
Scientific Cooperation in the South China Sea

**A New Vector for China's Security Diplomacy
in Southeast Asia?**

Sophie Boisseau du Rocher

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Center for Asian Studies

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Executive summary

The South China Sea is regularly examined as a source of constant security tension, whereas analysis of scientific cooperation in the area is rare, thinly spread and short. However, scientific cooperation in maritime matters, and particularly in the South China Sea, does exist; collective research and knowledge is even considered as a means of coming together – a functional bridge – indispensable in depoliticizing recurring tensions. Disputes between parties continue to poison bilateral relations and negotiations on a Code of Conduct are put to the test by significant political questions, whereas scientific programs link an extensive network of scientists and bureaucrats who deal with complex maritime issues and resource management, and who share a common interest for preserving fragile ecological balances.

Scientific programs obviously serve the interests of both China and the Southeast Asian countries: areas of cooperation are numerous and the easiest ground to establish regional cooperation regimes. In this sense, collective scientific work or the adoption of functional standards could contribute towards defusing threatening attitudes. Yet, scientific cooperation also reflects the reality of relationships in the region, which is that of ‘unequal interdependence’, or asymmetry. In the domain of scientific cooperation, as in others, China plays on the weaknesses of its partners.

The evidence shows that China uses its rapidly developing scientific and military prowess in a synchronized manner to dissuade rivals, give credibility to its arguments and secure its regional space and supply routes. After 20 years of research programs in the South China Sea, the space is effectively starting to be well controlled. This control is not really the product of scientific cooperation, but rather the result of China leading research programs and setting the rules. It is therefore reasonable to question the link between the understanding of the maritime space that this research has enabled and its use for gaining power. Besides, scientific cooperation has not reduced mistrust and facilitated the agreement on a Code of Conduct.

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Introduction

The importance of the sea in Chinese strategy is ever-growing¹ and is not limited to the expansion of the Navy – indeed, China has a “maritime destiny”. The ambition is there, as confirmed by the direction set out by Hu Jintao during his opening speech at the 18th Party Congress (November 2012): “we must develop our capacity to exploit maritime resources, develop the maritime economy, protect the ecological environment of the sea, preserve Chinese maritime rights and interests and transform China into a maritime power”². Liu Cigui, Director since 2007 of the State Oceanic Administration (SOA), explains that a “maritime power is a country who has a complete understanding, in development terms, of the use, protection, management and control of the seas”³. In October 2013, Xi Jinping launched his “Maritime Silk Road”⁴ initiative by underlining the importance of the Association of South-East Asian Nations (ASEAN) and Southeast Asia for its development. With this in mind, Vice Premier Zhang Gaoli revealed that “the year of Chinese-ASEAN maritime cooperation would reinforce coherence in maritime economy, marine science and technology, protection of marine ecology and connectivity”⁵. In an article published on 11 November 2014 in the Indonesian daily paper the *Jakarta Post*, the Chinese Prime Minister Li Keqiang assessed that disputes linked to the South

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1. Yves-Heng Lim, “*China’s Naval Power: An Offensive Realist Approach*”, Corbett Centre for Maritime Policy Studies Series, Farnham, Ashgate, 2014 & Junichi Takeda “China’s Rise as a Maritime Power: Ocean Policy from Mao Zedong to Xi Jinping”, *Review of Islands Studies*, 23 April 2014.

2. Section viii, at: <<http://news.xinhuanet.com>>.

3. Liu Cigui, “The First-Ever Reference to ‘Maritime Power’ in the Political Report to the 18th Party Congress has Important Practical and Strategic Significance” [十八大報告首提“海洋強國” 具有重要的現實和戰略意義], *China Oceanology Review* [中國海洋報], November 12, 2012, cited by J. Takeda p. 2.

4. The MSR focuses on strengthening maritime links between China and Southeast Asia (and into the Indian Ocean) to develop all areas of cooperation and programs of common development in order to reassure neighbours about the rise in Chinese Naval power in the region. It is also a way of reunifying the postures of ASEAN nations (in a way conducive to China’s interests) on the sensitive subject of the South China Sea.

5. Cf. Zhang Gaoli’s Speech for the Opening Ceremony of the 11th ASEAN / China Expo September 16, 2014.

China Sea could be resolved as long as those parties concerned reinforced their maritime cooperation.

Scientific maritime cooperation is identified as a priority and is even considered by Chinese authorities as a means of coming together – a functional bridge – that is indispensable in depoliticizing recurring tensions in the South China Sea. In this respect, it should be perceived as a new vector for China's security diplomacy with Southeast Asia. But if there are clear shared priorities (1), an analysis of scientific cooperation in the South China Sea reveals an obvious exploitation of China's advantage for strategic purposes (2).

Shared Priorities

In addition to land connections, the maritime space, which has been qualified as “the Asian Mediterranean”⁶, has linked Southeast Asia and China for centuries. Surprisingly, the South China Sea remains a poorly known maritime domain by oceanographers, geologists, meteorologists and seismologists alike⁷. The turmoil and ructions of recent political history and the tensions concerning border and sovereignty disputes, coupled with the relative negligence concerning maritime questions, partially explain this lack of scientific fieldwork or even interest in the regional maritime domain. Indeed, it was only after the Convention on the Law of the Sea (UNCLOS – under the terms of Article 123, which encourages “cooperation of nations bordering closed and semi-closed seas”) and in furthering the interest shown by China in oceanic affairs at the beginning of the 1990s (see “The Chinese Agenda for the Ocean” of 1996)⁸, that scientific research projects, such as the “Ocean Drilling Program”, were established. In parallel, from 1995, a joint committee for Science & Technology was established between China and ASEAN in order to plan, scope, coordinate and evaluate cooperation programs⁹. Initiatives have since multiplied¹⁰ in proportion to the interest shown in this maritime space. In June 2012, the Chinese government launched its Framework Plan (2011 – 2015) for international cooperation in the South China Sea and adjacent seas. The first China/ASEAN Ministerial meeting was held in the same year covering issues of science and technology.

6. François Gipouloux, *La Méditerranée asiatique*, Paris, CNRS Éditions, 2009.

7. Satellites using powerful altimetry instrumentation, (CryoSat 2 from the European Space Agency and NASA’s Jason 1) have recently (October 2014) yielded a much more precise image of the depths of the South China Sea and other seabed information. Even if it is not surprising to learn so much more about the depths of the Pacific, one would think that the South China Sea was better known.

8. Adam Mc Donald , “China’s Maritime Strategy: A Prolonged Period of Formulation”, *Canadian Naval Review*, vol. 8, n° 4, winter 2013, p. 9-13, and Ronald O’Rourke, “China Naval Modernization: Implications for U.S. Navy Capabilities – Background and Issues for Congress”, Congressional Research Service, Washington DC, 8 September 2014.

9. This committee meets every 2 years, alternatively in China or in one of the ASEAN countries.

10. For example, since the middle of the 1990s, projects between ASEAN member countries and the South China Sea Oceanology Institute (founded in 1959 at Guangzhou under the auspices of the Chinese Science Academy) have developed, reaching a total of 150 projects in 2013.

Chinese proposals are numerous at every level and in every domain, yet the difficulty in finding substantial information on the content of the projects is real. Nevertheless, the number of actors motivated by a better understanding of the terrain (marine research, marine economy, maritime security...) has grown exponentially, particularly from a very pragmatic Chinese side, which has prioritized applied research over fundamental research¹¹. During the December 2013 Brunei Summit, Prime Minister Li Keqiang talked of the “strengthening of maritime cooperation” by indicating that Beijing would like to initiate projects sponsored by the China Maritime Cooperation Fund / ASEAN (financed by China to the tune of \$482 million). This fund’s priorities are marine research, environmental protection, off-shore exploration and navigational safety. Malaysia, Cambodia, Thailand and Indonesia have responded favorably.

Objectively, these efforts serve the interests of both China and the Southeast Asian countries at the same time: the sea is a communication route and vital artery for trade¹² and economic prosperity, as well as a zone rich in exploitable resources. The maritimization of the economy is an asset for growth¹³. Estimates in 2015 indicate that 90% of trade outside China transits through the South China Sea, whilst almost 60% of economic activity in Southeast Asia is linked to the sea. China is already the world’s largest importer of oil. Since 1999, it has also had the largest fishing fleet in the world. Thirteen of the 20 biggest ports in the world are Chinese: the shipping ports of the Yangtze River delta (including the port of Shanghai), are first in world rankings, whilst Hong Kong and Guangzhou (Canton), which open onto the South China Sea, are in the top 10. Singapore is in 2nd place and Port Klang in Malaysia in 12th (2013). In Vietnam (3,400 km of coastline), maritime activities represent half of GDP. Today China is the world leader in ship building, whilst the Philippines and Vietnam are also well-placed in 4th and 7th positions¹⁴. Everywhere, maintaining growth is a major political challenge for regimes and depends on import/export capabilities. Because China faces sustained pressure on its resources (food, energy and water), it is turning more and more

11. Research done in physical oceanography and biology as well as geology or oceanographic chemistry have directly contributed to fishing development, research and exploitation of offshore hydrocarbon deposits, protection of the environment and the installation of the Naval Base at Sanya.

12. Yves-Heng Lim, “From Vulnerability to Security? China’s Increasing Efforts to Protect its Maritime Lifelines” in *“The Driving Forces Behind China’s Naval Modernization”*, 9 May 2011.

13. For 15 years, the importance of Chinese maritime economy has been the subject of in-depth research, discussion with Kate Walsh, US Naval War College, 21 October 2014, and Kathleen Walsh, “China’s Blue Economy: Ambitions and Responsibilities” in *“Exploring the Frontiers of US-China Strategic Cooperation: Roles and Responsibilities beyond the Asia-Pacific Region”* Melanie Hart ed., Centre for American Progress, November 2014, as well as the activity report presented by Li Keqiang in March 2014.

14. As of end 2014 (Statista).

towards the sea by exploring all areas that might be exploitable¹⁵; the country's 12th 5-Year Plan (2011 – 2015) devotes a complete chapter to the promotion of the “maritime” economy. Furthermore, a little over 500 million individuals live less than 160 km from the coasts of the South China Sea (7% of the world's population) and this number is constantly rising.

Areas of both real and potential cooperation are not lacking: commercial routes (more than 50% of the global annual merchant tonnage), fishing (20% of global fish stocks plus an annual catch of almost 26 million tons, that is to say 12% of the global catch¹⁶), mineral sea resources, hydrocarbon extraction¹⁷, genetic resources, tourism, natural disasters, piracy, and illegal trafficking. Working groups, within or outside international institutions are numerous: Food & Agriculture Organization (FAO) for fishing; Asia-Pacific Economic Cooperation (APEC) for commercial traffic; UN Environment Program (UNEP) for ecology and the ASEAN regional forum for piracy and trafficking.

Understanding the Sea

Once again, the South China Sea, as one of the most extensive marginal seas in the world (3.5 million km²), remains poorly understood¹⁸. Numerous areas of research are still embryonic: tectonics, currentology¹⁹, sedimentology, marine geology, etc. It is only recently that an exhaustive survey of many of the region's islands has been carried out²⁰. As for underwater charts, often

15. For example, China has constructed the world's largest desalination plant at Tianjin.

16. U. Rashid Sumaila & William W. L. Cheung *Boom or Bust: The Future of Fish in the South China Sea*, University of British Columbia Fisheries Economic Research & Changing Ocean Research Unit, 2015, <www.admcf.org>.

17. According to a report from the Chinese National Energy Administration (December 2012), the South China Sea should become the principal offshore exploration ground for natural gas, with the potential of producing several billion cubic meters (bcm) per year. The American Energy Information Agency believes that the South China Sea is sheltering some 11 billion barrels of oil and 190 trillion cubic feet (or 5.4 trillion bcm) of natural gas.

18. In September 2014, a submariner (Wang Hongli) received a distinction for having saved his submarine and crew after it was severely shaken by a drop in water density (and therefore pressure). This incident reveals the lack of understanding of the effects of currents in the area Cf. Laura Zhou “PLA reveals how the captain stopped the submarine from falling into a 3,000-metre trench”, *South China Morning Post*, 3 September 2014.

19. If gas reserves, oil and methane hydrates were to be exploited, it would require the construction of underwater pipelines capable of withstanding the force of ocean currents.

20. It was only in February 2014, after 3 years of work, that China's SOA published a “complete” chart (i.e. detailed topography) of some 10,500 islands considered “Chinese”, see “China gathers high-tech surveillance data on its islands”, *Xinhua*, 1 March 2014.

established from meso-data, their quality is questionable; unsafe navigation of submarines justify the importance of bathymetric mapping campaigns. In October 2014, satellites enabled geophysicists to establish more precise under-water charts. The South China Sea deep-water basin extends across 52% of its surface area with an average depth of 4,300m (the maximum recorded depth in the South China Sea is 5,559 m). With increasing traffic²¹, the risks of collision and accidents increase, making the detailed work of data collection even more necessary.

Initially, it is essential to: (i) better understand the geological and geodynamic processes of the deep (the origin of the ocean crust in the South China Sea remains an enigma²² and an important research project concerning this ocean's formation, via the analysis of the crust, was launched in January 2014 by an international team of scientists (from countries including China, the Philippines, India and the United States making the first expedition of the International Ocean Discovery Program (IODP); (ii) evaluate precisely the resource potential; and (iii) understand the specifics of the terrain, for the placing of under-water cables and for the deployment and operational projection of submarines. The South China Sea also constitutes an ideal laboratory for understanding the processes of continental break-up, the forming of the maritime basin²³ and continent/ocean interactions. Similarly, the field of regional hydrology is barely understood. Finally, the most advanced oceanographic studies will also enable better warning of meteorological phenomena and evaluate in which way and how the sea (its density, salinity, pressure) affect climate, monsoons, or cyclone formation. The 2004 tsunami, for example, had not been considered in any way a major risk, yet the South China Sea borders the highly tsunami-generating subduction zone of the Philippines. Meteorological complexity is an influential factor on maritime shipping, resource exploitation and fishing activities. The sharing of information and the establishment of disaster prevention and management systems is needed; the Chinese Meteorological Office is working with its colleagues from neighboring countries to gather data and share forecasts. In the same vein, China has launched a maritime Search and Rescue (SAR) program and Chinese warships are often assisting fishermen in difficulty²⁴.

21. In May 2014, 3 type 094 submarines were photographed in the Yalong Bay base (Hainan).

22. Rasoul Sorkhabi, "The South China Sea enigma", *Geoexplor*, vol. 10, n° 1, 2013.

23. The under-water mountains which protrude from the center of the Southern China Sea are likely to be of volcanic origin.

24. An operation was highly mediated in May 2006 when the Chinese Minister for Transport "saved" 330 Vietnamese fishermen and 15 boats after a large storm. Cf. "The Largest International Maritime Rescue Operations Successfully Rescued 330 Vietnamese Fishermen", *People's Daily*, 22 May 2006, p. 5.

In 2014 China decided to launch a large international oceanic research project, its largest project with financial backing of \$165 million and a collaboration of some 1,000 researchers. Over 5 years, the *Western Pacific Ocean System Project (WPOS)* should be able to establish the causality links between the sea and the climate. The Chinese Science Academy Institute of Oceanology (in Qingdao), has suggested to Malaysian and Indonesian teams that they work with its researchers; in fact it is just off the coast of these two countries that rising seawater temperatures are most pronounced. A robot vehicle, "Haima" (Seahorse), capable of reaching depths of 4,500m, will be employed to take pictures, collect samples and gather positioning data. A China/ASEAN Oceanographic Institute has also been announced²⁵.

The numerous projects initiated demand time (they run over several years) and a substantial financial investment. They can only start once all parties (in conflict) are in agreement, in order to avoid risks to their smooth running. China therefore needs formal agreement from neighboring countries that then discover, as they go along, the operational limits of their participation. At the same time, it is difficult for them not to respond to the generous and continuous "scientific" invitations from their Chinese partners; the "best" students are selected for training in China with lucrative financial incentives (scholarships).

China's scientific "lag" in the marine domain is being overhauled. The submarine vehicle project was completed in 2012, when the Jiaolong ("Fabulous Sea Dragon"), also known as the "Submarine of the abyss" (capable of descending up to 7000m), accomplished 6 dives in the Mariana Trench²⁶. Possessing exploration capabilities, the Jiaolong is planned to conduct further dives in the South China Sea (2015 / 2016), 21 having been already done between June and September 2013. This series of explorations of the ocean floor aims to mark out the exploitation zone of the abyss between the depths of 4,000m and 5,000m and conduct research on underwater samples²⁷. It is the Jiaolong that symbolically planted a Chinese flag on the seabed of the South China Sea in 2011, a gesture considered provocative by China's neighbors for showing Chinese scientific superiority and the potential political misappropriation. Moreover, China is also pursuing the development of complex, high-resolution exploration systems using surface ships with multi-faceted capabilities, underwater observatories, intelligent remote-controlled robots, and projects in the areas of satellite gravimetric and altimetry analysis. In March 2014, the University of

25. This information, found in an article published on line by the University of Xiamen, has never been confirmed. See "XMU Starts Building an Oceanic Scientific Research Vessel", <<http://admissions.xmu.edu.cn/en/show/98.html>>.

26. The Jiaolong submarine itself became operational in 2010.

27. Zhu Hong, « Une percée dans l'exploration des fonds marins », *La Chine au Présent*, 17 February 2013.

Xiamen announced the construction of a 3,000 ton oceanographic research ship (geology, meteorology, hydrology, underwater chemistry, etc.), capable of permanently embarking 40 scientists. With these and other advances, the risk for Southeast Asian countries to lag behind in scientific research is seriously rising.

The Philippines and Vietnam attempted scientific cooperation between 1996 and 2006; known as JOMSRE-SCS (Joint Oceanographic and Marine Scientific Research Expedition in the South China Sea), the project's first objective was to establish a degree of confidence whilst Vietnam became part of ASEAN. This bilateral cooperation was renewed 3 times up until 2006 and covered marine biodiversity, geology and pollution. Following a conference at Halong in March 2008, the decision was taken to enlarge the number of participants and to open up the discussions with China. After 3 preparatory meetings, further meetings were suspended for political reasons and the Phase 2 JOMSRE-SCS project was stopped.

Exploiting the Sea

Exploration efforts include prospecting to find natural resources. All neighboring nations are interested in exploiting the deep sea resources of this basin; the difficulty is in knowing which parts are likely to be the object of joint exploitation.

Fish and hydrocarbons are vital resources for the region's economies. Fish populations are threatened by over-exploitation and destructive practices such as dynamite or cyanide fishing. Management of stocks becomes necessary in a context where incidents are multiplying, precisely because those stocks are becoming rare, or even extinct²⁸ for certain species. To this day, however, no regional agreement has been established²⁹ and it is only through bilateral cooperation that modest progress is being made between China and Vietnam (December 2000) and with Indonesia (2004). The Philippines were also considering the opportunity to sign one such agreement (in the Scarborough zone) but the introduction of a prior fishing or research agreement on the waters of the South China Sea (voted on 29 November 2013 and effective in January 2014) by China's Hainan province, put a permanent damper on the idea. Furthermore, since 1999 when China brought into service a larger number of more efficient fishing boats³⁰, it decreed an annual

28. According to the WWF, for example, fish stocks could have fallen by 80% in the Philippines over the last 50 years.

29. The Southeast Asia centre for fishing development, which promotes "rational use of fish stocks", welcomes Japan but not China and only has a limited research component.

30. In May 2012, China launched the "Hainan Baosha 001", a fishing and marine transportation boat of 32,000 tons, deployed in the South China Sea and accompanied by 3 small support boats.

fishing ban in the northwestern section of the South China Sea, effective for up to 2 to 3 months every year. The boats that circumvented this ban were subjected to fines and seizures by Chinese Fishing Administration vessels³¹. Once again, the question is: to whom does this ban apply? The arrest and seizure of fish from Vietnamese boats (given back after payment of heavy fines) was the subject of strong objections from the Vietnamese Minister of Foreign Affairs and the Vietnamese Fishing Society³². To avoid repeated incidents, and in addition to the fishing agreement, discussions were held on the establishment of protected maritime areas³³ within the legal framework of UNCLOS, of which articles 61/116 & 119 encourage countries to manage the totality of the resources, even in disputed areas. Regular meetings of networks of professionals who together consider the preservation of biodiversity to be a common good are clearly useful, not only for their tangible results but also as a test for joint work.

Hydrocarbons (oil, natural gas, methane hydrates³⁴) constitute the other possible large cooperation project, which is far more lucrative³⁵ and therefore carries more risk of conflict. The South China Sea is situated at the convergence of 3 large tectonic plates: the Eurasian, the Indo-Australian and the Philippine-Pacific. Understanding the tectonic and strategic evolution is crucially important for the exploration of oil and gas resources in basins where the geology is complex. This research also enables a selection of the best sites and an improvement in efficiency by rejecting those sites that are less well stocked. China, with the Chinese National Offshore Oil Corporation (CNOOC) and other state-owned oil conglomerates, has capable assets and resources that most of its neighbors lack³⁶; Malaysia (with Petronas) can claim to operate alongside the best of them, but Vietnamese or Filipino companies are limited to joint

31. Lyle Goldstein, "Chinese Fisheries Enforcement: Environmental and Strategic Implications", *Marine Policy*, 40, 2013, p. 190.

32. Beijing authorized the Hainan maritime police to conduct boardings and seize the foreign boats in areas China considered to be its own territorial waters.

33. Vu Hai Dang, "Marine Protected Areas Network in the South China Sea: Charting a Course for Future Cooperation", Brill, Nijhoff, 2014.

34. Since 2009, the Marine Geology Commission of Guangzhou (which sits under the Ministry for Land & Resources) commissioned the geophysical research boat "Haiyang 6" to look for methane hydrates.

35. Although the reserves have not to this day been verified, oil and gas volumes extracted in the zone only represent around 1% of global hydrocarbon production. According to a 2013 note from the EIA (Energy Information Administration of the US Department for Energy), the oil reserves proven and probable around the Spratly will be small whilst those for gas could be as low as 700 billion M³. CNOOC announced, through an independent study, a significant potential of undiscovered resources, but without confirming the figures, cf. <www.eia.gov>.

36. In 2009, the CNOOC announced its intention to invest \$30 billion over 20 years in South China Sea exploration. Construction of a second deep-water foraging platform is planned for 2016, indicating further incidents on the horizon.

ventures³⁷. A temporary arrangement will therefore be the best solution, “the most practical solution whilst waiting for final resolution”³⁸. Following the signature of the Conduct of Parties in the South China Sea declaration, the intent was always to find a resolution, and in 2005, an agreement was found between China, the Philippines and Vietnam to launch a trilateral exploration program. This agreement was “capsized” after the departure of the Philippines, who considered that the program was too focussed, in part, on the maritime space “under its jurisdiction” and because the suspicions of corruption in the Philippines (President Macapagal-Arroyo’s entourage³⁹) were proven correct.

In furthering this initiative, a Joint Working Group (JWG) was established without much enthusiasm. “The quibbling nature of the Chinese” (according to an interviewee), especially since Beijing wanted discussion on a bilateral basis⁴⁰, was a source of concern; “besides, on numerous occasions, the countries of Southeast Asia noticed that keeping facts secret was a well-honed Chinese technique: they take everything we give them but never give anything back”⁴¹. Blockages and tensions prevented further exploration campaigns from being led due to the fear of seeing an important deposit discovered by those who are initially perceived as “competitors”. This explains why the majority of the campaigns were led in the region’s non-contested zones, notably along the coasts. Beijing alternates its methods: on the one hand, the Chinese try to intimidate the oil companies that work with other local nations (in Vietnam, certain companies such as BP have suspended their research), and on the other hand, friendly overtures are regularly made.

In other domains like poly-metallic nodules, cobalt-rich crusts and hydrothermal sulfides (China is the only country in the South China Sea region able to explore the depths for these 3 types of mineral⁴²) numerous prospecting campaigns remain to be led and are currently organized by the Chinese Ocean Mineral Resources Research & Development Association (COMRA). Chinese

37. Vietnam has secured joint ventures with Russian, Indian, Malaysian, American and European companies.

38. Leonardo Bernard, *Prospect for the Joint Development of Hydrocarbon Resources in the South China Sea*, paper for the Conference on Maritime Confidence Building Measures in the South China Sea organized by the Australian Strategic Policy Institute, Sydney, 11-13 August 2013.

39. Bill Hayton, *op. cit.*, p. 130-135.

40. Thus in 2010, China and Brunei began cooperation in joint offshore exploration, confirmed in April 2013 by a visit of the Sultan to Beijing. In October 2013, a MoU was signed regarding maritime cooperation between the CNOOC and the Brunei oil company, Sendirian Berhad.

41. Discussion with a Filipino diplomat, who wished to remain anonymous, Manila, 12 May 2014.

42. Claude Leblanc, « Pékin va aller chercher le cobalt au fond des mers », *L’Opinion*, 5 September 2013.

technological advances and its capacity to conduct far-reaching research does penalize or marginalize Southeast Asia.

Protecting the Sea

It is in the ecological domain that cooperation is most active: conflict resolution will take years, while from now it is critical to stem the current pollution⁴³. Contrary to resource exploitation, protection of the marine environment does not come under any commercial agreement; countries feel free to participate in different initiatives without worrying about a possible weakness being exploited by the other participants.

Accelerated and intense industrialization, environmental warming including rising sea temperatures, water pollution (a million tons of untreated and non-sanitized waste water is poured into the South China Sea every year⁴⁴) and mass tourism have direct effects on the ecological balance of this incredibly rich natural space. The South China Sea is the habitat of an impressive diversity of plant life (more than 550 coral species), which is itself vital to the survival of a broad spectrum of marine species, but is also subject to an accelerated degradation; the mangrove surface area for example has fallen by 70% over the last 50 years and the coral reefs have recorded an 80% reduction since the 1950s⁴⁵. Some rare species are threatened with extinction.

Even if it remains “insufficient”⁴⁶ to effectively protect local ecosystems, consultation has been increasing steadily since the 1990s. In matters of environmental protection, Jakarta is China’s preferred partner: a MoU was signed in 2007 that established a Technical Cooperation Committee; in 2010 the Indonesian-Chinese Centre for the Ocean and Climate (ICCO) was created between the SOA and the Centre for Research & Development of Coastal and Marine Resources (Indonesian Ministry for Marine Affairs & Fishing); and in April 2011 the Oceanic Observation Station was inaugurated in the port of Bungus at Padang in Western Sumatra⁴⁷. In 2012, a dedicated fund was set up for Chinese-Indonesian maritime cooperation. China has also entered into cooperation with others in

43. The main pollutants are inorganic chloride, active phosphate and oil. Some have resulted in eutrophication of seawater and disrupted the balance of the marine ecosystem.

44. Hai Dang Vu, *Marine Protected Areas Network in the South China Sea: Charting a Course for Future Cooperation*, Koninklijke, Leiden (NL), 2014, p. 22.

45. The study conducted by the SOA between 2004 & 2012 was not published but frequently mentioned in the media.

46. Cf. Hai Dang Vu, *Towards a Network of Marine Protected Areas in the South China Sea: Legal and Political Perspectives*, University Dalhousie, July 2013.

47. It is the first Observation station that China has built with an external partner. Three to five other projects are currently underway.

this field. In 2009, it committed to a cooperation agreement on Marine Science & Technology with Malaysia. In December 2011, China (SOA) and Thailand (Department of the Environment) signed a MoU on marine cooperation and in 2013 a joint project team based at the Phuket Marine Biology Centre was established to study marine ecosystems and the climate and, specifically, the protection of marine biodiversity. Beyond these bilateral initiatives, many agreements were put in place with mixed success because their implementation inevitably ran up against sovereignty issues. For Sherrey P. Broder of the University of Hawaii, “this cooperation was well below what one would expect”⁴⁸. According to the Conference of Parties to the Convention on Biological Diversity, the protected marine zones, for example, should represent around 10% of the South China Sea by 2020, while in 2013 the figure was just 0.31%⁴⁹. One of the difficulties is selecting candidate zones, since criteria vary from one country to another, despite being provided by the World Commission for Protected Areas (WCPA).

Two institutions were set up to strengthen cooperation on environmental protection. PEMSEA (Partners in Environmental Management of the Seas of East Asia) and COBSEA (Coordinating Body for the Seas of East Asia) proved more efficient with its flagship project, the “South China Sea Project” (2002 – 2009), an inter-governmental initiative concerning 7 countries: Cambodia, China⁵⁰, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. This program initially conducted an evaluation of degradation before drawing up proposals for “strategic actions” to reverse environmental degradation in the South China Sea and in the Gulf of Thailand.

Finally, even if final results remain mediocre and not decisive⁵¹, projects run in the name of “environmental protection” have justified hundreds of meetings that have enabled the formulation of questions and common responses by “cooperative and responsible” partners: they contribute to an atmosphere of *entente cordiale*, from a very basic level all the way up to the political and diplomatic level. Common policies have been put in place, such as the fight against oil spills proposed by China during the 5th ARF Maritime Security meeting in Seoul (2013) and validated during the 20th Foreign Ministers’ meeting in Brunei.

48. Sherry P. Broder & Jon Van Dycke, “Regional Maritime Cooperation in the South China Sea: COBSEA and PEMSEA” in Dr Yann-huei Song & Keyuan Zou, *Major Law and Policy Issues in the South China Sea*, Ashgate, April 2014, Chapter 2.

49. Hai Dang Vu, *op. cit.*, p. 1.

50. However, China was selective and has not participated in “Fishing Resource” groups or in those for “Coral Reefs”.

51. Like an exhibition on biodiversity led around the Natunas & Anambas Islands in 2002. Three scientific projects are currently underway.

Scientific Cooperation – a strategic tool?

All neighboring countries confirm that “the sea is and must remain a peaceful space”, that “to find a solution to the conflicts is going to take time” and that “the tensions, instability and the probability of conflict would be reduced if each party contributed to moving closer to UNCLOS and the Declaration of Party Conduct of November 2002”⁵². In order to construct the regional security architecture, Chinese experts believe that “we must make the rocks of dispute drown in the sea of cooperation”⁵³, referring to Deng Xiaoping and his famous 1984 speech at Georgetown University, which called for leaving aside questions of sovereignty in order to understand and explore together.

To be certain, since the 1990s, the discussion on scientific cooperation and the participation in existing international networks has formed part of the narrative around what would come to be known as China’s “peaceful rise”; and it is used to activate China’s patriotism. As Chinese geostrategic culture develops a diversified holistic approach, scientific cooperation naturally finds its place: it is considered as part of its military strategy to protect what is viewed as its national space. On 13 November 2014, during the 25th ASEAN Summit, Li Keqiang proposed a Friendship & Cooperation Treaty with Southeast Asian countries, accompanying it with an offer of a \$20 billion loan with calls for joint development as “a realistic and effective way” to manage disputes in the South China Sea, directly with the countries concerned”⁵⁴. Its ambition is to reduce any notion of a Chinese threat.

China benefits from, and plays with, the weaknesses of its adversaries: disorganization, lack of means or the absence of ambitious scientific projects in the majority of the Southeast Asian

52. Rodolfo Severino, “Cooperation for regional security and development in the South China Sea”, Conference on *The South China Sea: Cooperation for regional Security and Development*, organized by the Diplomatic Academy of Vietnam, Hanoi, 11–12 November 2010. One notes, however, the lack of clarity from the Surveillance and Information Convention.

53. Su Hao & Ren Yuan-Zhe, *Making the rocks of dispute drown in the sea of cooperation: the role of the South China Sea in the process of east Asian cooperation*, East Sea (South China Sea) Studies, 15 July 2011, <<http://southchinaseastudies.org>>.

54. Shannon Tiezzi “China offers \$20 billion in loans for ASEAN”, *The Diplomat*, November 15, 2014.

countries, virtually give China free rein. China invites and finances cooperation, but has never joined a serious scientific proposal put forward by ASEAN, or by one or any of its member countries, thus creating an imbalance in its favor. Through an efficient implementation of its “soft power”, Beijing provides itself with the means to hold a competitive advantage in future operational missions. China is the country that knows the contested maritime spaces the best, such that it can (i) uphold its “historic rights” and (ii) deploy its forces there. At the same time, scientific cooperation becomes a strategic asset and a tool that fits into the overall strategy for non-military coercion⁵⁵.

Sequencing

To argue in favor of a “strategic” use of scientific cooperation, the first applicable argument is that of sequencing. China is the one actor who decides and orchestrates research programs and the only time when scientific cooperation really made progress was when China needed Southeast Asia to develop its policy of a “harmonious world”. Initially, up until the mid-90s, Chinese reengagement of this maritime space was massive and structured. Fourteen new coastal cities were declared “open” in April 1984; maritime transport companies were created and naval dockyards benefitted from an unparalleled expansion; resources were catalogued with more attention; the Chinese National Offshore Oil Company (CNOOC) was established in 1982 and the first explorations were initially conducted near the Chinese coasts, not far from the Pearl River delta, then in the Gulf of Tonkin (Beibu). Laws on environmental protection, security of maritime traffic and fishing were voted in 1982, 1983 and 1986, respectively. The first pollution surveys were launched in the South China Sea. From 1982, the SOA, itself created in July 1964, became responsible for research, environmental protection and area surveillance; an accumulation of tasks that partly explain the overlapping of administrative responsibilities that China uses to its advantage. In February 1992, the Chinese Parliament brought into effect a law on territorial waters that reaffirmed Beijing’s sovereignty over the Spratly.

Once this base had been established, China proposed cooperation initiatives that were accompanied by diplomatic efforts. In 1994, China joined the ASEAN Regional Forum (ARF)⁵⁶ and security forums such as the Council for Security Cooperation in the Asia-

55. Peter Dutton, “Viribus Mari Victoria? Power and Law in the South China Sea”, for CSIS Conference, *Managing Tensions in the South China Sea*, Washington, DC, 5-6 June 2013, <<http://csis.org/files>>.

56. Su Hao, *From Dumbbell Structure to Oliver Community: Cooperative Security in the Asia-Pacific Region*, World Affairs Press, 2003.

Pacific (CSCAP). Enter the era of “cooperation”: in order to show that China’s emergence represented an opportunity and not a threat, scientific cooperation fit perfectly into the category of “harmonious diplomacy”.

It was during the period of negotiations for the Declaration on the Conduct of Parties in the South China Sea that China proved to be the most ambitious littoral nation, precisely because it sensed reticence⁵⁷ and offered compromises to appear credible⁵⁸. It was also during this period that internal pressure bore down hard, constraining authorities from considering all available options.

Progress was observed from the end of the 1990s and during the years that followed the signing of the 2002 declaration. According to the text (article 6), the signatories committed to explore or undertake cooperation activities until a settlement was reached. These activities concerned (1) environmental protection; (2) maritime scientific research; (3) navigation and communication safety at sea; (4) rescue operations at sea and (5) countering transnational crime such as piracy and trafficking. This cooperation seemed to work well within the logic of the declaration, up until 2008. In September 2004, Gloria Macapagal-Arroyo went to China to sign projects concerning oil and gas exploration⁵⁹ and in October 2004, the Chinese Maritime Safety Administration and the Philippine coast guard led a rescue exercise for the first time. In September 2004 too, the sultan of Brunei visited China and signed an agreement on petrol and natural gas exploration cooperation; Bolkiah expressed the desire “for a strengthening of cooperation in order to develop activities in the South China Sea”⁶⁰. It is because of these two agreements that Prime Minister Wen Jiabao proposed identical cooperation projects to Vietnam in October 2004; in December, negotiations were started to “jointly develop the South China Sea”. Following this, on 14 March 2005, three oil companies from China, the Philippines and Vietnam signed a “historic” tripartite agreement⁶¹ in Manila to jointly conduct

57. Beyond the single issue of “maritime development”, which worried the neighbors, their reticence was exacerbated after a series of occupations decided by China: the South Johnson Reef incident with the Vietnamese in 1988 followed by the permanent installation of a Chinese garrison, the Mischief Reef incident with the Philippines in 1995 followed by the construction of different buildings benefiting the Chinese Fishing Administration.

58. Illustration of compromises: after more than 10 years of negotiations, China and Vietnam signed an agreement on the demarcation of maritime borders in the Gulf of Tonkin on 25 December 2000.

59. Bill Hayton in his book (plus discussions) *The South China Sea, the Struggle for Power in Asia*, Yale University Press, Yale, 2014, p. 133, confirmed that the corruption which had benefitted those close to the President was no different to this cooperation.

60. Joint Communiqué Between the People's Republic of China and Brunei Darussalam, September 22, 2014

61. This trilateral agreement, the Joint Marine Seismic Undertaking (JMSU) referred to a seismic study in the sea around the Spratly completed in July 2008 that has not been restarted. It would seem that the Arroyo clan around the Filipino President

prospecting for oil and gas resources in the contested areas of the South China Sea and to share the information gathered over an area of approximately 140,000 km². Several months later at the Economic Cooperation Summit of the Greater Mekong sub-region (GMS), this alliance was reinforced by the signing of an agreement between China and Vietnam, centering on the joint development of the disputed zones. The key issue was initially to test the feasibility of cooperation on the ground and to potentially extend it to other areas (in January 2008, talks began in Beijing between China and the Philippines to discuss an agreement aiming to establish a common fishing ground). The cooperation in the Gulf of Tonkin constituted another project between China, Vietnam, Malaysia, Singapore, Indonesia, Brunei and the Philippines, covering joint exploration, maritime traffic management, tourism and environmental protection. From a Chinese perspective, the Guangxi government was the most involved actor in the “economic cooperation zone of the Gulf of Tonkin (Beibu)”. Around the time of project launch in 2006, optimism was the order of the day and joint Chinese-Vietnamese patrols could even be seen.

The third element in the sequence is that of the Chinese reaffirmation of its strategic rise. The Chinese approach to scientific cooperation is better organized and better coordinated than most of its neighbors in Southeast Asia, even with competition or poor communication between the various institutions⁶². The transition towards greater assertiveness had already begun at the end of the Hu Jintao period, with demonstrations of power and claims made in a context of flattering nationalism. In 2009, the South China Sea became “a vital zone of interest” and tensions multiplied. Specifically, scientific cooperation, where China has a clear lead, shifted the relationship to Beijing’s advantage.

President Xi Jinping, in an uninhibited style that included “reassurance and calm”⁶³, adopted a more incisive tone on the South China Sea dossier in a context of a more coherent geopolitical approach for East Asia⁶⁴. China reaffirmed its sovereign fishing and policing rights on the Scarborough Shoal (198Km from Subic Bay) in April 2012, an area also claimed by the Philippines who, like China, had been conducting scientific missions there since the 1980s⁶⁵. The same month, the SOA announced the establishment of a national oceanic research flotilla whose mission is to conduct broad-reaching oceanic studies and complete large national research projects that

benefitted considerably from the Chinese largesse. See Barry Wain, “Manila’s Bungle in the South China Sea”, *Far Eastern Economic Review*, January/February 2008.

62. The conclusion drawn from a study carried out by the International Crisis Group – “Stirring up the South China Sea (1)”, Asia Report n° 223, 23 April 2012.

63. Mathieu Duchâtel, « La politique étrangère de la Chine sous Xi Jinping », *Hérodote*, 2013/3, p. 172.

64. Tim Summers, “China’s New Leadership: Approaches to International Affairs” *Briefing Paper*, Chatham House, Asia Program, April 2013.

65. The Philippines Institute of Marine Science conducted several projects there.

would enable the creation of a platform for sharing oceanographic information⁶⁶.

From this point on the tone is more imposition than cooperation: the laws, the maps, the exploration campaigns and the construction of artificial islands⁶⁷ are systematically destined to recall China's "historic and inalienable rights" in the maritime domain⁶⁸. China is no longer in a discussion or a restrained attitude; it proposes a "cooperative diplomacy" that excludes other powers, generates a dynamic global strategy that China believes to be positive and beneficial for each of the participants but presupposes that it is driven by Beijing based on a Chinese vision of a regional order⁶⁹. "China advanced one step at a time, none of which was a *casus belli* but when accumulated brings about real strategic change"⁷⁰. At the Boao Forum of 11 April 2014, Prime Minister Li Keqiang reminded those present that "China wanted peace and development in the South China Sea but would respond robustly to any provocation"⁷¹. During the forum, a session was dedicated to "the South China Sea: seeking a win-win solution for cooperation", but was only open to those invited and the papers presented were not published.

66. Around the National Maritime Information Centre. See C. Le Miere "Why China's return to the sea may not be all bad", East-West Center, Hawaiï, April 2013

67. Starting from Mischief reef in 1995, construction of artificial islands has accelerated these last years, Cf. Koichi Sato, "China's "Frontiers": Issues Concerning Territorial Claims at Sea – Security Implications in the East China Sea and the South China Sea", *Eurasia Border Review*, vol. 3, n° 2, 2012.

68. Cf. B. Hayton, *The South China Sea: the Struggle for Power in Asia*, Yale University Press, 2014, p. 113.

69. The subject is clearly highly sensitive since China maintains a "particular" interpretation of the UNCLOS maritime rights and requires foreign ships to ask permission before entering its EEZ. The US Missile Cruiser COWPENS incident of 5 December 2013 in the South China Sea is an example of this. According to some, if this rule had been properly applied in the South China Sea and if Chinese sovereignty was recognized there, international flotillas, especially warships, would be practically excluded from this area. Robert Haddick, *Fire on the Water: China, America and the Future of the Pacific*, Naval Institute Press, 2014.

70. Bonnie S. Glaser & Deep Pal, "Is China's Charm Offensive dead?" *China Brief*, The Jamestown Foundation, vol. 14, issue 15, 31 July 2014.

71. Cf. Teddy Ng "Protecting Chinese sovereignty in South China Sea is 'unshakable', Li tells economic forum", *South China Morning Post*, 10 April 2014.

Research Organisation

Unlike the countries of Southeast Asia, China's development model for science and technology forms part of a more global strategy to validate the country's status as a powerful nation. In the tumultuous context of the South China Sea, and in Beijing's realist perspective, scientific research responds to three primary objectives: (i) control data on the area to generate and maximize the greatest number of options; (ii) use research as a demonstration of power – the political usage of the Jialong submarine is one such example; (iii) reaffirm Chinese sovereignty through the bias of holding on to selected scientific data: this would also allow China to potentially make concessions on certain areas after it has confirmed for itself that they hold little interest.

In order to pursue these objectives as efficiently as possible, China has put into place two primary levels of stakeholders:

- 1) A very active first level is confined in the strict sense to scientific cooperation, even if it remains for a number of practical reasons⁷² mostly driven by Chinese researchers. "In Southeast Asia, notably amongst the neighboring nations, we have neither the academic and financial capability, nor the technologies to initiate large-scale projects. Straightaway we are lagging behind" admits a Southeast Asian expert. In China, scientific research on "marine issues" is supported by some 190 oceanographic research organisations comprising a team of around 13,000 specialists: universities and research institutes affiliated to the Chinese Academy of Sciences⁷³ (CAS), to the SOA⁷⁴, to the Chinese Academy of Fishery Sciences and to the Departments of Environment and Agriculture. The most important are the Qingdao National Laboratory for Marine Science and Technology, the State Key Laboratory of Estuarine and Coastal Research (China East

72. The researchers in Southeast Asian countries have little means and less ambitious research projects of insufficient visibility and a smaller network. They are more often in competition with each other to participate in international research project teams in a cooperative manner. For political and security reasons, certain projects can even be duplicated. A report on marine cooperation between the Philippines and Japan, for example, quoted the Philippines as being "deficient in management and lacking finance and political support". Discouragement is frequent amongst young researchers and cooperation with foreign partners is the only way to get programs progressed. Cf. Miguel Fortes, "The Philippines JSPS Coastal Marine Science Program: Status, problems and perspectives" in *Coastal Marine Science in South-East Asia*, 2011, chapter 18, p. 175.

73. Qingdao Institute of Oceanology, Guangzhou Institute of Oceanology of the South China Sea, Yantai Research Institute for Coastal Areas and Wuhan Institute of Hydrobiology.

74. First – Qingdao Institute of Oceanology, Second – Hangzhou Institute of Oceanography, Third – Xiamen Institute of Oceanography, Centre for Marine Environmental Management, Centre for Marine Predictions.

Normal University), the State Key Laboratory of Marine Geology (Tongji University), the State Key Laboratory of Marine Environmental Science (Xiamen University) and the State Key Laboratory of Satellite Ocean Environment Dynamics (of the SOA). The principal research themes are marine biology, oceanography, ecology, mariculture, energy explorations (including renewable energies), and conservation of the sea and climate change. The universities have their own research vessels. Finance comes mostly from the SOA, from the Chinese Foundation for Natural Sciences (CFNS), from the Ministry of Science & Technology, from the Ministry for Environmental Protection and the Ministry of Agriculture. According to Minhan Dai (Xiamen University), the overall marine research budget has increased more than 25% over the last 5 years to reach around 14 billion Renminbi, the equivalent of around \$1.8 million⁷⁵.

2) A second, far more political level, decides on projects against political criteria. The direction is fixed by different programs (the State Ocean Development Program [2006 to 2020] and the ocean development portions of the country's regular 5-year plans) and driven by the principal bodies of the Chinese state under the direct authority and involvement of Xi Jinping. It is Xi who demanded a special session on Chinese maritime power in July 2013. The Central Maritime Rights Leading Small Group, established in September 2012, is - according to Bonnie Glaser - a small group of 12 people including representatives of the Armed Forces led directly by Xi Jinping (indeed, even before he assumed the post of Secretary General of the CCP) in order to coordinate the agencies. Another closed group, also under the authority of Xi Jinping, deals with South China Sea affairs⁷⁶; in June 2012 it launched an international cooperation program in the South China Sea (and adjacent seas - 2011 to 2015) to support efforts regarding marine cooperation with the authorities and institutions of Southeast Asia and to finance the studies done in China by the students and experts in this field.

75. This information, given during the "Ocean Sciences Research in China: My Personal Perspectives" presentation <www.slideserve.com>, has not been able to be confirmed.

76. Bonnie Glaser, "China's Grand Strategy in Asia", Statement before the US-China Economic and Security Review Commission, Washington DC, 13 March 2014.

Following a broad reform of maritime agencies enacted in March 2013, which served to centralize the bureaucratic control over maritime law-enforcement⁷⁷, the State Oceanic Administration⁷⁸ (SOA) is positioned astride 2 domains: the research element and that of strategy and policy. It has a dual structure, civilian and military, which adds to the confusion, according to Linda Jakobson⁷⁹. Amongst other bodies⁸⁰, it enforces the application of maritime law, protects ocean resources as maritime rights and interests of the country. Its area of expertise is vast, particularly after the reform, but it does not carry the weight of a “Ministry” (according to Jakobson⁸¹). Its position between the Ministry of Land & Natural Resources, to which the SOA refers, and the multiple agencies that it manages, is ambiguous.

A new State Oceanic Commission was established in March 2013 to coordinate oceanic affairs and the application of maritime law more efficiently. Ground operations for this commission would be conducted by the Maritime Surveillance Agency, which was not authorized to be armed, but could be in the future⁸². Four maritime bodies (law enforcement agencies) have been fused into the Chinese maritime Police Bureau.

The Coast Guard, which maintains close ties with both the Armed Forces and the Communist Party, “are vectors of Chinese ‘Naval soft power’ and like the ships used in humanitarian missions or the oceanic research vessels, they are to be watched closely: with 370 in service in 2013 (according to IISS London), they could muster 500 modern and well-equipped ships by 2020”⁸³. Furthermore, a large number of fishing vessels having impressive radar coverage⁸⁴ can serve as information bases.

Moreover, since 2009, Chinese Navy commanders and the SOA management meet to discuss development plans and,

77. Nong Hong, “China’s Maritime Law Enforcement Reform and its Implication on the Regional Maritime Disputes”, Asia Maritime Transparency Initiative, AMTI/CSIS, 1 April 2015, <<http://amti.csis.org>>.

78. The current Vice Minister for Public Security Meng Hongwei was appointed to the posts of the Deputy Director of the SOA and the Director of the Maritime Police while the Director of the SOA is the political Commissar of the Maritime Police.

79. Linda Jakobson, “China’s unpredictable maritime security actors”, *Report*, Lowy Institute, December 2014.

80. There are around 30 state bodies and institutions like the CIMA (Chinese Institute for Marine Affairs) or also partly in charge of the questions as well as the provincial government agencies, the large municipalities (Tianjin & Shanghai) or of autonomous regions – Guangxi, for example.

81. Linda Jakobson, *op. cit.*, p. 18.

82. “Restructured China Coast Guard takes to the high Seas”, *Global Times*, 23 July 2013.

83. Lt Cdr Jeff W. Benson, “Clash for naval power in the Asia Pacific”, USNI News, 25 November 2013.

84. John Ruwitch, “Satellites and Seafood: China Keeps Fishing Fleet Connected in Disputed Waters”, *Reuters*, 14 October 2014.

according to Lieutenant Commander Benson, “to optimize Chinese naval soft power” in accordance with the ambitions fixed by Xi Jinping. Many domains of cooperation have been taken on: strategy, protection of Chinese rights and interests, marine research and oceanic observation. This signifies that there is a closely followed relationship between the needs of the Armed Forces (particularly Navy) and the research projects launched by the SOA. These research projects are also a diplomatic tool of the highest caliber for “explaining” and “justifying” the Chinese maritime strategy and demonstrating its “win-win strategy”⁸⁵.

A strategy of “unrestricted warfare”: the Chinese strategy of ambiguity

The strategy of “unrestricted warfare” consists of “winning the war by making war outside the war and being victorious on a battlefield other than the traditional battlefield”⁸⁶. The aim is to win, not by getting into an “unlimited” conflict but by transferring the situation onto a new battlefield beyond the limits of those normally applied, in a broader context and with more extensive means. In the current situation, scientific cooperation enables China to develop an approach that does not need to resort to antagonizing the US to justify itself. It increases prestige and Chinese ascendancy as a major regional power without generating direct friction, or even by being part of a wider regional diplomatic effort, largely through the Friendship & Cooperation Treaty proposed in 2014⁸⁷ and closer engagement between China and ASEAN.

Scientific cooperation endorses the reality of the relationship, which is that of “unequal interdependence”. It is also, given the necessary means, an area where China maintains the initiative but as with “cooperation”, it is better received and Beijing therefore claims “to dispel fears”. Beijing associates its partners in supporting Chinese hard power.

Indeed, in this perspective hard and soft power merge in the name of efficiency⁸⁸. China uses its rapidly developing scientific and military potential to dissuade rivals, give credibility to its arguments and secure its regional space and its energy supply routes. One of the arguments used to justify the launch of the aircraft carrier

85. Liu Cigui, “Reflections on Maritime Partnership: Building the 21st Century Maritime Silk Road”, Chinese Institute of International Studies, 15 September 2014.

86. Qiao Liang and Wang Xiangsui, *La guerre hors limite*, préface de Michel Jan, Rivages poche / Petite Bibliothèque, Paris, 2006, p. 250.

87. Which explicitly calls for cooperation in the South China Sea.

88. And “the effect of a policy is far greater when it is not intentional but when it emerges indirectly from a current process and that it is discreet” – François Jullien, *Traité de l’efficacité*, Paris, Grasset, 1996.

Liaoning was scientific research. After the disappearance of the flight MH 370, proposals were put together for establishing a maritime search and rescue centre in the Spratly⁸⁹. China has made use of commercial agreements, outward direct investment, cultural exchanges and peacekeeping to improve its image. In this context, the intelligence services are particularly present and experts do not under-estimate the use made of the vectors of scientific cooperation such as the retrieval of discoveries and databases. Chinese naval exercises in the South China Sea are more and more frequent and getting longer; in 2013 for example, a 37-day exercise was organized around the aircraft carrier Liaoning, which included aircraft, surface ships and submarines. According to the Captain of the aircraft carrier, Zhang Zheng, “the exercise served to evaluate the training and combat capability of the aircraft carrier during a period of scientific research”⁹⁰.

The timing between the maintenance of “open” and inclusive dialogue on scientific cooperation, the pursuit by the Chinese themselves of large research programs, the maintenance of a steady rhythm of military modernization, the establishment of a far more efficient Coast Guard flotilla and the construction of a new generation of surveillance vessels equipped with planes⁹¹ in a context of reorganization and major transformation for the Coast Guard⁹² is not just coincidence.

89. 《人民日报》采访肖杰书记：“三沙一号”补给船年底将投入使用 [People’s Daily interview with Party Secretary Xiao Jie: Supply Ship Sansha No. 1 to Enter Service by End of Year], Sansha City Government website, 11 March 2014, <www.sansha.gov.cn>, cited par Linda Jakobson, p. 50.

90. VOA News, “China’s Aircraft Carrier Returns from South China Sea Mission”, VOA News, 1 January 2014, <www.voanews.com>.

91. Particularly the construction by the Chinese Shipbuilding Industry Corporation (CSIC), of a 10,000 ton surveillance vessel (the largest of this build-type in the world when the largest Chinese surveillance vessel is currently only 4,000 tons) which should be deployed in the South China Sea around Sansha, Cf. Yang Jingjie, “China builds world’s largest patrol ship: report”, *Global Times*, 22 January 2014.

92. Ryan Martinson, “The Militarisation of Chinese Coast Guard”, *The Diplomat*, 21 November 2014.

Conclusion

After two decades of “scientific cooperation”, what is the situation? If we reconsider the objectives articulated at the beginning of this study – to establish a link between conflicting parties – has scientific cooperation fulfilled its role? Has it served to establish an interim period to advance the negotiations for a Code of Conduct? Is cooperation better established now amongst the research teams? Or was it used initially to save – or buy - time?

Several conclusions can be drawn:

First, the scientific position: After more than 20 years of research programs in the South China Sea, the space is effectively starting to become well controlled. But this control is not really the product of scientific cooperation, it is rather the result of China leading research programs and beating the drum. Besides, scientific cooperation has not reduced mistrust, and common interest does not prevail.

Next, the diplomatic position: there is obviously diplomacy of scientific cooperation that enhances the symbolic value of collective research and knowledge. There is even a recognized diplomatic vocabulary. But the diplomatic position is no more satisfying when we observe the difficulty in agreeing on a Code of Conduct and ASEAN’s insistence on limiting China in its pursuits of Chinese projects⁹³.

Finally, the strategic position: It is reasonable to question the link between the understanding of the maritime space that this research has enabled and the use of this understanding for gaining power. It is interesting to note that the Chinese started discretely with construction on Fiery Cross, from 1988, when China participated in the construction of a marine observation station for UNESCO. Then China constructed a helicopter pad, a quay, buildings and even a greenhouse. Today 200 soldiers are permanently stationed there⁹⁴. Most probably, scientific cooperation programs will also give China’s submarine flotilla a decisive advantage.

93. Jared Ferrie and Simon Webb “ASEAN to Pressure China to Stick to Diplomacy on Maritime Disputes” *Reuters*, 12 November 2014.

94. China News Service 南沙守礁战士：遇不明身份船只骚扰 几天不睡觉 May 11, 2015 quoted by Shannon Tiezzi, “The Life of Chinese Soldiers in the Spratly”, *The Diplomat*, May 12, 2015.

Scientific cooperation has not reduced mistrust, and common interests do not prevail. In relations between Southeast Asia and China, the fulcrum is asymmetry. The differences in scientific cooperation noted in this paper demonstrate that asymmetry and its serious long-term consequences for neighboring countries.