IN THE MATTER OF AN ARBITRATION UNDER ANNEX VII TO
THE 1982 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA

ON THE ISSUE OF THE FEATURE OF
TAIPING ISLAND (ITU ABA) PURSUANT TO
ARTICLE 121 (1) AND (3) OF THE 1982 UNITED NATIONS
CONVENTION ON THE LAW OF THE SEA

PCA Case № 2013-19

between

THE REPUBLIC OF THE PHILIPPINES

and

THE PEOPLE’S REPUBLIC OF CHINA

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AMICUS CURIAE SUBMISSION BY THE
CHINESE (TAIWAN) SOCIETY OF INTERNATIONAL LAW

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23 March 2016

ARBITRAL TRIBUNAL:
Judge Thomas A. Mensah (Presiding Arbitrator)
Judge Jean-Pierre Cot
Judge Stanislaw Pawlak
Professor Alfred H.A. Soons
Judge Rüdiger Wolfrum
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A. INTRODUCTION

1. The present *amicus curiae* brief is submitted by the Chinese (Taiwan) Society of International Law (“the CSIL”) in relation to the arbitral proceedings instituted by the Republic of the Philippines (“the Philippines”) against the People’s Republic of China (“the PRC”) on 22 January 2013 pursuant to Articles 286 and 287 of the 1982 United Nations Convention on the Law of the Sea (“the Convention” or “UNCLOS”) and in accordance with Article 1 of Annex VII to the Convention (“the Annex VII arbitral proceedings”).

2. The Annex VII arbitral proceedings instituted by the Philippines against the PRC relate to disputes over maritime claims and entitlements in the South China Sea.

3. The Philippines stated in Notification and Statement of Claim of the Republic of the Philippines (“Notification and Statement of Claim”) that it seeks an Award, *inter alia*, that “determines whether, under Article 121 of UNCLOS, certain maritime features claimed by both the PRC and the Philippines are islands, low tide elevations or submerged banks, and whether such features are capable of generating entitlement to a maritime zone greater than 12 [nautical miles].”¹

4. The Philippines argued in its Memorial, submitted to the Arbitral Tribunal constituted under Annex VII to the Convention on 30 March 2014, that Taiping Island (also known as Itu Aba in English) does not have natural conditions sufficient to sustain human habitation and economic life of its own, and is therefore considered a “rock”. As such, Taiping Island cannot generate entitlement to an Exclusive Economic Zone (“EEZ”) or a continental shelf under UNCLOS.

5. On 16 December 2014, the Tribunal invited the Philippines and the PRC to comment on a number of issues, including (a) possible appointment of an expert hydrographer, (b) the possibility of a site visit, and (c) the appropriate procedure with regard to any *amicus curiae* submissions that

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the Tribunal may receive.  

6. On 26 January 2015, the Philippines, in a letter sent to the Tribunal, *inter alia*, (a) made suggestions as to the appropriate profile of a technical expert, (b) commented on the desirability and prospects of organizing a site visit, and (c) commented on appropriate procedures for evaluating any *amicus curiae* submission. 

7. On 6 February 2015, the PRC, in a letter sent to the Tribunal, expressed its “firm opposition” to some of the procedural items raised in the PCA Correspondence dated 16 December 2014, including “amicus curiae submissions” and “site visit[s].”

8. On 7 July 2015, at a hearing on jurisdiction and admissibility, Professor Philippe Sands, one of the Philippines’ counsels, stated: “Itu Aba, which is the largest feature in the Southern Sector, has been occupied by the authorities in Taiwan since 1946. It is no more than 0.43 square kilometers in size. It has no permanent population. It provides no water suitable for drinking, and it does not provide a meaningful amount of agricultural produce.”

9. The Tribunal forwarded to the Philippines and the PRC documentation from sources about the status of Itu Aba, including, on 10 November 2015, copies of Shao, Kwang-Tsao & Lin, Hsing-Juh, eds., *A Frontier in the South China Sea: Biodiversity of Taiping Island, Nansha Islands* (December 2014); and Ministry of the Interior, the Republic of China (“ROC”), *Compilation of Historical Archives on the Southern Territories of the Republic of China* (July 2015).

10. On 30 November 2015, during the second oral hearing held at the Permanent Court of Arbitration (“PCA”), The Hague, Mr. Paul Reichler, one of the Philippines’ legal counsels, in response to the questions raised by

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2 Letter sent by Judith Levine, Registrar, to the two parties, PH-CN 130909 (16 December 2014).
3 The Republic of the Philippines v. The People’s Republic of China, Award on Jurisdiction and Admissibility, PCA Case № 2013-19, ¶63 at 22 (29 October 2015).
4 See The Republic of the Philippines v. The People’s Republic of China, Award on Jurisdiction and Admissibility, PCA Case № 2013-19, ¶64 at 23 (29 October 2015).
the Tribunal concerning the legal status of Itu Aba, made the following eight propositions:

(1) there is no fresh water on Itu Aba suitable for drinking or capable of sustaining a human settlement;

(2) there is no natural source of nourishment on the feature capable of sustaining a human settlement;

(3) there is no soil on Itu Aba capable of facilitating any kind of agricultural production that could sustain human habitation;

(4) there has never been a population on the feature that is indigenous to it;

(5) excluding military garrisons, there has never been human settlement of any kind on Itu Aba;

(6) there was not even a military occupation prior to World War II;

(7) the Taiwanese troops that are garrisoned at Itu Aba are entirely dependent for their survival on supplies from Taiwan, and apart from sunlight and air, they derive nothing they need from the feature itself;

(8) no economic activity has been or is performed on Itu Aba.  

11. On 5 February 2016, the Tribunal sent a letter to the Philippines and the PRC inviting them to comment, *inter alia*, on Press Release No. 023 (23 January 2016), headlined “Taiping Island is an island, not a rock, and the ROC possesses full rights associated with an exclusive economic zone and continental shelf in accordance with UNCLOS” and the “Remarks by President Ma Ying-jeou on Taiping Island, dated 28 January 2016.”

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i. **Identification and Interest of CSIL**

12. The CSIL, originally named the Chinese Society of International Law, was established on 10 August 1958 as an independent non-profit academic association under the laws of the ROC on Taiwan. In 1961, the CSIL joined the network of the International Law Association (“ILA”) and serves as its branch in Taiwan. The main objectives of the CSIL include issuing publications on international law and newsletters, dissemination of knowledge and information concerning international law, and the organization of academic seminars and conferences on international law.\(^9\)

13. In addition to participating in ILA events and activities, in the past 50 years, the CSIL has hosted numerous international law conferences, including the first ILA Asia-Pacific Regional Conference in 1995, the ILA’s 68th Taipei Biennial Conference in 1998, the 2011 International Law Association Asia-Pacific Regional Conference, and the 2013 and 2015 ILA-ASIL Asia-Pacific Research Forums.

14. The CSIL began publishing *The Annals of the Chinese Society of International Law* in 1964. In 1981, Professor Hungdah Chiu became the Editor-in-Chief, and the publication was renamed *Chinese Yearbook of International Law and Affairs* (later changed to *Chinese (Taiwan) Yearbook of International Law and Affairs*). The Yearbook publishes articles on multi-disciplinary topics, with a focus on international and comparative law issues regarding Taiwan, mainland China and the Asia-Pacific, which can be accessed through electronic databases including Westlaw, HeinOnline, and BrillOnline.

15. Recently, it has come to the attention of the CSIL that in the Annex VII arbitral proceedings *The Republic of the Philippines v. The People's Republic of China*, certain assertions identifying the feature of Taiping Island as a “rock” under Article 121 (3) of the Convention are inaccurate or misleading.

16. To facilitate a more comprehensive study of Taiping Island from the

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\(^10\) CSIL members comprise academics, lawyers, judges, diplomats, students, and other individuals with expertise and interest in international law. Professor Nigel N.T. Li currently serves as the President of CSIL.
scientific, historical, cultural and legal perspectives, the board of the CSIL formed the “International Law Task Force of the South China Sea” (“South China Sea Task Force”). Task Force members were invited to visit the island in December 2015 and January 2016, and the Task Force presents this amicus curiae brief on behalf of the CSIL with assistance from Lee and Li, Attorneys-at-Law on a pro bono basis.

17. In submitting this amicus curiae brief, the CSIL hereby also sincerely expresses to the Tribunal its willingness to help arrange a visit by the arbitrators to Taiping Island to verify the facts submitted by the CSIL in this amicus curiae brief, and thus conclude that Taiping Island is, indeed, a full-fledged island that can sustain human habitation and economic life of its own within the meaning of Article 121 of the UNCLOS.

ii. Scope of Submission

18. The present submission has one purpose: to provide further factual information that may assist the Arbitral Tribunal in reaching a decision on the legal status of Taiping Island, determining that it is an island under Article 121(1), not a “rock” under Article 121(3), and is therefore entitled to all rights provided for in Article 121(2) of the UNCLOS.

iii. Structure of the Submission

19. Following the present introductory section, this submission consists of an additional four sections:

(1) Section B describes the current status of Taiping Island;

(2) Section C explains why Taiping Island is an island within the meaning of Article 121(1) of the UNCLOS;

(3) Section D explains why Taiping Island can sustain human habitation and economic life of its own by providing further factual information:
   i. It currently sustains the habitation of hundreds of people;
ii. It has a longstanding history of human habitation;

iii. It has an abundant natural supply of fresh water;

iv. The soil on the island has existed for more than a thousand years, and is capable of supporting indigenous vegetation and agricultural crops;

v. The original and current vegetation on the island is capable of sustaining human habitation;

vi. There are numerous species on the island;

vii. The island can sustain economic life of its own.

(4) Finally, in Section E, it is concluded that Taiping Island is an island under Article 121 (1), not a rock under Article 121 (3) of the UNCLOS, because it can sustain human habitation and economic life of its own, and that therefore, under Article 121(2), it is capable of generating entitlement to maritime zones greater than a 12 nm territorial sea, including a 200 nm EEZ and a continental shelf.

B. CURRENT STATUS OF TAIPING ISLAND

20. Taiping Island is an inherent part of the territory of the ROC. It is the largest island in the Nansha (Spratly) Islands, and the only island with a natural supply of freshwater. Following World War II, in December of 1946, the ROC government dispatched a navy ship, the ROCS Taiping, to take possession of, and thereby recover, Taiping Island. Since June of 1946 until the present, the ROC has thus had effective control over Taiping Island for 70 consecutive years.11

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C. TAIPING ISLAND IS AN ISLAND WITHIN THE MEANING OF ARTICLE 121(1) OF THE UNCLOS

21. Taiping Island, located at 10°22'40" N, 114°21'55" E, is a naturally formed area of land surrounded by water in the South China Sea. Taiping Island is 1,289.3 meters in length, and 365.7 meters in width, with a land area of 0.51 square kilometers during high tide, and 0.98 square kilometers during low tide.[12] Taiping Island is a coral reef island covered by natural and original vegetation, with a generally flat topography and an elevation of between 4-6 meters above sea level. It is the largest feature in the naturally occurring Spratly Islands in the South China Sea.[13]

22. Taiping Island has long been considered to be an island by all the States bordering the South China Sea, as well as other States not in the region. It has long been recognized as an island by eminent scholars in the field of international law of the sea, as well as by scientists.[14]

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[12] Previous land survey showed that the size of the island was 0.49 square kilometers during high tide. However, according to a more recent survey, the size of the island was 0.51 square kilometers.


D. TAIPING ISLAND CAN SUSTAIN HUMAN HABITATION AND ECONOMIC LIFE OF ITS OWN

i. Taiping Island currently sustains the habitation of hundreds of people

23. As of today, the number of residents on Taiping Island is consistently maintained at around two hundred (200) people, comprising mostly coast guard personnel, soldiers, and civilians such as physicians, dentists, nurses, construction workers, and academic researchers, some of whom have registered their permanent residency on Taiping Island. These residents constitute evidence proving that Taiping Island can currently sustain human habitation.

24. There are numerous established facilities which serve the population on the Island, including but not limited to:
- residential facilities;
- electric power generation facilities (diesel generators and solar cell panels);

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15 Jon M. Van Dyke, Legal Status of Islands—With Reference to Article 121(3) of the UN Convention on the Law of the Sea (1999) (conference paper presented in Seoul, Korea). According to this paper, Prof. Jon M. Van Dyke suggests that “only islands that have shown the ability to sustain stable human populations of at least 50 persons should be allowed to generate maritime zones.” In addition, he said, the land feature in question should have fresh water, is capable to grow agricultural production, and has materials for building human shelter.


17 On 25 September, 1980, eight (8) team members of a special task force from the Fisheries Research Institute, ROC Council of Agriculture registered their permanent residence on Taiping Island (during the period of their research). See Exhibit 9, photographs of the meeting minutes regarding the report of eight (8) team members of a special task force from the Fisheries Research Institute, ROC Council of Agriculture, who registered their permanent residence on Taiping Island, provided by the ROC Ministry of Interior.


19 One of the reasons why there are only a few residents living on Taiping Island is because Taiping Island has long been designated as a controlled area pursuant to the ROC laws for the purpose of (1) national security, and (2) environmental preservation. See Public Announcement of ROC Ministry of Security and Ministry of the Interior, Zhao-Yang-Zi No. 4678 (7 January 1992); see also Public Announcement of the Bureau of Construction, Kaohsiung City Government, Gao-Shi-Jian-She-Yi-Zi No. 0960004708 (1 March 2006).

20 Electricity is provided through diesel generators and a solar power system that generates up to 170,000 KWH per year. See Exhibit 2, Remarks by President Ma on Taiping Island, ROC Office of the


25 The Nansha Postal Agency was established on 8 January, 2013 to facilitate the postal services on the Island. See Declaring the sovereignty over South China Sea, The Dongsha and Nansha Postal Agencies are Opened [東沙、南沙郵政代辦所揭牌], CNA News, 9 January 2013, [link](http://www.cna.com.tw/postwrite/Detail/119430.aspx#.VtZUo3196_6) (last visited 14 March 2016).

26 Guanyin Temple was built in 1959 to meet the spiritual needs of people stationed on Taiping Island. The original temple was built in the form of a big shrine using readily available materials, with its pillars made from cans strung together. The temple underwent several renovations. See Exhibit 1, Taiping Island Is an Island, Not a Rock, and the ROC Possesses Full Rights Associated with an Exclusive Economic Zone and Continental Shelf in accordance with UNCLOS, ROC Ministry of Foreign Affairs Press Release No. 23 (23 January 2016), [link](http://www.mofa.gov.tw/en/News_Content.aspx?n=1EADDCFD4C6EC567&s=542A8C89D51D8739) (last visited 14 March 2016).


29 See Exhibit 16, photographs of the wharfs/piers dated 23 January 2016.

30 See Exhibit 17, photograph of the lighthouse dated 23 January 2016.

31 See Public Announcement of the ROC Maritime and Port Bureau Regarding the Establishment of a New Lighthouse on Taiping Island, No. L10412014 (16 December 2015), [link](https://www.fa.gov.tw/cht/AnnounceSafety/content.aspx?id=500&chk=ad2c063c-bb6f-4de9-ac2d-81c0d353e307&param=pn%3D1; see also ROC Executive Yuan Minister Meeting Minutes Regarding the Completion of the Construction of a New Light House on Taiping Island, Resolution No. 3479 (17 December 2015), [link](http://www.ey.gov.tw/News_Content.aspx?n=4F2A6F26A44C68AC&s=FF87AB3AC4507DE3&s=5F7DB5657CF47C1) (last visited 14 March 2016).

32 The affairs of the Marine Bureau, Kaohsiung City Government, ROC includes operating a fishermen’s service station, see Description of the Affairs/Responsibilities of Marine Bureau,
burial sites;³³
- a 1,200-meter long airstrip;³⁴
- a command outpost established by the ROC Coast Guard;³⁵ and
- a number of monuments.³⁶

ii. Taiping Island has a longstanding history of human habitation

25. As early as the Sung Dynasty (960-1279 A.D.) and the Qing Dynasty (1644-1912 A.D.), human activity on Taiping Island was recorded in fishermen's diaries, which can be found in various archaeological studies in the Chinese language. These historical diaries all indicate that Taiping Island was the main foothold for people beginning their voyage to the South China Sea, or engaged in economic activities such as fishing in the waters surrounding the Spratly Islands. Some historical sites still exist on Taiping Island, in particular, an old tomb with a gravestone depicting three Chinese characters, the name of a deceased male named “郭純直” (in Romanized form: “Chun-Zhi Guo”. That gravestone also has the two Chinese characters“皇清” (”Royal Qing” in English) carved on it, attesting to the fact that humans have inhabited Taiping Island at least since the Qing Dynasty.³⁷

26. Furthermore, numerous human habitation activities on Taiping Island have also been recorded in various documents, studies and investigations worldwide, showing that there is indeed a longstanding history of human habitation on Taiping Island. According to the China Sea Directory published in 1867 by the Hydrographic Department, Great Britain,³⁸ as observed by British marine personnel, “Hainan fishermen”, who subsisted by collecting trepang (“sea cucumbers” in English) and tortoise-shell, were found on most of the islands of Tizard Bank, including Taiping Island (Itu

³³ See Exhibit 18, photograph of the burial sites dated 23 January 2016.
³⁴ See Exhibit 19, photographs of the airstrip dated 23 January 2016.
³⁵ See Exhibit 20, photograph of the command outpost of the ROC Coast Guard dated 23 January 2016.
³⁶ See Exhibit 21, photographs of the monuments dated 23 January 2016.
³⁸ Hydrographic Department, Great Britain, CHINA SEA DIRECTORY, Volume II, 66 (2nd ed., 1879).
Aba). The *China Sea Directory* also noted that junks, i.e., ancient Chinese sailing ships, from Hainan (a specific place name that generally referred to the entire South-Eastern coastal region of China) annually visited the islands in the China Sea with supplies of rice and other necessities, in exchange for which the fishermen traded trepang and other articles, and remitted their profits home. The British marine personnel also recorded that the fishermen on Taiping Island (Itu Aba) lived more comfortably than those in other locations, and that the water found in the well on Taiping Island was better than elsewhere. The *Asiatic Pilot*, published in 1925 by the Hydrographic Office under the authority of the Secretary of the United States Navy, also recorded the same information as the *China Sea Directory* regarding the lives and economic activities of Hainan fishermen on the Tizard Bank, including Taiping Island (Itu Aba).

27. Human habitation on Taiping Island on an even larger scale was recorded starting in the early 20th century. According to the diary of Okura Unosuke (小倉卯之助), a Japanese national who was sent in 1919 to investigate the mining resources of phosphoric guano in the South China Sea, when he landed on Taiping Island, there were dense groves of coconut and banana trees, and wooden hut(s) in which Chinese people lived. Afterward, since 1921, Rasa Island Phosphate Ore, Ltd. (ラサ島磷鉱株式会社) started mining on Taiping Island (“Long Island” in Japanese). The company set up dormitories, warehouses, offices, a medical station, weather stations, and constructed a bridge on the sea that was 153 meters long. For a certain period of time, reports state that the number of residents on Taiping Island increased from approximately 200 to 600, some of whom were workers and employees of the company. Another article published in the *Taiwan Times* in 1939 also stated that when Japanese companies started the mining business on Taiping Island in 1924, they met three (3) Chinese people who lived on the Island and made their living by fishing and trading sea cucumbers and top shells (a marine mollusk), which have high commercial value. From 1939 to 1945 (the Japanese Occupation period),

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40 See Exhibit 23, Unosuke Kokura (小倉卯之助), *The ISLANDS OF STORM* [暴風の島], 179-184 (1940).
41 See Exhibit 24, Yun-ichi Yamamoto (山本運一), *The Brief History of the Sinnan Islands* [新南群島略史], 3(7) *SCIENCE OF TAIWAN* [科学の台湾], 23 (1939); see also Exhibit 25, *Determination Regarding Jurisdiction of New Southern Archipelago will be Announced Today* [新南群島の管轄決定きょう公告], *OSAKA ASAHI SHIMBUN* [大阪朝日新聞], 18 April 1939.
42 See Exhibit 26, *Histories of New Southern Archipelago* [新南群島の今昔], *TAIWAN TIMES* [台湾時
the Japanese government occupied and stationed troops on Taiping Island, which was deemed one of the most important strongholds during the South Pacific War. The Japanese troops set up a marine corps, a weather information team, communication and reconnaissance airplane dispatch teams, a submarine base and a seafood cannery on the Island. Thus, as recorded by various documents worldwide since the early 20th century, a wide variety of human activities have taken place on Taiping Island.

When the ROC government took over and thereby recovered Taiping Island in 1946, it was recorded that several buildings, a stele, temples, groundwater wells, an abandoned wharf, and even a shepherd dog were found on the Island, all evidence proving previous human habitation. Subsequently, the ROC government conducted various activities on Taiping Island, including mining, fishing, livestock breeding, farming and agricultural activities, as well as research, all of which evidence that human habitation and activities have continued in the late 20th century and on into the present.

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43 Dar-Jen Tseng et al. (eds.), A FRONTIER IN THE SOUTH CHINA SEA: BIODIVERSITY OF TAIPING ISLAND, NANSHA ISLANDS [南疆沃海:南沙太平島生物多樣性] 7 (Construction and Planning Agency, ROC Ministry of the Interior, 2014). In this report, it is stated that “During World War II, Japanese troops have been garrisoned on the Island. Except for the marine corps, weather information team, communication and reconnaissance airplane dispatch teams, Japanese troops also established a submarine base and a seafood cannery on the Island.”

44 See Dun-Qian Li (李敦謙), The Spot Report of Garrison on Taiping Island [進駐南沙群島記實], 64(6) SHANGHAI MISCELLANY [中外雜誌] 25 (1998). In this article, Commander Li stated that “On the Island, there were several buildings, a stele, temples and wells, an abandoned wharf, and even a shepherd dog were founded on the Island, which all amount to prove of previous human habitation.”

45 See Exhibit 27, photographs of several buildings, a stele, temples, groundwater wells, an abandoned wharf, provided by ROC Ministry of National Defense (Case Name: Garrison on Taiping Island, File No. 0035/061.8/3030; Case Name: Investigation Report on Paracel and Nansha Islands, File No. 0035/944/1060) and ROC Ministry of Interior (Case Name: Garrison on Taiping Island, File No. 0036/E41502/1).
iii. Taiping Island has a rich natural supply of fresh water

29. Taiping Island has an abundant supply of groundwater. Scientific studies of the Holocene geology of Taiping Island ("Geological On-site Survey") indicate that due to the porous nature of bioclastic sands and the coral reef underneath, Taiping Island has a permanent freshwater lens. The Geological On-site Survey notes that for decades, more than 100 marines or coast guard personnel have lived on the island, relying on groundwater because the fresh water is easily replenished by precipitation, which averages 1800-2200 mm per year. It is estimated that 0.9-1.1 million cubic meters of rainwater fall on the island per year.

30. Currently, there are four groundwater wells operating on Taiping Island (Well Nos. 5, 9, 10, and 11), with Well No. 5 being the main groundwater well supplying drinking water. According to a field scientific survey conducted on 22 and 23 January 2016 ("Water Quality On-site Survey"), based on the observation of rainwater infiltration to the aquifer storage, it is estimated that the total quantity of groundwater supplied by the aforementioned four wells could reach 237,000 tons per year. Among those wells, one well is used for cultivating tilapia, and Well No. 5 alone supplies 2 to 3 tons of drinking water per day, while Well No. 7 can supply 42 tons, and Well No. 10 supplies 20 tons of water per day. That means the wells can supply a total of 65 tons of water, including drinking water, per day. Based on the average amount of drinking water required per person per day (i.e. 2,000 c.c.), Well No. 5 alone could supply drinking water to as many as 1,000 to 1,500 persons every day.
According to the Water Quality On-site Survey, the quality of the groundwater drawn from the four wells has been proved to be suitable for daily human use, and in particular, the quality of the water drawn from Well No. 5 is suitable for drinking. The temperature of the groundwater from the four wells ranges from 26.9 °C to 29.3 °C, and the pH is fairly stable at 7.3 to 7.7. The salinity of the water from Well No. 5 was lower than 1‰, while the other three wells measured between 1‰ and 3‰, far below the average salinity of 33‰ to 35‰ of sea water, making the water from all four (4) groundwater wells usable for cleaning, sanitation, and cultivation. For Well No. 5 in particular, the total dissolved solids content (results obtained from two samplings are at 427 mg/L and 418 mg/L, respectively, close to the quality of Evian, brand bottled water, one of the most well-known brands of natural mineral water in the world, at 330 mg/L.\footnote{See EVIAN NATURAL SPRING WATER — ANNUAL WATER QUALITY REPORT (2014), http://evianwebsite.s3.amazonaws.com/website/files/evian-2014-AWQR-ENG.pdf.}) meet the ROC's Drinking Water Quality Standards and Standard of the Drinking Water Source. Such results also pass various standards/definitions of fresh water provided by different renowned institutions, such as \textit{Practical Fishkeeping} (which defines freshwater as water which contains total dissolved solids of less than 3,000 mg/L), the American Meteorological Society and the US Geological Survey (1,000 mg/L), and the Groundwater Foundation (USA) (500 mg/L). Therefore, the fresh water supplied by Well No. 5 is indisputably suitable for drinking. In comparison, the Water Quality On-site Survey results show that the quality of water supplied by Well No. 5 on Taiping Island is even better than that of Penghu Island (Pescadores, 澎湖), another island appertaining to the ROC (Taiwan), which is currently home to approximately 100,000 residents.

In fact, quality freshwater on Taiping Island has been recorded and attested to by a great deal of historical documentary evidence, including the \textit{China Sea Directory} in 1879\footnote{Hydrographic Department, Great Britain, \textsc{China Sea Directory}, Volume II, 66 (2nd ed., 1879).} and \textit{Asiatic Pilot} in 1925\footnote{Hydrographic Office, Secretary of the United States Navy, \textsc{Asiatic Pilot}, Volume IV, 117-118 (2nd ed., 1925).}, all evidencing that the water found in the wells on Taiping Island is suitable for drinking, and that its quality is superior to water in other locations. In 1937, a Japanese government official, Hitoshi Hiratsuka (平塚均), was sent to Taiping Island and recorded that out of the four wells on the Island, one
well can supply about 10 tons of drinking water per day.\(^{53}\) *Osaka Asahi Newspapers* in 1939 also reported that drinking water was available a long time ago on Taiping Island, and fishermen used to visit the Island to obtain drinking water during sailing trips.\(^{54}\) Historical documentary evidence also shows that Taiping Island had a freshwater supply when the ROC government took over, and thereby recovered Taiping Island in 1946.\(^{55}\)

iv. The soil on Taiping Island has existed for more than a thousand years, and is capable of supporting indigenous vegetation and agricultural crops.

33. According to the Geological On-site Survey and a field survey on Taiping Island conducted in 2005,\(^ {56}\) Taiping Island is a sand cay that consists of entirely bioclastic sands, was developed on Holocene coral reefs, and is surrounded by modern coral reefs along the outer margin. Coral ages in drill core and beach rocks along the northern coast of Taiping Island indicate that it has stabilized and emerged over 4,000 years ago. According to the vertical line representing the core drilled in 1981, the bioclastic sands measured 9 meters thick. Under the sands, Holocene coral reefs were found between 9 to 21 meters deep. The top of the coral reefs under the sands was dated to 4761±115 calendar years before the present (cal. yr BP). The top of the reef flat surrounding the sand cay was dated in a range from 3718±92 near the island to 1193±71 cal. yr BP toward the margin of the reef flat. Living coral reefs surround the reef flat along the outer margin. In sum, the sand cay started about 4,700 years ago overlying coral reefs, and the reef flat surrounding the island continued to expand outward for at least 4,000 years, indicating that the sand cay has been


\(^{54}\) See Exhibit 25, *Determination Regarding Jurisdiction of New Southern Archipelago will be Announced Today* [新南群島の管轄決定さよう公告], OSAKA ASAHI SHIMBUN [大阪朝日新聞], 18 April, 1939.

\(^{55}\) See Dun-Qian Li (李敦謙), *The Spot Report of Garrison on Taiping Island* [進駐南沙群島記實], 64(6) SHANGHAI MISCELLANY [中外雜誌] 25 (1998). In the spot report, Commander Li stated that “At the center of the Island, there was a well in which fresh groundwater was available, and the water was very refreshing. This groundwater well was exactly the source of drinking water for our military garrison.”

\(^{56}\) See Exhibit 28, Shou-Yeh Gong (宮守業) & Kuo-Yen Wei (魏國彥), *Preliminary Studies on the Holocene Geology of Taiping Island*; see also Shou-Yeh Gong et al., *Dry Climate near the Western Pacific Warm Pool: Pleistocene Caliches of the Nansha Islands, South China Sea*, 226 PALAEOGEOGRAPHY, PALAEOCLIMATOLOGY, PALAEOECOLOGY 205, 205-213 (2005).
The soil on Taiping Island is naturally formed, has existed for more than 1,000 years, and can be utilized for native plant growth as well as agricultural production. According to the scientific field survey on the soil of Taiping Island, including that on the only farm on the Island, conducted on 22 and 23 January 2016 (“Soil On-site Survey”), by observing the soil-profile characteristics including the depth, color, texture (sand, silt and clay content), structure and consistency, root size and distribution, biopore, and the boundary of the soil horizon from Taiping Island’s five (5) respective areas (i.e., the grass land, coconut field, agricultural field, tropical natural forest, and shrub area), the field results reveal that the soil pedons on Taiping Island can be classified as Entisols based on the USDA soil classification system, which were formed mainly through the weathering of debris material from coral reefs or shell sand. The Soil On-site Survey also found that the soil has a well-formed soil horizon, proving that the soil on Taiping Island has existed for around 1,000 years. With its abundance of natural forest resources, Taiping Island’s surface soil is mainly sandy soil mixed with litterfall organic matter. Along with soil pedogenic processes, litterfall decomposition can naturally release nutrients that maintain the ecological balance. Subsequently, the granular soil structure and biological activities of roots and microorganisms can be observed in the surface soils (0-20 cm depth) which can naturally sustain both the native ecosystem and crop production (further explained below). In sum, the soils on Taiping Island can support indigenous vegetation and agricultural activities.

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58 See Exhibit 31, Zueng-Sang Chen (陳尊賢), Brief Report of Soil Resources Survey of Taiping Island. For the soil-profile characteristics of the “Happy Farm”, please refer to the Soil On-site Survey (at 10-12) for more detailed studies.
v. The original and current vegetation of Taiping Island is capable of sustaining human habitation

Due to its favorable soil and water conditions, as well as the tropical climate, Taiping Island has abundant natural vegetation and many land-based indigenous plant species. Its primeval coastal forest area is fairly dense, effectively conserving water resources, preventing forest transpiration, and replenishing soil humus. According to the literature and the on-site scientific survey of the vegetation of Taiping Island conducted on 22 and 23 January 2016 ("Vegetation On-site Survey"), there are 149 land-based vascular plant species and 27 types of edible vegetation extant on Taiping Island. The island also has approximately 50 wild papaya trees and 500 wild coconut trees, producing approximately 200-300 kilos of papayas and numerous coconuts each year. Considering the average annual production of a mature coconut tree (i.e., 40-60 coconuts), the total production capacity of coconut trees on Taiping Island, mathematically, may reach 20,000-30,000 per year. Other vegetables such as melons, pumpkins, kidney beans, corn, loofah, roselle, peppers, guavas, madeira vines, sweet potatoes, ginger and bananas, are also planted and produced on Taiping Island. The above vegetation is all suitable for human consumption, and therefore can sustain human habitation.

Apart from the edible vegetation noted above, according to the Vegetation On-site Survey, the coastal forest is fairly dense, with trees up to 20 meters

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60 Dar-Jen Tseng et al. (eds.), A FRONTIER IN THE SOUTH CHINA SEA: BIODIVERSITY OF TAIPING ISLAND, NANSHA ISLANDS [南疆沃海：南沙太平島生物多樣性] (Construction and Planning Agency, ROC Ministry of the Interior, 2014); Tseng Chieng Huang et al., The Flora of Taipingtao [太平島植物相], 39 TAIWANIA [植物科學期刊] 1, 1 (1994), http://tai2.ntu.edu.tw/taiwania/abstract.php?id=232 (last visited 14 March, 2016). We note that on page 1 of The Flora of Taipingtao, it is stated that "the underground water is salty and unusable for drinking." However, such statement was not supported by any scientific study or evidence.

61 See Exhibit 32, Chien-Fan Chen (陳建帆), Water Quality and Agricultural Environment Survey of Taiping Island — The Flora and Vegetation Survey Report.

tall, indicating a stable forest environment that is capable of holding water, preserving evaporation, providing natural shelter and replenishing soil humus. The Vegetation On-site Survey also found Calophyllum inophyllum on the walking path around Taiping Island with a Diameter at Breast Height ("DBH") of more than 100 cm. In fact, there are 147 trees with a DBH of over 100 cm. Most of the trees are estimated to range from 100 to 150 years old, proving that the plants have existed on Taiping Island for more than a century.

37. Another scientific report made in 1994 regarding the flora of Taiping Island indicated that the indigenous vegetation of Taiping Island is similar to another Island that is ROC (Taiwan)’s sovereign territory, Orchid Island (蘭嶼), which is currently home to nearly 5,000 residents, mostly indigenous peoples. The evidence thus shows that the original and natural vegetation of Taiping Island is capable of sustaining human habitation, just like Orchid Island.

38. Historically, Taiping Island has been an island with abundant indigenous vegetation. An article published in the French magazine Illustration in 1933 described Taiping Island as an island covered in greenery, from which coconut palms sprang. A news report entitled “France's New Island” published in the South China Morning Post in 1933, also stated that Chinese people from Hainan lived on the Island, subsisting on the products of a small domain on which are planted coconut trees, bananas and sweet potatoes. According to the Osaka Asahi Newspapers, in 1933 Taiping Island was an island with a dense forest of papaya; it further noted that there remained fine palm fields, pineapple fields and sugar cane fields.

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63 See Exhibit 32, Chien-Fan Chen (陳建帆), Water Quality and Agricultural Environment Survey of Taiping Island — The Flora and vegetation Survey Report.
65 See Exhibit 32, Chien-Fan Chen (陳建帆), Water Quality and Agricultural Environment Survey of Taiping Island — The Flora and vegetation Survey Report.
68 See Exhibit 33, French Flag on the Unoccupied Islands, ILLUSTRATION (1933).
69 See France’s New Islands, SOUTH CHINA MORNING POST, 28 August 1933.
70 See Exhibit 34, Look, Japan Made Significant Marks Everywhere [見よ、到る所“日本”的足跡は躍動], OSAKA ASAHI SHIMBUN [大阪朝日新聞], 6 September 1933.
An article published in the *Taiwan Times* in 1939 also stated that there were papaya trees, bananas and pineapple grown on the seashore, and that peppers, pumpkins and napa grew well all through the years.\(^{71}\) Cabbages, radishes and, in particular, sweet potatoes (a common staple food in Asia) were also cultivated on Taiping Island.\(^{72}\) All these written records prove that the soil of Taiping Island is capable of providing adequate nutrients to grow vegetables to sustain human habitation.\(^{73}\)

39. After the ROC government took over, and thereby recovered Taiping Island, it conducted an investigation in 1947 and concluded that “Taiping Island can be used for farming, and fruits and vegetables grown at that time can supply army personnel stationed on the Island.”\(^{74}\) As of today, a significant amount of agricultural produce is cultivated on Taiping Island.\(^{75}\) Taiping Island has a functioning farm called “Happy Farm” (Chinese: 開心農場) that produces a wide variety of tropical vegetables and fruits, including but not limited to corn, sweet potatoes, okra, pumpkin, loofah gourds, bitter melon, chili, and cabbage, providing a source of food that meets the needs of people living on Taiping Island.\(^{76,77}\) Estimates show that the agricultural production on Taiping Island can now supply food for hundreds of people.

\(^{71}\) See Exhibit 26, *Histories of New Southern Archipelago* [新南群島の今昔], TAIWAN TIMES [台灣時報], May 1939, at 190-208.


\(^{73}\) Just like every other island in the world, additional supply from time to time would help improve the quality and comfort of the residents on Taiping Island. However, receiving additional supply does not disprove the fact that Taiping Island’s vegetation is capable of sustaining human habitation.

\(^{74}\) Investigation Report on Paracel and Nansha Islands, Jing-Kuang-Zi No. 05873, 2 March, 1948 (Case Name: Garrison on Taiping Island, File No. 0036/E41502/1).

\(^{75}\) See Exhibit 36, photograph of “Happy Farm” dated 23 January 2016.

\(^{76}\) See Exhibit 37, photograph of the crops in the Happy Farm dated 23 January 2016.

vi. There are numerous natural species on Taiping Island

40. Taiping Island is home to many tropical species, and also has an abundance of ocean resources. According to previous surveys conducted by the ROC government, there are 450 species of coral reef fish, more than 190 species of coral reefs, 140 species of benthos, and 117 species of seaweed in the marine area of Taiping Island. Taiping Island is also a rest stop for many migratory birds; based on the aforementioned surveys, at least 59 species of birds stop on Taiping Island.\textsuperscript{78,79}

41. When Japanese companies started mining on Taiping Island, their employees found that there were many turtles and sea birds. Rats, which seem to have been introduced by fishing boats, increased and thus the Island acquired its nickname among the fishermen, “Rat Island”. Cats were also freed there, and subsequently became wild animals.\textsuperscript{80}

42. Livestock (chickens and goats) was also imported onto the Island, and successfully reproduced on a sizable scale at “Happy Farm”, meeting the needs of the people on the Island.\textsuperscript{81,82}

vii. Taiping Island can sustain economic life of its own

43. It has long been recorded that Taiping Island has phosphate ore. In the early 20th century, Japanese companies conducted mining since 1921, and

\textsuperscript{78} See Li-Xing Fang (方力行) & Jian-Quan Li (李健全) (eds.), \textit{Policy Guiding Principles: The Report for the Ecological Environment Survey on South Sea} [行政院南海政策綱領:南海生態環境調查研究報告書] (Council of Agriculture, ROC Executive Yuan, 1994).


\textsuperscript{80} See Exhibit 35, Noritaka Fujishima (藤島範孝), \textit{Discussions on the names of islands in the Southern China Sea} [南中國海(南海)諸島の島礁名について], \textit{9 THE HOKKAIDO GENERAL EDUCATION REVIEW OF KOMAZAWA UNIVERSITY} [駒澤大學北海道教養部論集] 56-70 (1994).

\textsuperscript{81} Currently, there are chickens (180 in number), goats (12), and dogs (6) raised on the Island. The goats, chickens, and eggs are a source of food for people on the island. See Exhibit 2, \textit{Remarks by President Ma on Taiping Island}, ROC Office of the President (28 January 2016), http://english.president.gov.tw/Default.aspx?tabid=1124&itemid=36634&view=home (last visited 14 March 2016).

became more aggressive beginning in 1923. According to an article published in the *Taiwan Times* in 1939, mining companies laid a railroad on the land, built offices, warehouses, and dormitories, and constructed a jetty and dug wells. The permanent facilities were completed in stages, and it was believed that there were about 200 people on the Island working for the mining companies at that time, while at certain times records show as many as 600 people. Minning efforts continued when the ROC government took over, and thereby recovered Taiping Island. From 1959 to 1985, the ROC government formed the “Institution of Ocean Resource Development” and “South China Sea Development Group” for the purpose of mining phosphate ore and salvaging waste steel on the Island.

44. As previously stated, Taiping Island has abundant ocean and fishery resources, which are sufficient to sustain economic life of its own. It was also a major offshore fishing ground for tuna and shellfish during the Japanese Occupation period, and productive activities such as phosphoric ore mining and seafood cannery operations were frequently observed during that area.

45. The great biological variety of Taiping Island also has great potential for developing eco-tourism attractions. The Island has an extensive coral ecosystem, estimated at more than 300 coral species. In addition to developing tourism on the Island, it was reported that there were other development plans, which include establishing a national park (marine ecological park), a natural reserve and a study and training camp.

83 See Exhibit 24, Yun-ichi Yamamoto (山本運一), *The Brief History of the Sinnan Islands* [新南群島略史], 3(7) *SCIENCE OF TAIWAN* [科学的台湾], 23 (1939); see also Exhibit 39, *Record of Exploration of the New Southern Archipelago, Part II* [新南群島探検の記錄(下)], *TAIWAN TIMES* [台湾時報], July-August 1939, at 165-175.


85 See Li-Xing Fang (方力行) & Jian-Quan Li (李健全) (eds.), *Policy Guiding Principles: The Report for the Ecological Environment Survey on South Sea* [行政院南海政策綱領:南海生態環境調查研究報告書], (Council of Agriculture, ROC Executive Yuan, 1994).

86 See Exhibit 26, *Histories of New Southern Archipelago* [新南群島の今昔], *TAIWAN TIMES* [台灣時報], May 1939, at 190-208.

Moreover, considering that the Island has plentiful historical sites, it is also believed that developing historical tours would be feasible in the future. Other activities which could sustain the economic life of Taiping Island include: cultivating skills for creating sand pictures, and cage culture/farming.

E. **CONCLUSION**

46. Based on the facts established above, it is clear that Taiping Island is an island which can sustain human habitation and economic life of its own under Article 121(1) and (3) of the UNCLOS. The CSIL welcomes any enquiries the arbitrators may have regarding Taiping Island, including those concerning site visits.

This *AMICUS CURIAE* submission presents the most updated opinion based on recent on-site scientific surveys and studies in respect of the features of Taiping Island, and supersedes any prior inconsistent statement on the same by any of the authors.

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23 March 2016
LIST OF EXHIBITS


Exhibit 2. Remarks by President Ma on Taiping Island, ROC Office of the President (28 January 2016).


Exhibit 9. Photographs of the meeting minutes regarding the report of eight (8) team members of a special task force from the Fisheries Research Institute, ROC Council of Agriculture, who registered their permanent residence on Taiping Island, provided by the ROC Ministry of Interior.

Exhibit 10. Photograph of the electricity facilities, published on the official website of ROC Ministry of Foreign Affairs.


Exhibit 12. Photograph of the Nansha Hospital, published on the official website of ROC Ministry of Foreign Affairs.

Exhibit 13. Photographs of the Nansha Postal Agency, published on the official website of ROC Southern Coastal Patrol Office, Coast Guard Administration, ROC Executive Yuan.


Exhibit 17. Photograph of the lighthouse dated 23 January 2016.

Exhibit 18. Photograph of the burial sites dated 23 January 2016.


Exhibit 20. Photograph of the command outpost of the ROC Coast Guard dated 23 January 2016.


Exhibit 22. Photograph of the old tomb, published on the official website of ROC Ministry of Foreign Affairs.

Exhibit 23. Unosuke Kokura (小倉卯之助), The Islands of Storm [暴風の島](1940).

Exhibit 24. Yun-ichi Yamamoto (山本運一), The Brief History of the Sinnan Islands [新南群島略史], 3(7) Science of Taiwan [科学の台湾] (1939).

Exhibit 25. Determination Regarding Jurisdiction of New Southern Archipelago will be Announced Today [新南群島の管轄決定きょう公告], OSAKA ASAHI SHIMBUN [大阪朝日新聞], 18 April 1939.

Exhibit 26. Histories of New Southern Archipelago [新南群島の今昔], Taiwan Times [台灣時報], May 1939, at 197.

Exhibit 27. Photographs of several buildings, a stele, temples, groundwater wells, an abandoned wharf, provided by ROC Ministry of National Defense (Case Name: Garrison on Taiping Island, File No. 0035/061.8/3030; Case Name: Investigation Report on Paracel and Nansha Islands, File No. 0035/944/1060) and ROC Ministry of Interior (Case Name: Garrison on Taiping Island, File No. 0036/E41502/1).

Exhibit 28. Shou-Yeh Gong (宮守業) & Kuo-Yen Wei (魏國彥), Preliminary Studies on the Holocene Geology of Taiping Island.


Exhibit 31. Zueng-Sang Chen (陳尊賢), Brief Report of Soil Resources Survey of Taiping Island.

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Exhibit 33. French Flag on the Unoccupied Islands, Illustration (1933).

Exhibit 34. Look, Japan Made Significant Marks Everywhere [見よ、到る所”日本”の足跡は躍動], OSAKA ASAHI SHIMBUM [大阪朝日新聞], 6 September 1933.


Exhibit 37. Photograph of the crops at the "Happy Farm" dated 23 January 2016.

Exhibit 38. Photographs of the goats and chickens, published on the official website of ROC Ministry of Foreign Affairs.

Exhibit 39. Record of Exploration of the New Southern Archipelago, Part II [新南群島探検の記録(下)], Taiwan Times [台灣時報], July-August 1939.