Policy options

This section aims to identify feasible policy options that target key components identified in the Causal chain analysis in order to minimise future impacts on the transboundary aquatic environment. Recommended policy options were identified through a pragmatic process that evaluated a wide range of potential policy options proposed by regional experts and key political actors according to a number of criteria that were appropriate for the institutional context, such as political and social acceptability, costs and benefits and capacity for implementation. The policy options presented in the report require additional detailed analysis that is beyond the scope of the GIWA and, as a consequence, they are not formal recommendations to governments but rather contributions to broader policy processes in the region.

Definition of the problem

The policy analysis for the South China Sea region is, like that for the related region of the Sulu-Celebes (Sulawesi) Sea (GIWA region 56), greatly complicated by the complex interaction of national and regional jurisdictions. There are many transboundary issues that remain unresolved due to the aftermath of regional conflicts, colonial heritage and international political affiliations. Within this unique transboundary milieu, the concept of sustainable development has many interpretations: economic development is a leading feature of national planning is all countries of the region and environmentally sustainable development is often a minor component within government policy.

If the South China Sea is compared with other semi-enclosed seas like the Mediterranean, Baltic, and Caribbean, it is apparent that the South China Sea lacks formalised cooperative instruments that integrate and coordinate efforts by littoral states at managing and protecting the marine life, and regulating marine economic activities (Naess 1999).

The nations of the South China Sea region have not established effective conventions or legal frameworks for common governance of the marine environment. Of the multilateral treaties and conventions already in place, there has been insufficient implementation to date. Fisheries, ecosystems, shipping and pollution are all regularly discussed in meetings among scientists and at various levels of government and inter-governmental meetings (e.g. ASEAN), but the attempts at addressing these important questions multilaterally remain elementary.

The few attempts at bringing the littoral states together in creating regional regimes by UNEP, and also by individual ASEAN member states, appear to run into difficulties as proposals for cooperation are often blocked by one or several states; often because of economic or other selfish state interests. As pointed out by Naess (1999): "The states around the South China Sea have not clarified their claims to maritime zones in accordance with the provisions of UNCLOS … regardless of the political situation. The use or abuse of international law will have important effects on all claimants, and how the LOS is interpreted and implemented in the South China Sea has and will have important implications. Almost everything remains to be done in terms of implementing UNCLOS".

The following Policy options analysis seeks approaches that will address these issues and are suggested to assist government thinking on the search for national and regional solutions.

Construction of the policy options

The initial step in construction of useful policy options is definition of some key present deficiencies and needs, as detailed above and below.

While the Philippines, Malaysia and Indonesia have adequate environmental legislation to overcome many of the issues and concerns affecting their waters in the region, other nations, such as Vietnam, Cambodia and China, have inadequate environmental regulations and operate political systems that do not participate as freely in multilateral environmental coordination. Capacity building is a major issue in the region at all levels.

Thus, at both international and national levels, there is a wide range in the processes and capacity for policy development (and enabling legislation) to address resource management and protection. Furthermore, in all nations of the region, there are inefficiencies related to the transfer and application of international and national legislation at provincial and local levels. The national and provincial laws relevant to different sectors such as fisheries, mining, forestry and environmental protection, are also not fully integrated. Some legislation does not refer specifically to particular sectoral or environmental systems, thereby causing uncertainty in the application of legislative instruments. This has caused confusion over which laws have priority, responsibility for management, and the rights of stakeholders and interest groups. Furthermore, some government departments are hampered by a lack of qualified and experienced staff, and also by funding short-falls and cut-backs. There is widespread lack of awareness and acceptance of most laws, and lack of compliance with regulations. There is also insufficient capacity for enforcement of regulations and quotas (Box 9).

Box 9 Approaches to managing the South China Sea.

In the South China Sea, so far, there has been no integrated, formal approach to management of resources. The lack of a formal agreement means that there is no regulation of fisheries, no regional regulation or cooperation in combating pollution. Overlapping claims to maritime zones make it impossible to decide which state is responsible for environmental protection and management, and there is no sense of any temporary shared responsibility although many speak of joint development or joint management. This sounds very much like a situation that Garrett Hardin (1968) named the 'Tragedy of the Commons'. As the South China Sea is not partitioned according to the UNCLOS in Exclusive Economic Zones (EEZ), where the individual state has the jurisdiction to the resources that exist within the zone, large areas of sea, and especially the living resources in these areas, are left to the ones who manage to catch them. This means that one littoral state has the opportunity to exploit and deplete the living resources that actually belong to all the littoral states in the area. According to Oran Young (1994), there are roughly three ways to regulate this problem. One is to solve the sovereignty question with reference to ideas developed in UNCLOS. Normally, this would lead to a delimitation agreement between all claimants on how to define the limits of EEZs and solve the question of sovereignty to islands. This is not very likely to happen in the near future. A second solution is to establish a joint development zone in the disputed area, share the cost and responsibility for development and divide the benefits of resource exploitation between themselves. This is what China and Taiwan have suggested in principle since 1993, without, however, presenting any concrete proposals. No joint development zone is likely to be established in the near future. China's understanding of joint development also seems to imply that the other participants must negotiate bilaterally with China, not multilaterally. The third option is to create a regime or formalised agreement where all states in the region join forces to set up a joint management regime (fisheries regulation, environmental protection and marine scientific research) while abstaining from drilling oil and gas.

(Source: Excerpted from Naess 1999)

Policy deficiencies and needs

- Insufficient information transfer and linkages among science, policy and management;
- In many cases fisheries legislation adopts a single species approach, rather than managing multi-species, with compounding lack of consideration of trophic level effects;
- Lack of fisheries habitat protection across and within fisheries sectors (gear type, effort, MPAs, no take zones);
- Lack of consideration of threatened/endangered species status and compounding lack of data;
- Lack of clear inter-sectoral demarcation of responsibility (e.g. mangrove management versus fisheries versus aquaculture versus construction);
- Low enforcement capacity;
- Problems in national and local interpretation of international conventions and data (e.g. UNCLOS, CBD, MARPOL, CITES for smuggling stocks of sharks, migratory species, transboundary straddling stocks);
- Maritime limitations in relation to EEZ, continental shelf boundaries and UNCLOS;
- Lack of regional conventions and adherence to obligations/ coordination among nations in international conventions;
- Lack of partnerships and urgent need to implement transboundary approaches in stocks management;
- Lack of policy development to provide alternative livelihoods;
- Lack of policy development for sustainable financing of management;
- Insufficient communication across government departments/ agencies in terms of coordination of fisheries and MPAs etc.;
- Urgent need to address pressures and investment on lower trophic level fisheries because upper levels are already overexploited;
- Urgent need to expand community-based sustainable management approaches more widely;
- Urgent need to develop more equitable distribution of benefits and address the loss of benefits to local stakeholders;
- Urgent need to develop better fisheries security against poaching;
- Urgent need to develop stronger political will for habitat protection and fisheries sustainability;

- Urgent need to increase assertiveness of international funding agencies in terms of implementation of policy;
- Urgent need to develop better conduits for getting research findings into policy and collaboration;
- Urgent need to increase coordination and cooperation across agencies (e.g. use of navy vessels in research, and an enforcement 'green navy')
- Urgent need to develop transboundary, international approaches to policy analysis, an essential factor in determining policy issues and future options (Box 9).

Integrated, multilateral environmental conservation and development is a requirement for the success of any future policy development, as policies must conform to international multilateral conventions, treaties and obligations. Regional government support and cooperative inter-sectoral and jurisdictional agreements are factors in the success of any forward planning. However, regional cooperation concerning the use and overexploitation of the marine resources of the South China Sea region is still limited in scope.

The major policy factors relating to a lack of progress are poor governance, lack of human and fiscal resources, and social issues such as high population growth, poverty and large-scale urban development. Environmental management and education are still generally poor. Scientific understanding, monitoring and surveillance of regional fisheries activities is limited; the enforcement of laws is even more difficult in such a diverse, complex and multi-jurisdictional environment.

Furthermore, the influence of scientific research on the political process in the South China Sea is not straightforward (Naess 1999). Research findings rarely speak for themselves, and whether the decision-makers consider scientific advice to be important or not depends on several conditions. In this process, science can be 'contaminated' by political

Figure 21 Pulau Redang Marine Park Center, Malaysia.
(Photo: J. Oliver, ReefBase)

agendas, if political factions or governments use professionals as a means for promoting their political agendas (Andresen et al. 1994, Naess 1999). Because the claimant states regard the resources of the South China Sea as affecting vital national interests, the trust given to expert advice can be presumed to be extremely limited when such interests are at stake (Naess 1999). Thus overcoming state self-interest is of crucial importance.

At the broadest policy development levels, recommendations for improvement include implementation of an integrated multi-national conservation and development approach for the South China Sea, complemented by an effective strategy to address multilateral and international obligations under the various conventions and treaties. As each of the nations has signed UNCLOS, and all except Cambodia and Thailand have ratified it, the states are obliged to take into consideration the terms of the Law of the Sea regime. In particular, the emphasis should be on states to endeavour to cooperate directly or through a regional organisation to manage the sea together, to coordinate scientific research policies and to coordinate implementation of rights and duties under the convention (Article 123 UNCLOS 1982, Thayer 1999, Naess 1999).

However, at the national level, the multiplicity of agencies dealing with the maritime environment, and an apparent lack of interest at the highest political levels, make efficient and integrative ocean policy development and implementation almost impossible (Naess 1999). This problem has accumulated on the regional level, where no agency exists that can coordinate efforts at improving the maritime environment. The ASEAN institutions and non-ASEAN institutions that operate in the region are not coordinated at the regional level (Papoyo 1996).

As noted above, there is a wide range among South China Sea nations in the adequacy of both policy and enabling legislation to address the key concerns analysed in this assessment. Most nations are already parties to the key international conventions and treaties. What is currently lacking is multilateral coordination and capacity to apply the existing legislation and to review and amend the legislation to improve its functionality, particularly cross-sectorally. It is particularly important to ease tensions arising from sovereignty and jurisdictional disputes over the Spratly and Paracel Island groups, and ocean space adjacent to the littoral states. This approach is compatible with the regime for semi-enclosed seas as set forth in UNCLOS 1982 (Dr. Hasjim Djalal and Prof. Ian Townsend-Gault, quoted by Naess 1999).

In this regard, improved policy can only succeed with the following support structures in place:

Figure 22 School of silverside (*Atherinomorus* sp.) near surface, Cagar Hutang, Redang Island, Malaysia.
(Photo: B. Huzaimi, ReefBase)

- Consolidation of national laws and multilateral agreements to encompass all sectors;
- Improved coordination in management across sectors and levels of governance (local, national and multilateral);
- National and international surveillance strategies, with participation from all levels of government, NGOs and local communities;
- Much-improved enforcement;
- Improved transparency in governance/policing, with stronger anti-corruption legislation and enforcement;
- Ongoing and expanded community education programmes;
- Improved options for the generation of alternative income and ecologically sustainable livelihoods for the burgeoning poor of coastal populations, particularly among the fisheries sectors.

This framework is crucial in bridging the gaps between policy formulation, development of legislation and enforcement of regulations (Box 9). As Talaue-McManus (pers. comm.) notes: "Tracing root causes is important in highlighting the bigger socio-economic and political contexts with which to view environmental problems. However, it becomes counterproductive to orient policy options to only the root causes, as these will not be doable within 10 times the lifetime of any project or initiative. What then becomes crucial is breaking the policy options into doable segments, addressing both immediate and intermediate causes and cognizant that significant changes could be achieved if these were implemented even if the root causes remain."

Identified policy options

Five policy recommendations and eleven strategic actions are proposed as relevant to implementing immediate interventions.

Key policy recommendations

The key policy recommendations include the development and expansion of:

- Institutional and capacity-building, including establishment of inter-governmental mechanisms;
- Information, education and communication networks;
- Functional, integrated network of marine protected areas founded in focused, applied research;
- Alternative, sustainable livelihoods for poor coastal populations;
- Bio-physical (biodiversity) and socio-economic research focused on improving management effectiveness and efficiency.

Key strategic actions

The key strategic actions include:

- Prioritise key data and information required for developing and refining policy, legislation and interventions;
- Build and expand partnerships at local, provincial, national and multilateral levels, in government, NGOs, and the private sector, in Research and Development and implementation;
- Ensure equitability and ecological and economic sustainability in future resource exploitation, including protection of intellectual property and traditional knowledge;
- Gather responsible fisheries authorities together with expertise from national and international academic and research institutions to adequately assess the state of fisheries in territorial waters;
- Develop regional agreements on providing MPAs within territorial waters to help ease the pressure on sites that are heavily overfished;
- Develop national coastal management plans to underpin these regional MPA agreements (even if MPAs will remain elusive for contested areas);
- Promote a united call to establish a regional database and monitoring that allows for periodic assessments of key coastal ecosystems;
- Ban further conversion of wetlands, estuaries and mangroves into man-made facilities;
- Establish protocols to assist national environment ministries to determine carrying capacities of estuaries for extensive and intensive aquaculture facilities (e.g. through SEAFDEC);
- Provide concrete mechanisms to engage IRRI and FAO to provide organic farming protocols for adoption by small-scale farmers and multi-national food companies to address impacts caused by nutrient loading from agriculture;
- Identify low-cost sanitation technologies, to address domestic sewage inputs, that can be maintained and established in both rural and urban settings (e.g. through the Water Group of the World and Asian Development Banks).

One of the major root causes of overfishing is, like in forestry and mining, the ever increasing need for foreign exchange. It is important to monitor whether countries around the South China Sea remain net exporters of fishery products as indicated in the Transboundary Diagnostic Analysis for South China Sea (Talaue-McManus 2000). Globalised trade will seem to exacerbate this pattern. A free and reliable source of trade statistics is available at the US National Marine Fisheries Service web site[4].

Performance of the chosen alternatives

Initial steps towards implementing these policy recommendations and strategic actions are already under way, though a variety of interventions. A pertinent example is the World Bank Global Environment Facility International Waters project administered by UNEP. The goal of the project is conserving the marine environment of the South China Sea from the effects of climate change, coastal development, pollution and overfishing. Initiation of the project followed agreement among seven nations (Cambodia, China, Indonesia, Malaysia, Philippines, Thailand and Vietnam). The project is both timely and highly relevant to the present analysis. As noted by Dr. Klaus Toepfer (Executive Director of UNEP): "Without a concerted regional approach to environmental management, it is unlikely that the present rates of habitat degradation will be slowed, resulting in the loss of globally significant biodiversity and the livelihoods of millions of people".

The major cause of environmental degradation is the density and growth of coastal populations, which are expected to double by 2033, with concomitant increases in world trade, industrialisation, fisheries and mineral exploitation.

Funding for the project comes from the GEF (16 million USD), from participating countries (9 million USD) and other donors (7 million USD). The seven nation project is producing a programme of action and framework for regional cooperation in management. Initial implementation is focused on nine pilot projects for sustainable development of marine resources (Kirkman pers. comm.).

[4] *www.st.nmfs.gov*

Klaus Toepfer (UNEP) concluded: "The real success of the project will be in providing a platform for ongoing marine protection programmes, beyond its five year span. Its major goals are to establish the national capacity, the mechanisms and the regional cooperation necessary to protect the marine environments of the seven participating countries".

In the latter regard, the effectiveness, efficiency, equity, political feasibility and implementation capacity of the policy recommendations arising from the present analysis will all be contingent, to greater or lesser degree, on the success of the present intervention and lessons learned. If successful, the present intervention should provide much of the necessary key framework for successful future interventions. However, significant problems and difficulties remain, and the present project is only the beginning of this process.

And, as Talaue-McManus (pers. comm.) cogently argues: "It is imperative to lay out policy initiatives at both the national and regional scales, so that these are formulated more or less in tandem and with substantive harmony, thus creating a synergy that ultimately enhances political will at the national level of governance. ASEAN and ASEAN-based initiatives have tried to foster this spirit and in some ways have had some success. For the most part, however, the politics cannot break away from the tradition of "non-binding agreements that will never impose on any country's sovereignty". The UNEP Regional Seas Programme for the East Asian Seas has failed miserably to achieve any substantive regional agreements in the last 30 years because the COBSEA never grew beyond representing the lack of national political will".

Talaue-McManus (pers. comm.) suggests several key strategies which overlap and support the policy strategies proposed herein:

- Bring the fisheries bodies together with expertise from national and international academic and research institutions to pin down the state of fisheries in territorial waters.
- Develop regional agreements on providing MPAs within territorial waters to help ease the overfished status of sites where this state is established.
- Develop national coastal management plans to underpin these regional MPA agreements (even if MPAs will remain elusive for contested areas).
- Promote a united call to establish a regional database and monitoring that allows for periodic assessments of key coastal ecosystems.

Talaue-McManus also suggests several criteria for key actions:

- Banning more conversion of wetlands, estuaries and mangroves into man-made facilities.
- SEAFDEC should work on establishing protocols to assist national environment ministries to determine carrying capacities of estuaries for extensive and intensive aquaculture facilities.
- In the case of nutrient loading from agriculture, provide concrete mechanisms to engage IRRI and FAO to provide organic farming protocols for adoption by small-scale farmers and multi-national food companies.
- To address domestic sewage inputs, the Water Group of the World and Asian Development Banks should assist in identifying low-cost sanitation technologies that can be maintained and established in both rural and urban settings.

Much remains to be done, at local, provincial, national and multilateral levels. In the latter regard, the multilateral security dialogue in this region has, in the past, functioned as an impediment to regional environmental cooperation, and thus also blocked attempts by non-state actors to influence regional political processes (Naess 1999). Environmental experts try to inform their governments about risks and challenges, but so far the governments of the region have not adequately prioritised management of the marine environment. Recent developments, such as the ASEAN Regional Forum on Regional Cooperation in Maritime Security, may be a step in the right direction, and similar mechanisms are required to address the other threats and impacts described herein. Environmental experts try to inform their governments about risks and challenges, but so far the governments of the region have not adequately prioritised management of the marine environment.