

Updated report on a 1-day visit to the centre of Taiwan to become acquainted with the industrial pollution and health effects associated with the Formosa Industrial Complex [Formosa No. 6 Naphtha Cracking Complex], Yunlin, Taiwan, situated at Mai-Liao, March 29-30, 2016

by

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addressed by e-mail to

Vice-President-elect of Taiwan, Professor Chien-Jen Chen
Dean, National Taiwan University, College of Public Health, Professor Wei J. Chen
Vice-Dean, National Taiwan University, College of Public Health, Chang-Chuan Chan
Vice-President, Taipei Medical University, Professor Hung-Yi Chiou
Director, National Institute of Environmental Health Sciences, Dr. Y. Leon Guo
Superintendent, National Taiwan University Hospital Yunlin Branch, Dr. Chung-Li Wang

Background and Information Sources:

As a career occupational and environmental cancer epidemiologist, with experience in studies around contaminated sites and with significant experience in working toward social justice, I had the privilege of a site visit to the area around the Formosa Industrial Complex in central Taiwan. I was accompanied by Yuping Chen, Hungyu Pan and Professor Tzu-Hsuen (James) Yuan. I had the honour of meeting with:

- Dr, Chung-Li Wang, Superintendent, and others at the National Taiwan University Hospital Yunlin Branch
- Chief Editor, Song-Lin Wu, of FPCC Go Away Multi Media News;
- Chair of the Yunlin Shallow Sea Cultivation Association, Mr. Jing-Lang Lin; and
- Ms. Li-Yi Hsu, leader of a local NGO in the neighbouring county (i.e., Changhua) to that in which the Formosa Industrial Complex is located (i.e., Yunlin).

My visit to Taiwan was made possible at the invitation of the Taiwan Ecological Stewardship Association (TESA). One part of my mission in Taiwan has been in my capacity as Chair of the *International Joint Policy Committee of the Societies of Epidemiology* (IJPC-SE) with a view to encouraging membership in the IJPC-SE of any appropriate Taiwan professional national health organizations having epidemiology as a significant part of their focus. The IJPC-SE is a consortium of national and international societies / associations of epidemiology that work at the nexus of research and policy (see www.ijpc-se.org).

Observations:

From what I was told, the day that I visited the region was not an unusual one for the season. I personally experienced an unpleasant smell, a polluted sky with poor visibility, and respiratory irritation. I understand that this is a common experience among visitors; of course, this is the lived experience for local citizens.

I also understand, from those with whom I met, that for some 25 years, since the Formosa Industrial Complex was built and continues with expansion as a key industry in the Taiwan economy, the local environment has deteriorated, both qualitatively and quantitatively. Some twenty-five years ago, one could see blue skies and not be exposed to all types of air pollutants undoubtedly exposing workers and local residents downwind and downstream to an array of toxicants, given the nature of the industrial processes that are responsible for their generation. Air quality has declined to the point that concern about the welfare of both workers and residents dominates public discourse and concern. NGOs have emerged to confront the challenges faced by such declines. The lack of transparency on the part of those in power (Formosa and government) leaves much to be desired. Suspicion appears to pervade all interactions across a range of stakeholders.

The patterns described to me are quite analogous to those that existed in the USA some 40 years ago, perpetrated through questionable corporate citizenship. Corporate citizenship that is not mindful of local and national ecological and social needs is a common form of poor conduct and mismanagement throughout the world, representing an extremely short-sighted view of the role of the corporation in society, particularly a society that is transitioning and aspiring to uphold the principle of social justice. While many transnational corporations have moved their polluting industries to regions of the world lacking in strict pollution control law, such conduct needs to be reined in and returned to one of harmonious local relationships, best achieved through regulatory controls instituted by all governments.

I am told that Taiwan, like Canada, enjoys universal health coverage. This provides an important safety net for people who become ill. It is especially relevant for people who become ill as a result of being exposed to a polluted environment. Thus, ready access to care - once one becomes ill - is available in Taiwan. However, given the excess burden of disease and the goal of preventing people from progressing to full blown illness, additional services would be needed for secondary prevention from the industrial pollution that doubtlessly has caused and continues to cause illness in Taiwan.

In the United States, as an extreme example, harms from industrial activity have resulted in litigation under tort law. This is extremely expensive to the whole system. Other countries offer some degree of compensation to citizens harmed by involuntary exposure to workplace hazards and industrial pollution.

Recommendations:

1. Openness and co-operation would better serve respective stakeholder interests in the longer term if democracy and social justice are valued in Taiwan. Such openness, had it existed, likely would have included in my site visit a tour of the industrial complex. From the highest levels of government in Taiwan, incentives and disincentives are needed to enable greater openness and co-operation.
2. It must be recognized that environmental contamination does not respect county, administrative or political boundaries/borders. Thus, all people, and, indeed, all ecosystems in counties affected by the pollution emanating from the industrial complex must be respected and treated equitably. Regulatory frameworks can enable this.
3. The entire plant needs to invest in pollution control technologies, such as scrubbers that remove all effluent emitted through stacks. Disposing of wastes into water systems, landfills, and the

ocean waters and at temperatures inconsistent with marine life must be curtailed. Win-win-win experiences from other industrial plants, certainly in North America, suggest that making needed investments in pollution control technologies can result in higher profits through new products derived from such control measures. Threats to relocate polluting industries to parts of the world where control measures are less stringent should be considered as both spurious and irresponsible, both ecologically and socially. As more countries tighten their legal frameworks to protect ecosystems and the people within them, there will be fewer options for corporate deviance.

4. I understand that Yunlin used to be the major county for rice production in Taiwan, and for agriculture in general. Since operations began at the Formosa Industrial Complex, the county not only lost its water supply for irrigation and sediments to enrich the soil, but also has and continues to be affected by the polluted air. The result is an ever barren land, no longer able to feed its people. The loss of fresh water channelled from agricultural to industrial use needs to be addressed at the legislative level through a re-balancing of water rights in a new regulatory framework.
5. Win-win-win scenarios between the three major stakeholders (namely, the industrial giant, its neighbouring communities, and all levels of government) are needed if all stakeholders are to thrive in harmony. Solutions that respect Taiwanese values and local culture must be sought. Where international experience can help, it should be considered to avoid unwarranted delays and wasted effort. Expertise in deliberative democratic processes would achieve the goal of a win-win-win solution. Human capital in Taiwan and from overseas could be brought together to navigate the needed negotiations to achieve a satisfactory solution. A tension, will, however, always exist between the interests of the corporation to maximize profits and its duty to be a good corporate citizen. This is not unusual anywhere in the world. The key for success will lie in all levels of government providing enabling structures and legislation with appropriate incentives and disincentives for achieving the desired balance.
6. A screening program to prevent disease progression and premature mortality among exposed populations in the region could be an activity logically based at, and a responsibility of, the National Taiwan University Hospital Yunlin Branch. This could be an added health service and whose design would best be decided by experts in the region. It could take the form of screening programs for exposed workers and residents in defined areas affected by the pollution regardless of county boundaries. Screening for early detection of exposure-related cancers (e.g., lung, liver, lymphoma, leukemia, etc.), as well as other conditions known to be associated with the production processes at the industrial complex, likely will reduce the burden of full-blown disease and premature mortality. Properly established and monitored, and adequately resourced, secondary prevention screening could provide a rich database for research in pollution-related illness and the effectiveness of screening programs.
7. A review of global compensation practices that Taiwan may wish to consider for people and ecosystems harmed by industrial pollution would help to realize social justice in Taiwan.

On request, I would be pleased to elaborate on any of the above.

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Copied to all those whose names are included as sources of information and for the sake of full transparency from among those who asked to see my report. Where I do not have an e-mail address for any such person, kindly forward this e-mail and its attachment to them.

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