive Continental Shelf by a State not a party to a deep-sea conventional arrangement; security against an unpredictable decision-making process in any international organization which may be established to regulate deep-sea mining; security against expropriation

First, as may be recalled, prior to mainland China's entrance into the instant dispute, business groups from Taiwan, Korea, and Japan had already undertaken significant steps toward just such a program of cooperative exploitation.[58] Second, petroleum, unlike solid resources such as coal, can generally be removed almost entirely from any point on the perimeter of a deposit without regard to any division of the deposit made by geopolitical references.[59] Furthermore, any unilateral exploitation is most likely to work severe prejudice on the ability of other interested parties to effect similar extraction, as it will disturb the equilibrium of the deposit and thereby alter the relative concentration and exploitability of the reserve.[60] Third, the possibility of increasing efficiency and productivity through pooled labor and technology, in addition to achieving an immediate solution to what would otherwise amount to prolonged and costly negotiation (with corresponding adverse effects upon the peace and economic growth of both developed and developing nations) make it imperative that a program for regional cooperative development be established.

Since no regional or multilateral prototype is in existence, the feasibility of the joint development formula must be demonstrated by analysis of such precedents and analogues as may be discovered in international agreements for the cooperative exploitation of both petroleum and non-petroleum resources.

D. Prototypes for Regional Joint Development

Bilateral petroleum development has been approached in a number of ways. Whereas most agreements contemplating bilateral development stop short of equitable allocation or even coordinated exploitation,[61] in

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or other detrimental policies of a concession-granting State; security against risks from hostilities in the concession area.

Secondly, they will wish to ensure that undue restrictions are not placed upon exploration and exploitation. . . . For example, the regime might require the limitation of particular States to particular areas; or might limit by area the size of a particular State's holding; or might set a limit on the cumulative holdings of companies registered in one State; or might seek to protect the export market of underdeveloped States producing a particular metal by limiting, say, the annual production of that metal from submarine mines (footnotes omitted).

E. Brown, *supra* note 36, at 108.

58. *See* note 3 *supra.*

59. *See also* 1 E. Kunz, Oil and Gas chs. 1, 12 (1962); 1 H. Williams & C. Meyers, Oil and Gas Law ch. 1 (1972); 1 W. Summers, Oil and Gas Law ch. 1 (1954).

60. *See also* 1 R. Meyers, Pooling and Unitization, chs. 1-5, 13, 14 (2d ed. 1967); 1 H. Williams & C. Meyers, *supra* note 59, at 1-135.

61. While most such agreements specifically contemplate possible common or overlapping offshore deposits, they nevertheless neglect to establish precise rules for co-

an instructive minority of situations apportionment has been settled in advance by prior agreement to share equally in any such common deposits as may subsequently be discovered.[62] Perhaps the most notable example to date of such cooperative agreements is that between Austria and Czechoslovakia[63] coordinating exploitation of a common field of natural gas in the Zwernsdorf-Vysoka frontier region between the two countries.

Demonstrative of the feasibility of joint development as an alternative to exclusive and competing state ownership, the Czech-Austrian Agreement provides for the establishment of a joint commission composed equally of representatives of each of the contracting states.[64] The commission receives reports from a panel of petroleum geologists and experts, and from these reports calculates the reserves in the deposits, fixes the production rate, and allocates production quotas to each state.[65] The commission also approves and regulates all exploitation procedures employed by either side.[66] In fixing the production rate, the commission has thus far favored Austria in a ratio of 1.4:1 on the basis, it appears, of such technical considerations as reserves in place under each state's territory and the relative cost/profit ratios that would otherwise obtain if the deposit were being worked individually instead of cooperatively.[67] The underlying assumption is that coordinated exploitation will yield a greater total return and hence greater individual shares for cooperating states.[68]

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ordinated development and/or equal or proportionate allocation. Typical of such "agreements to agree" is the Anglo-Dutch Treaty of Oct. 6, 1965, 595 U.N.T.S. 106, [1965] U.K.T.S. No. 24 (CMND. 3254). For identical or similar arrangements, see the Anglo-Norwegian Agreement, Mar. 10, 1965, art. 4, 551 U.N.T.S. 212; the Danish-Norwegian Agreement, Dec. 8, 1966, art. 4, 634 U.N.T.S. 76; the Australian-Indonesian Agreement, May 18, 1971, art. 7 (text in S. ODA, THE INTERNATIONAL LAW OF THE OCEAN DEVELOPMENT: BASIC DOCUMENTS 426 (1972)); and the Indonesia-Malaysia-Thailand Agreement, Dec. 21, 1971, art. III (text in S. ODA, *supra*, at 428).

62. Of this type, for example, are the 1958 Persian Gulf Agreement still in force between Saudi Arabia and Bahrain, under which provision is made for equal sharing of income derived from exploitation of common deposits—OFFICE OF THE GEOGRAPHER, U.S. DEP'T OF STATE, I.B.S. INTERNATIONAL BOUNDARY STUDY [hereinafter cited as I.B.S.], BAHRAIN AND SAUDI ARABIA (Ser. A., No. 12, 1970)—and the 1969 agreement between Abu Dhabi and Qatar, which also provides for coordinated development, as well as for periodic consultation and equal division of all costs, royalties, and fees, OFFICE OF THE GEOGRAPHER, U.S. DEP'T OF STATE, I.B.S., ABU DHABI AND QATAR (Ser. A., No. 18, 1970).

63. Agreement Between Czechoslovakia and Austria Concerning the Working of Common Deposits of Natural Gas and Petroleum, Jan. 23, 1960, 495 U.N.T.S. 125 (1960) [hereinafter cited as Czech-Austrian Agreement].

64. *Id.* art. 2(1).

65. *Id.* arts. 2(1), 3(1), 4(1).

66. *Id.* art. 5(2).

67. The stated ratio is recorded in the Protocol of the Mixed Commission of June 23, 1960. Article 2 of the Czech-Austrian Agreement requires the Mixed Commission to meet annually each September to reassess the volume of the reserve in place and the rate of production allocable to each contracting state.

68. A similar example of such joint development is the Supplementary Agreement

Whereas municipal law governing the unitization and sharing of common petroleum reserves has advanced to a particularly sophisticated stage,[69] comparable sophistication—with the exception of certain bilateral petroleum agreements already mentioned[70]—is not yet discoverable on the international level. So far as this writer is aware, in fact, there are to date no examples of multilateral agreements in force on the subject. Further support for the feasibility of joint petroleum development, however, may justly[71] be derived from evidences of custom and practice in the international apportionment of such analogous resources as fisheries and water. Both commercial fish stocks and water, like petroleum, are fluid (mobile), yet confined to a finite space from which they can be captured. Both, moreover, are exhaustible, and hence, subject to indiscriminate exploitation to the point of critical shortage, unless regulation ensuring fair apportionment, overall conservation, and efficient use of the resource is implemented.

Numerous examples may be cited of cooperative exploitation of com-

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to the Treaty Concerning Arrangements for Cooperation in the Ems Estuary (Ems-Dollard Treaty) Between The Netherlands and Germany, April 8, 1960, May 14, 1962, 509 U.N.T.S. 140 [hereinafter cited as Ems-Dollard Treaty]. Pursuant to its provisions, concessionaires of each contracting state are entitled to equal shares of the produce of extraction, and possession gained in actual extraction by either party is made irrelevant to determining the apportionment of the reserve. *Id.* art. 5(1). Regardless of disproportionate production by either party, therefore, the total volume of crude oil extracted under the agreement is to be pooled and divided equally between them, as are the costs of such extraction. *Id.* arts. 7(2) & 5(3). Concessionaires from one nation, in fact, are permitted under the agreement to use the installations of those from the opposite nation if such scheme aids in assuring maximum efficient production of the reserve as a whole. *Id.* arts. 6(2) & (3).

69. Municipal petroleum laws of most oil-producing nations now require, as opposed to the early phases of unregulated production, limited correlative rights and duties as between co-developers of a common field and cooperative development of a shared pool by all common interest-holders. Thus, most such laws expressly provide that when an oil-bearing structure is located in two or more tracts belonging to two or more different owners, the parties are obliged to adopt a unitized plan of development under which competition is eliminated and cooperation is required in coordinating such problems as number and spacing of wells topping the common source. Such plans also fix the rate of production, total allowable production per well, and cost-sharing in the unitized operation. 1A W. SUMMERS, OIL AND GAS LAW chs. 2-5; 1 H. WILLIAMS & C. MEYERS, *supra* note 59, at chs. 2-3; 1 E. KUNZ, *supra* note 59, at chs. 1-6, 11, 12; J. GOODIER, U.S. FEDERAL AND SEACOAST STATE OFFSHORE MINING LAWS (1972).

70. *See* notes 62, 63, & 68 *supra* and accompanying text.

71. I use the term "justly" in the following sense: There is no developed international law expressly governing apportionment and joint development of common petroleum reserves; but if an international tribunal or arbitral body were to consider such question as a case of first impression, it could and probably would draw from analogous international custom and practice a rule of law requiring joint development in such situations. At the very least, it could justifiably decide that in no event could a party proceed unilateraly with exploitation procedures based on unrestricted capture, to the prejudice of rival interests involved. Since international law is often a synthesis of custom, analogy, and relevant municipal law, such determinations would be quite consistent with the normal processes of growth of the international rule of law.

mercial fish stocks. In some instances, as in the case of the Halibut Fisheries of the North Pacific Ocean[72] controlled by the United States and Canada, or the Regulation of Meshes of Fishing Nets and Size Limits of Fish taken in the North Sea[73] by countries bordering that fishing ground, cooperation has been limited to the setting of uniform standards of exploitation to be observed by all commonly interested states. Such measures effectively conserve and apportion a resource by ensuring that it will be exploited in a uniform and regulated fashion. Other instances, however, attest to an even greater degree of international cooperation over a common fishery aimed at the very apportionment of the resource. The Russo-Japanese Convention concerning the High Seas Fisheries of the Northwest Pacific Ocean is an example of such an agreement.[74] Under this Convention each state proposes a maximum yearly catch of the fish stocks concerned. The parties then proceed to negotiate the total catch and the apportionment between them. Other agreements to similar effect are numerous.[75]

With respect to water resources, many international rivers have been subject to co-riparian development and sharing.[76] The settlement between the United States and Canada over economic uses of the water of the Columbia River[77] is a model agreement of this type, replacing competing appropriation with a joint commission for governing the river's joint development as a single unit resource. Similar international agreements, providing for cooperative exploitation through shared riparian rights and interests, are too numerous to name.[78]

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72. Convention with Canada for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and the Bering Sea, Mar. 2, 1953, [1954] 5 U.S.T. 5, T.I.A.S. No. 2900, 222 U.N.T.S. 77. This current agreement superseded similar agreements of 1923, 1931, and 1937; *see* D. JOHNSTON, *supra* note 54, at 270-72.

73. Convention for the Regulation of the Meshes of Fishing Nets and the Size Limits of Fish, *entered into force* Apr. 5, 1953, 231 U.N.T.S. 199; *see* D. JOHNSTON, *supra* note 54, at 361 n.12 and accompanying text.

74. Convention Concerning the High Seas Fisheries of the Northwest Pacific Ocean, May 14, 1956, 53 AM. J. INT'L L. 763 (1956) (unofficial transl.), was concluded as part of the Joint Declaration Between the Soviet Union and Japan, Oct. 19, 1956, 263 U.N.T.S. 99, 116. *See* O. MATHISEN & D. BEVAN, SOME INTERNATIONAL ASPECTS OF SOVIET FISHERIES 35-36 (1968).

75. One such similar agreement is the 1959 Black Sea Fisheries Agreement Between the U.S.S.R., Bulgaria, and Rumania, 377 U.N.T.S. 203. For a list of similar agreements, see BUTLER, THE SOVIET UNION AND THE LAW OF THE SEA 192 nn.145 & 147 (1971); D. JOHNSTON, *supra* note 54, at 270-72.

76. *See generally*, J. COLOMBOS, THE INTERNATIONAL LAW OF THE SEA ch. VI (5th rev. ed. 1962).

77. Treaty with Canada on the Cooperative Development of the Water Resources of the Columbia River Basin, Jan. 17, 1961, [1964] 2 U.S.T. 1555, T.I.A.S. No. 5638.

78. *E.g.*, Treaty with Canada Concerning the Uses of the Waters of the Niagara River,

In sum, joint development must inevitably result from recognition of (1) the physical and geologic properties of the resource itself; (2) the intensifying need both for alternative energy sources and for optimum efficiency and productivity in current exploitation methods; (3) the high expectancy of increased overlapping of individual state claims and the concomitant need for a uniform and realistic system of rules governing resource exploitation in a multinational setting; and (4) the necessarily prolonged and hazardous negotiations[79] preconditional to any settlement

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Feb. 27, 1950, [1950] 1 U.S.T. 694, T.I.A.S. No. 2130; Treaty with Mexico Respecting Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Feb. 3, 1944, 59 Stat. 1219 (1944), T.S. No. 944; Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and Colorado Rivers as the International Boundary, *done* Nov. 23, 1970, T.I.A.S. No. 7313 (*in force* April 18, 1972); Agreement for the Full Utilization of the Nile Waters, Nov. 8, 1959, 453 U.N.T.S. 51; The Indus Waters Treaty, Sept. 19, 1960, 419 U.N.T.S. 125.

79. That the entire "distance plus joint development zone" proposal will prove a practical and feasible substitute for such prolonged negotiations assumes, of course, that China will regard such a solution as acceptable. While predicting China's attitude toward virtually any international issue is a risk-laden business best left to sinologists, it might briefly be suggested that at least two phenomena tend to indicate the possibility of a favorable Chinese response. The first concerns China's Asian Boundary strategy, which has been described as follows:

> [China] has insisted in every case that the boundaries should be negotiated anew. But while refusing to accept the legality of boundaries imposed by the imperialists, she has in every case shown herself willing to accept the general alignments drawn by those imperialists. Such was the case in China's boundary settlements with Burma, Pakistan, and Afghanistan; and in her settlements with Mongolia and Nepal, China agreed to the boundaries that those smaller neighbours claimed. All these governments found that her interest was not in regaining territory but in removing what the Chinese saw as the stains of history. They found China tough but reasonable at the negotiating table and they emerged with their boundaries confirmed on the alignments they claimed, with minor variations upon which they had agreed with the Chinese in a pragmatic process of give and take.

Maxwell, *Simmering Dispute along the Sino-Soviet Border*, The Times (London), Sept. 30, 1968, at 9, col. 5. *See* Ginsburgs & Pinkeles, *The Genesis of the Territorial Issue in the Sino-Soviet Dialogue: Substantive Dispute or Ideological Pas de Deux?*, in CHINA'S PRACTICE OF INTERNATIONAL LAW 167-238 (J. Cohen ed. 1972); *see also* J. HSIUNG, LAW AND POLICY IN CHINA'S FOREIGN RELATIONS 100-130 (1972), and H. CHIU, THE PEOPLE'S REPUBLIC OF CHINA AND THE LAW OF TREATIES (1972). The second phenomenon concerns China's accession via its United Nations seat to a more moderating, public internationalist stance heretofore absent from its relations with foreign states, the repercussions of which might very likely be expected to carry over to, and inform the conduct of its regionalist and private affairs, particularly insofar as such affairs affect matters of vital world concern. Evidence of this stance, as it relates particularly to continental shelf and seabed matters, is discoverable in the following statement before the U.N. Seabed Committee:

> All coastal countries are entitled to determine reasonably the limits of their territorial seas and jurisdiction according to their geographical conditions, taking into account the needs of their security and national economic interests and having regard for the requirement that countries situated on the same seas shall define the boundary between their territorial seas on the basis of equality and reciprocity.

Speech by Chic-Yuan, Representative of the People's Republic of China, at the U.N. Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits

of offshore rights under the present inflexible, impractical, and ambiguous Conventional approach to continental shelf boundary delimitation.

IV

CONCLUSION

The complexities of the East China and Yellow Seas continental shelf oil controversy serve to highlight the full spectrum of inadequacies inherent in Conventional approaches to shelf boundary delimitation. Application of the equidistance method recommended by Article 6 of the Geneva Convention, for example, would effectively eliminate the major portion of Japanese claims in the area, while operating to further prolong negotiations over such difficult issues as island ownership and the determination of island basepoints. In holding that where "special circumstances" justify, as where the equidistance rule would produce an unfair result, customary international law requires that parties must effect a mutual agreement in accordance with "equitable principles," the Court of Justice in the *North Sea Cases*, contrary to prevailing opinion offered a viable alternative to present methods of resolving shelf boundary disputes. Under the *North Sea Cases* doctrine, and within the context of customary international law, the following solution is urged: (1) that baselines, 200-meter isobath and the exploitability rule be abandoned, and that the territorial sea and shelf be determined by a simple and uniform distance from shore; (2) that islands be treated as enclaves, unrelated to boundary delimitation; and (3) that the remaining undelimited, common, or overlapping areas be declared a regional zone subject to joint jurisdiction and development. Strongly recommended by the geological properties of the resource itself, by recognition that three of the claimant states had already begun efforts toward such cooperative resolution, and by the advantages of maximized efficiency and productivity to be derived from pooled labor and technology, the "distance plus joint development zone"

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of National Jurisdiction, Mar. 3, 1972, in 11 INT'L LEGAL MAT'LS 654, 660 (1972). It might also be added that even should a joint development program on a formal, governmental level prove unpalatable to the Chinese, numerous precedents in China's relations with non-recognized and non-recognizing states indicate its willingness to condone such practical arrangements on a quasi- or non-governmental level. Although Japan's recent diplomatic recognition of mainland China will doubtless alter the pattern of such arrangements as between China and Japan, the various agreements concluded between private associations from the two countries still furnish a workable model for any larger-scale non-governmental accord. *See* note 59 *supra*.

formula offers perhaps the only feasible means toward the speedy and practical resolution of the instant controversy. Finally, while no regional or multilateral prototypes exist to date, ample support for the feasibility of joint development is discoverable in long-standing international agreements for the cooperative exploitation of both petroleum and non-petroleum resources.

In sum, the Northeast Asian oil controversy represents a new stage of needs in an evolving law of the sea and of the sea's resources that demands, not narrow computational solutions based on anachronistic and untenable geophysical, technological, and jurisdictional premises, but macropolitical and macrogeographical solutions consistent with the realities of a world grown suddenly small.

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