

**Wu Sheng 吳晟 and Wu Ming-Yi 吳明益, eds., *Shidi, shihua, daoyu xiangxiang 濕地、石化、島嶼想像 [Wetlands, Petrochemicals, and Imagining an Island]***

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Kuokuang Petrochemical's attempt to build its eighth naphtha-cracking plant has become one of Taiwan's most controversial environmental issues in recent years. The original plan was jointly proposed in 2005 by the CPC Corporation, 43 percent of which is owned by the government of Taiwan, and a number of other private companies. Total costs were estimated at roughly NT\$933.6 billion (US\$32.2 billion). The proposal called for a petroleum refinery capable of producing 300,000 barrels of crude oil daily, a naphtha-cracking plant capable of producing 1.2 million metric tons of ethylene annually, a paraxylene plant capable of producing 800,000 metric tons of aromatic hydrocarbons annually, twenty-three midstream and downstream petrochemical plants, fourteen cogeneration plant units, and thirteen dedicated industrial piers. The whole complex was expected to span 2,700 hectares of wetlands in Changhua County (problems with land procurement and an initial environmental impact assessment ruled out the first location considered, the Yulin Offshore Industrial Park), but the area was reduced to 1,900 hectares during the environmental impact review process. In order to ensure smooth land reclamation and road construction, the government opted not to classify the land—Taiwan's last significant untouched intertidal mudflat—as a “critical national wetland,” listing the project as a “major national investment plan” to circumvent the ban on developing fragile sites.

The proposal was strongly endorsed by the government and the shareholders, who had threatened to withdraw their investment should the project fail to proceed on schedule. The plan appeared unstoppable when it entered the June 2009 environmental impact review process. However, the review ended up taking about six hundred days, as Taiwan mustered the sort of challenge to corporate interests rarely seen in recent years. Opponents have marched through the streets, bought wetland stocks, circulated petitions, mounted topical performances, and conducted debates on health risks versus economic benefits, all of which have revealed the significant problems associated with this proposed development. Group actions have heightened public

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awareness and stimulated greater public discussion and mobilization. Finally, President Ma Ying Jeou was moved to publicly declare his opposition to Kuokuang Petrochemical's plans on the occasion of Earth Day, 22 April 2011. These remarkable events have been documented in *Wetlands, Petrochemicals, and Imagining an Island*, comprising contributions by forty-five writers and richly illustrated with photographs selected by the well-known documentary filmmaker Ke Chin-Yuan.

The book's preface, "Era of No Bystanders," was written by Prof. Wu Ming-Yi. Linking the evolution of culture, politics, and society in postwar Taiwan through his own experiences, Wu offers a critique of the island's development process—he feels it amounts to "sacrificing agriculture to support industry—industry destroying agriculture in return" (「以農業培養工業，以工業滅殺農業」) (2). He believes this has led to a general disrespect for the natural environment—with profound consequences for future generations. In his view, Taiwan's petrochemical industry is "the embodiment of exploitation" (3). But he also believes there is great potential for change given sufficient social mobilization. When local people, environmental nongovernmental organizations, writers, artists, lawyers, students, and scholars from the fields of ecology, public health, economics, and public policy link hands, even the giant petrochemical industry has to bow down.

The book narrates the Kuokuang development from its start in 1989 and focuses on the popular movement to stop it, relying on a collage of photographs, poems and song lyrics, brief biographies, and scientific discussions. The first chapter, "Environmental Voices, Our Songs and Poetry," showcases the heartache of poets and singers concerned about the environment and distraught over unjust policies. Chapter 2 looks at the lessons from a naphtha-cracking plant built in 1991 and expanded over the next twenty years by Formosa Plastics, which conjures images of black smoke, poison, devastated fisheries, and children wearing masks; all this reminds people of the destruction caused by the petrochemical industry. Chapter 3 presents different viewpoints of experts on oceanography, wetlands ecology, zoology, water resources, economics, and other fields, all of whom have helped develop an unofficial version of the Kuokuang Petrochemical project's environmental impact report. This chapter contrasts the official and unofficial assessments, explains why environmental debates cannot be unilaterally decided by bureaucrats, makes a case for including multifaceted dialogues with civil society in all such project reviews, and ends with a list of the eight government-appointed commissioners authorized to issue environmental impact reports between August 2009 and July 2011. Chapter 4 criticizes the "asymmetries of information" controlled by the dominant powers and the problem of "placement marketing" that commonly crops up with Taiwan's mainstream media. It showcases the work of many independent journalists and the well-known documentary filmmaker Ke, who set out to record and celebrate the Changhua coast. Chapter 5 documents the voices of the local people who worked against the expansion of the petrochemical industry, whose history is also considered in depth. Chapter 6, the final chapter, conveys the complexion of a movement composed of people from all walks of life, devoting special attention to those motivated by environmental concerns, including the well-being of the indigenous white dolphin. The book ends with final comments from the resistance, including a message of hope that the island's natural environment—and every place or group that has somehow been at a disadvantage—will one day be viewed with respect.

Although this book is not an STS research essay, it is filled with the spirit of STS social practices. A sharp reader may have already noticed that the book documents a process of social mobilization, describing local living experiences, risk perceptions, and life stories, contrasting the islanders' land ethic with the government's vigorously promoted policy of petrochemical expansion. This record, transformed into beautiful images, poetry, and activist discourses, echoes the STS approaches that have honored the experiences, reasoning, and values of laypeople. Both esteem a variety of knowledge systems that have confronted scientific authorities over the logic and justice of industrial expansion. This sort of critique suggests an approach to development that is in line with scientific justice and an ethical treatment of the earth.

The unofficial version of the environmental impact report for Kuokuang Petrochemical's proposed facility offers evidence that the official version of the report neglected issues important to the local ecosystem, water scarcity issues, and external economic costs; it also underestimated health risks. Instead of the official report's narrow, linear scientific assessment, the volunteer coalition constructed a more complete picture of environmental risks. The limitations of the so-called expert committee became apparent, as did the intersection of the minimal risk assessment and the interests of industry.

*Wetlands, Petrochemicals, and Imagining an Island* favors social mobilization. It attempts to bring the public into the debate over state policy, to publicize and contextualize a technological debate. The authors have taken a stand against elite organizations—industry, the government, the academy—refusing to allow them to decide behind closed doors the fate of our living environment. Environmental mobilization has energized a new group of citizens who demand more transparent and democratic engagement. In this sense, this book stands for the power of creative reconstruction, and it should encourage STS scholars in Taiwan to engage society through their research, to transform the path of the industrial development. As David Hess suggested in *Alternative Pathways in Science and Industry* (2007), social activism may shift the pathway of science and industry toward a just and sustainable future.

## Reference

Hess, David (2007). *Alternative Pathways in Science and Industry*. Cambridge, MA: Harvard University Press.