JOINT DEVELOPMENT — putting aside overlapping boundary claims and co-operating to explore and exploit resources in a defined area — has long been proposed as an interim practical measure to reduce tensions over maritime boundaries in the South China Sea. But several fundamental questions must be addressed before joint development can proceed. These include: What is to be jointly developed? Where is the joint development going to take place? Who is going to do it and how will the investment, profit, management and decision-making be shared in a given project?

THE WHAT

The “what” of joint development is not as obvious or straightforward as it may seem. Of course, the immediate focus will be on living resources, primarily fish — and on oil and gas. But in the not-too-distant future, attention will extend and perhaps even shift to wind and wave energy, methane hydrate (“flammable ice” deposits that are found under the continental slope), and ocean thermal energy conversion (OTEC), which exploits the difference between surface and deep water temperatures. Other resources may be discovered or made valuable by technological advances such as fresh water and hydrogen extracted from seawater and genetic resources.

Fishermen from all littoral countries have been fishing in the South China Sea beyond the territorial sea limit of 12 nautical miles for thousands of years. Traditional fishing rights are recognized under the 1982 United Nations Convention on the Law of the Sea (Article 69 [4]). Under UNCLOS,
Articles 62, 68 and 70 provide the principle and a process for access to any “surplus” for other countries. The point is that most areas that are in dispute have been fished by several ethnicities since “time immemorial” and many stocks are shared by distribution or migration. This means that all claimants should be allowed access — but under an agreed management scheme that includes catch limits. Such an agreement will be difficult to work out but could be assisted by the UN Food and Agriculture Organization.

THE WHERE

There are several requirements for the “where” of joint development. It should be in an area with a good potential for exploration, in the case of gas and oil at a shallow to moderate ocean depth. Moreover, to minimize political and procedural complications it should preferably be in an area claimed by only two countries. There are several potential areas that meet these criteria, chiefly on the Reed Bank and Vanguard Bank.

A recent report by the US Energy Information Administration concluded that the South China Sea as a whole contains proven or probable reserves of 11 billion barrels of oil (BBO) and 190 trillion cubic feet (TCF) of gas (see Figure 1 above). But the only likely prospects within the disputed areas, according to the EIA, are the Reed Bank, which might contain 2.5 BBO and 25.5 TCF of gas, and some deep water areas off East Malaysia and Brunei. However, the US study contradicts previous studies by countries in the region. Also, there may be other resources in the disputed areas that have not been considered such as methane hydrates, OTEC and minerals.

According to Forum Energy, which has a concession on the Reed Bank from the Philippine government, the area may contain as much as 16 TCF of gas. Its initial estimate for its Sampaguita discovery was for potential reserves of 20 TCF. That would be a world-class deposit. Forum Energy confirmed a minimum of 3.4 TCF of proven gas in place from sands tested in three wells drilled and a maximum potential of 10 TCF. Information on the oil potential of the outer continental shelf in the South China Sea is scarce and speculative. On the continental shelf off Vietnam, the Cua Long basin is estimated to contain 7-8 billion barrels of oil equivalent (BBOE). Five oil and associated gas fields are producing from the inner shelf. The Nam Con Son basin is estimated to contain about 4.5 BBOE, mostly gas. Three to five fields are expected in the deeperwater portion.

THE WHO

The “who” of joint development is partially dependent on the “where.” It would be highly preferable for the efficiency and simplicity of the process to identify an area of high potential that is claimed by only two parties. Because of China’s claim to most of the area, one of the parties would likely be China. Who would be the other?

One possibility is the Philippines on Reed Bank. China has repeatedly offered joint exploration in this area. But it is highly unlikely the offer will be taken up during the current administration of President Benigno Aquino III. The memory of the Philippine energy information administration concluded that the South China Sea as a whole contains proven or probable reserves of 11 billion barrels of oil (BBO) and 190 trillion cubic feet (TCF) of gas (see Figure 1 above). But the only likely prospects within the disputed areas, according to the EIA, are the Reed Bank, which might contain 2.5 BBO and 25.5 TCF of gas, and some deep water areas off East Malaysia and Brunei. However, the US study contradicts previous studies by countries in the region. Also, there may be other resources in the disputed areas that have not been considered such as methane hydrates, OTEC and minerals.

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Another possibility is Vietnam — on the outer continental shelf to its southeast around Van guards Bank, essentially the western portion of the former concession once let to Crestone by China and now held by Harvest Petroleum. Although this area is on Vietnam’s claimed continental shelf, it is also within China’s nine-dashed line claim as well as an exclusive eco-

nomic zone (EEZ) that might be claimed from the Spratly Islands (which are currently occupied by China). While Vietnam may be reluctant to share what it considers legally to be its own, it might find it politically acceptable to yield a minor share in this area — say not more than 10 percent — in exchange for a “hands off” policy from China on areas with higher potential closer to Vietnam.

A third possibility is Brunei — in the area near the Rifleman Bank and the sea territory surrendered by Malaysia in its 2009 agreement with Brunei. Malaysia, however, under a “secret” agreement, reportedly has first right of refusal on entering into commercial arrangements with Brunei for the area it relinquished. This means that either Malaysia would have to involve or waive its negotiated “rights” with Brunei.

A fourth possible locale for joint development would be that area of extended continental shelf claimed by Vietnam and Malaysia, and also claimable by China. This is very deep water, and the potential would be in the form of methane hydrates, which are a future resource.

A fifth possibility — for OTEC — is Taiwan near Taiping Dao, the largest island in the Spratlys. China and Taiwan previously have co-operated on hydrocarbon exploration in the southern Taiwan Strait but did not discover commercial deposits. Although OTEC also is an energy source for the future, Taiwan has a very active OTEC research program and its commercial implementation may, at least on a modest scale, be closer than is commonly thought.

THE HOW, OR SHARING THE BOUNTY

There are many possible sharing arrangements, but what constitutes the “fair and equitable” allocation of ocean areas and their potential resources — which should be the guiding principle — is very much in the eye of the beholder. Examples of possible allocation schemes are depicted conceptually in Figures 2 and 3 and described below. Policymakers and analysts may combine elements of these examples to construct their own proposed schemes.

The possible options are:

1. In the alternatives in Section 1, there must first be agreement that the Spratlys and Scarborough Shoal can only generate territorial seas of 12 nautical miles, not 200-nautical-mile EEZs or continental shelves, and that these territorial sea areas are not to be included in joint development schemes. The claimants to these features could also agree that they be demilitarized and designated as environmentally protected areas.

2) Allocate jurisdiction in the entire South China Sea to equidistant lines, ignoring the Spratlys and Scarborough Shoal but giving full effect to the Chinese-occupied Paracels. It is tempting to suggest that the allocation of the islands, reefs and rocks also be according to these zones. But that would ignore the legal and political realities of these sovereignty disputes.

3) Allocate jurisdiction in the South China Sea out to 200 nautical miles from legitimate base lines, ignoring the Spratlys and Scarborough Shoal but giving full effect to the Chinese-occupied Paracels, and agree to jointly develop/manage the area beyond 200 nautical miles. A variant of this scheme would have the same allocation out to 200 nautical miles from legitimate base lines but restrict the joint development/management area to that beyond 200 nautical miles and with sediment thickness less than 1 percent of the distance from the base of the slope (i.e. beyond any extended continental shelf claim).

4) Allocate jurisdiction in the South China Sea out to a line equidistant between the Spratlys and legitimate baselines, ignoring Scarborough Shoal. Then agree to multilateral joint development arrangements beyond the equidistance line.
Based on the pattern of claimants to each sub-area (see Figure 3 below). Based on the areas of overlap of the original claims, China/Taiwan would be a member of all joint development companies. Shares, benefits, costs and a say in the operation of each joint development company would be apportioned equally after allocating 5 percent of the profits to a South China Sea Common Heritage Corporation (SOCOHECO) that would facilitate, co-ordinate and harmonize the operations of multiple joint development arrangements for resource exploitation within the area of shared management.

Perhaps another 5 percent of the profits could be distributed to non-claimant South China Sea countries. Alternatively, the profits could be distributed — but to South China Sea countries only (including landlocked Laos) — according to the formula in Article 82 of UNCLOS for resource exploitation beyond 200 nautical miles, i.e. annual payments after the first five years with respect to all production at a site. For the sixth year, the rate of payment is 1 percent of the value or volume of production at the site. The rate increases by 1 percent for each subsequent year until the 12th year and remains at 7 percent thereafter.

The largest of the multiple joint development zones would be that between China and Vietnam in the west and between China and the Philippines in the east. Other significant joint development arrangements would involve China, Malaysia and the Philippines; China, Malaysia and Vietnam; and China and Brunei. The most complex would be a small area that would involve all claimants. Given the petroleum geology of the South China Sea, the most likely prospect would be the China-Vietnam area around Vanguard Bank, the China-Philippine area on Reed Bank and the deep-water China-Malaysia and China-Brunei areas.

Under this model, the SOCOHECO would have a Chinese as its head because of China/Taiwan’s membership in every joint development company. The members of each joint company board would be those countries that claim the area covered under the deals. Although a joint development company would exist on paper for each of the areas, it would become operational only when and if a simple majority of the claimants to that area agreed to make it operational. This approach would satisfy China’s demand that the issues be resolved between it and each of the claimants, while giving the claimants an opportunity for influencing decisions in areas they claim in common with China and others.

1) Allocate two “donuts” and a “donut hole” based on China’s nine-dashed line claim, the line equidistant between legitimate baselines that conform with Article 7 of UNCLOS and the Spratly Islands ignoring Scarborough Shoal but giving full effect to the Chinese-occupied Paracels (see Figure 2 opposite).

2) Allocate 100 percent of the jurisdiction from legitimate baselines out to China’s nine-dashed line claim to the appropriate coastal states.

3) Allocate a token 1 percent of resources between China’s nine-dashed line claim and a line equidistant between the Spratlys and claimed baselines, ignoring Scarborough Shoal but giving the Chinese-occupied Paracels full effect. In this zone China would receive 1 percent of each resource and contribute an equivalent amount to its development. Another way to do this would be to give China first refusal on conventional commercial access to the resources in the area. Such “sharing” would recognize China’s claim to resources but provide only token shares of resources in EEZs claimed by others.

4) Agree to multiple joint development and management arrangements beyond the equidistant line, based on the pattern of claimants to each sub-area (Figure 3).
This variant would have two zones of sharing, to be co-ordinated by a SOCOHECO (see Figure 3 opposite).

**Zone 1:** The area between the equidistance line and the 200-nautical-mile limit from legitimate baselines. The split here could be 10 percent for China and 90 percent for each claimant. Using the equidistance line means that the various claims to the features are recognized and that they have an effect, but not one superior to claims from the “mainland.” This arrangement would render unnecessary negotiation or adjudication regarding which of the features is a “legal” island. Sorting out the sovereignty of the many islands and rocks — and which are which — would truly be something for future generations to tackle.

**Zone 2:** The area beyond 200 nautical miles from legitimate baselines. Here the split would be equal for all five claimants, i.e. 20 percent each, and the SOCOHECO would manage the area on behalf of all claimants. Another alternative would be to base the share allocation on the length of coastline that a claimant has in the South China Sea, a common factor in international maritime boundary judgments.

The shares would then be 31 percent for China/Taiwan, 26 percent for Vietnam, 21 percent for the Philippines, 20 percent for Malaysia and 2 percent for Brunei. Under this system, China/Taiwan would not be able to pass or block decisions in the SOCOHECO even by a simple majority vote and would thus require the co-operation of at least one other claimant (except Brunei) to do so. On the other hand, if Vietnam, Malaysia and the Philippines voted together they could constitute a majority.8

**REMAINING QUESTIONS**

The proposals above leave unanswered several important questions:

- Should Brunei receive an equal share of the resources in the donut hole area or only a percentage equivalent to the part of the donut hole it actually claims?
- Will Indonesia agree to share with China even 1 percent of its EEZ resources or, alternatively, give China first refusal on concessions in its EEZ area encompassed by China’s nine-dashed line?
- Should the Paracels be ignored and the area’s resources shared by China and Vietnam, or included as part of China in the sharing scheme?
- Should the Philippines’ claim to Kalaya’an be recognized for the purpose of sharing in joint development?

**DEMILITARIZATION AND NON-NUCLEARIZATION**

In conjunction with the establishment of the South China Sea Common Heritage Corporation, the area of shared management should also be an agreed demilitarized zone of peace, extending the ASEAN Zone of Peace, Freedom and Neutrality to the whole of the South China Sea, and thereby helping achieve one of ASEAN’s (and China’s) stated objectives: removing opportunities for great power intervention and interference in regional affairs.

Because all the claimants except China/Taiwan are parties to the Treaty on the Southeast Asia Nuclear Weapon-Free Zone, which includes the EEZs of the parties, the treaty’s provisions could be extended to the Spratly features and the area of shared management.

Mark J. Valencia is Visiting Scholar at the National Institute for South China Sea Studies (NISCSS), an academic institute attached to the Hainan Provincial Government. Hong Nong is Assistant President and Associate Professor, NISCSS.