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國防與生態—— 太平島的科學選項

National Defense and Ecology: The Science Option of the Taiping Islands

最近南沙太平島因為國防部、海巡署的構工，造成部份學者、環保人士和輿論的連串撻伐，而當事者除了一再說明工程並沒有造成重大環境破壞，是社會對其有所誤解以外，既未提出具體證據，也未講出施工的目的和必要性，徒留一團迷霧，一個不好的印象。

我曾任國家南海政策綱領海洋生態環境調查研究計畫的召集人，在研究調查中除了驚艷太平島美麗的熱帶風情外，也深切瞭解南沙群島生態環境的科學特性，它和現在建設的相容性或互斥性，其實是可以清楚界定的，不過在談這件事的是非之前，我們對環境永續利用，先需要有一個共同的認知，這個認知為何？依據世界環境和發展宣言（1987）指出：“永續發展的理念需要兼顧環境生態與社經體制並重”，如果這是大家所共同接受的，那麼我國在太平島建設真正的問題

Recently, the constructions of the Ministry of National Defense and the Coast Guard Administration on the Taiping Island, the biggest islet in the Spratly islands encounters a series of complaints from the partial scholars, environmental groups, and the public opinions. The authority keeps explaining that the project hardly causes any major damage to the environment but a misunderstanding from the society. However, it has never presented any concrete evidence and illustrated the objectives and necessity of the constructions, leaving unanswered questions and bad impressions.

Being the convener of the Marine Ecological Environmental Research Project of the Policy Guidelines for the South China Sea, during the researches, I not only was surprised by her beautiful tropical scenery but realized the scientific features of the ecological environment in the Nansha Islands. It can clearly identify the compatibility with the modern constructions from the incompatibility. Before judging its correctness, we should have a common recognition of the sustainable utilization of the environment. But what is that? According to World Declaration on Environment and Development in 1987, it indicated that the idea of the sustainable development has





其實應是在於是否考慮到了這兩者的平衡而已。

首先要看台灣到底要不要在太平島有軍事守備建設？南中國海連結太平洋和印度洋，南沙群島則扼其要道。南沙群島大大小小約有40個小島，越南佔有21個，菲律賓9個，中共6個，馬來西亞3個，中華民國1個，各個國家在其可駐軍的島上都有碉堡、補給庫、碼頭、直昇機坪，甚至中業島（菲律賓所有）還有一千四百公尺的小型機場。這些有人的島嶼大概有七、八個左右，至於無法住人的礁島，露出水面的還有二、三十個，水下的暗礁（多為珊瑚礁）則無法計數，因為地區軍事緊張，無人敢輕舉妄動，反而使得這片礁島星羅棋佈的海域，成為海洋生物的天堂。

為什麼大家都努力在那兒駐軍，而不規劃為每一次南海國際科學會議上都建議的「海洋生態保護區」？原因很簡單，因為除了確保疆土以外，南海海床中豐富的石油蘊藏，還包括最近正熱門的新能源—水合氣，都是每一個國家絕不願放棄的對象。其實，台灣除了現在的太平島外，以前也曾擁有過鴻休島和敦謙沙洲，但是可能也真是「謙謙君子」吧！既沒有派兵，也沒有建設，結果一夕間皆為越南佔領，只留下太平島成為我國在南海「退此一步，絕無死所」的孤島。

不過為了守太平島，我們是不是非犧牲專家口中珍貴的島嶼生態系呢？科學資料告訴我們，水下生態是會恢復的，陸上生態則需要更慎重的規劃。南沙群島的海洋生態系非常清楚的是各個小島、暗礁間生物群聚可互相交流、補充的網絡型生態圈，如果某些島嶼的礁盤為了建設加上了碼頭、碉堡，大概在下一個生殖季，周遭海域的珊瑚、魚、蝦、貝、介、海藻等幼苗就會蜂擁而至，在這個新開闢的棲地上展開演替，並逐漸恢復至完熟的熱帶珊瑚

to consider the environmental ecology and the social economic system at the same time. If everyone can accept this, the real problem of the constructions on the Taiping Island actually lies on the balance of these two factors.

Fist of all, we shall tell does Taiwan need the military defense constructions on the Taiping Island? The South China Sea connects the Pacific and the Indian Ocean, and the Spratly islands, including 40 various sizes islets which Vietnam occupied 21, Philippines 9, China 6, Malaysia 3 and Taiwan 1, control the crucial location. On these islands which affordable for military forces, every country has constructed strongholds, supplies storehouses, piers and helipads, moreover, a small airport with 1400 meters runway on ThiTu island. Among them only 7-8 islands are habitable for human, and the other 20-30 islets are emerging reef islands with countless hidden rocks, mostly coral reef. Because of the regional military intense, no one would act rashly which has this water with sprayed reef islands becoming a paradise of maritime species.

Why does everyone work hard to set up the army instead of a Marine Ecological Protected Area as suggested in the International Science workshop for the South China Sea? The reason is simple. As well as to secure the territory, the natural resources of the abundant oil in the seabed of the South China Sea and the newly-emerging energy-gas hydrate, are the treasures that no one wants to give up. In fact, in addition to the Taiping Island, Taiwan owned the Hong-Siou Island and the Duncian Sand Cay. However, Taiwan was being modest and didn't send the military or carry out any construction, so these places were occupied by Vietnam overnight. From that time on, the Taiping Island becomes the lonely island we have.

Nevertheless, do we have to sacrifice the precious ecological system as the experts claimed just for safeguarding the Taiping Island? According to the scientific research, the underwater ecology is recoverable whereas the land ecology needs more careful plans. The marine ecological system of the Spratly Islands shows clearly that the organisms of every island and submerged reef can communicate and supplement with each other, forming a ecological network. If wharfs and forts are built up on the table reefs, the offspring of corals, fish, shrimp, shells, and alga in the surrounding waters will surge here in the next breeding season and develop until the total recovery of the tropical coral reef system. It is different from the Dongsha Atoll, which



礁體系。這跟我們熟悉的東沙環礁並不一樣，東沙是南海北部唯一的珊瑚環礁，因此在生態上，它是向外散播的中心，與南沙群礁的交互補充並不一樣。

但是沙灘上的海龜會不會再回來產卵呢？如果90%以上的清潔沙灘還在，如果在海中迴游數年的幼龜成熟前都長命百歲，以我在太平島上觀測到的上岸產卵「龜跡」的密度和周遭海草床上覓食海龜的數量，相信牠們應該還願意回到這塊由軍隊守著，沒有無知觀光客，貪婪的地產商開發的沙灘上傳宗接代。

真正令我比較捨不得受到傷害的是太平島上高聳入雲，可能有上百年樹齡的大樹，雖然太平島的林相多是由海漂傳播種子的熱帶海岸林所組成，附近的島嶼也仍然會漂來它們的子孫，但是大的樹木沒有幾十年不能成蔭，沒有蔭就沒辦法成就樹冠底下的特殊植物相，沒有這些植物相就會沒有以它們為生的昆蟲、鳥類，因此雖然這些植物不像海洋生物一樣有人大聲疾呼，我卻曾在高雄市海洋局出版的刊物上，為它們在建設中所可能面臨鏟除的命運，悲傷不已。

太平島的國防建設，有沒有考慮到這種科學性的生態差異？有沒有做過不受激情影響，不畏閒言冷語的環境影響評估？有沒有依照這些科學評估的數據，進行合理的建設規劃？還是我們為了對這些環境生物的保護，願意冒失去國家在南沙群島最後一個據點的風險？如果都有，決策單位把這些事情想清楚，執行單位把這些因果講明白，一旦開始，無憂無懼，或許才是推動國家政策，最簡單的決心與態度。

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we are familiar with. Dongsha is the only coral atoll in the north of the South China Sea, so in ecology, it is the center growing outwards, which is different from the supplement type of the Spratly Islands.

Will the sea turtles come back to the beach for laying eggs? If over 90% of the beach is still clean and the baby turtles can grow up healthily under the sea, I believe that they will return and propagate on this land guarded by the military without any ignorant tourists and greedy real estate agents, according to my survey on the density of the turtle traces and the feeding turtles quantity on the surrounding sea grass bed.

What I am really reluctant to give up is those tall and high trees with hundreds of years. The tropical forests on the Taiping Island are mostly from the drifting seeds from the nearby islands and the descendent will still drift here. But it takes tens of years for the trees to grow up, and without the tree shades there wouldn't be a suitable growing environment for special plants which influence the habitat for insects, and birds. Unlike the marine creatures, these plants don't have a speaker to ask the public work for their survivals, but I have written articles for my sorrow for their fates of eradication on the publications of Kaohsiung City Marine Bureau.

Does the defense construction on the Taiping Island take the ecological differences into account? Does the environmental evaluation be carried out despite the general opinions? Does a rational construction plan be done according the statistics of the scientific evaluations? Or are we willing to take a chance of losing the last base in the Spratly Islands in order to protect the environment? If all the answers are positive, the authority should consider thoroughly and the execution unit should explain all consequences. At the time it begins, the authority could be brave and confident and that is the simplest determination and attitude to lead the national policies.

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