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Draft Discussion Points on the Sihanoukville Toxic Waste Site November, 1999

First, a brief explanation of WHO's role with respect to the matter of the importation and subsequent removal of the Formosa Plastics Corporation toxic waste. WHO was requested by the Government of Cambodia to provide technical expertise and advice on the environmental and human health aspects of the problem shortly after the problem was identified in late 1998. WHO brought technical experts to Cambodia to assist the Government in the weeks immediately following the discovery of the waste, and later provided support for some of the chemical testing.

During the FPC cleanup operation that followed, WHO assisted the Government to monitor site activities and to help ensure proper waste removal. WHO was not responsible for establishing cleanup criteria or for verifying site cleanup, however.

Since the end of the cleanup phase in April 1999, WHO has continued to provide technical support to the Government – including support for the ongoing environmental monitoring program at the site.

The following are five questions posed by the Phnom Penh Post regarding the site, followed by brief responses:

1. Although mercury was identified as the main toxic component of the waste, there was discussion at the time of the possibility of the presence of dioxin and other dangerous elements in the waste. To your knowledge, was further testing done to identify other such toxins, and if so what was the result of these tests?

- There was some initial concern expressed that the waste may have contained hazardous constituents other than mercury.
- Several samples were analyzed for heavy metals (including mercury), dioxins, and furans (compounds related to dioxins), to test this hypothesis.
- Results of these tests indicated consistently high levels of mercury, plus inconsistent levels of a few other heavy metals (e.g., chromium, zinc, lead) in a few samples. Dioxin and furan levels were extremely low (similar to background levels in the environment).
- The tests indicated that mercury was likely the principal hazardous constituent of significant concern.
- The chemical tests conducted while the waste was here in Cambodia were relatively few in number and served primarily to determine that the waste was toxic and needed to be removed from the site. However, I understand that detailed chemical testing may since have been conducted by Formosa Plastics Corporation (FPC) or waste disposal contractors in the U.S. Results of those tests have not been provided to WHO.

2. *Since the toxic waste was removed from the site outside Sihanoukville, what measures if any have been taken to ensure that no toxic traces remain at the site?*

- FPC's waste removal operations, which were concluded in April of this year, were effective in removing nearly all of the 2800 metric tonnes of concentrated waste material, plus a great deal of soil and other material that had come into contact with the waste.
- Considering the circumstances, the FPC cleanup appeared to be conducted both efficiently and effectively. The cleanup contractor hired by FPC removed waste material based on visual identification as well as on chemical testing of soils. Another contractor was also present on site, acting in the capacity of quality control/oversight.
- The site is now very clean. However, it is virtually impossible to remove *all traces* of contamination from a site like this. It was WHO's understanding that the goal of FPC's cleanup was to rapidly remove as much of the contaminated material as practicable, and to reduce residual mercury concentrations in soils at the site to within acceptable limits.
- While there may still be some residual traces of mercury in shallow soils in a few areas around the site, it is highly unlikely that these traces would pose any concern to human health or the environment.

3. *Since the toxic waste was removed earlier this year, has there been any further testing of the area's soil and water for signs of mercury poisoning?*

- The Government of Cambodia, with support from WHO, has implemented a year-long surface and ground water monitoring program to ensure that the site does not pose any human health or environmental threat.
- For this program, two monitoring wells were installed at the site to check the ground water. Two surface water sampling stations were established to monitor any mercury in nearby drainages. Finally, public drinking water sources in the nearby community of Po Thoeung were included in the monitoring program.
- Samples from these locations will be taken approximately every three months for a period of one year to determine whether significant levels of mercury are migrating from the site.
- Two sets of samples have already been taken; results indicate that mercury levels are all below WHO's health-based criteria for drinking water of one part per billion. Results from the nearby village indicate normal (extremely low) levels of dissolved mercury, which is consistent with the site having no health or environmental impact on the nearest community.

4. *Have there been any recent reports of illness in the Sihanoukville area that could be linked to the toxic waste dumping?*

- WHO has not been informed of any health disturbances related to the waste.

- For clarification, with respect to past health effects, the tests and surveys conducted by WHO and Medecins Sans Frontiers at the time did not link mercury with any of the deaths that occurred around the time of disposal.
- MSF did report that a number of people had experienced symptoms that appeared to be related to the waste, although it could not be determined whether the symptoms were a result of mercury poisoning or some other factor. The symptoms identified in the affected population appeared to be temporary, and they concluded that no lasting effects of contact with the waste were to be anticipated.
- A Japanese mercury poisoning expert brought to Cambodia by WHO did not detect any abnormal levels of mercury in biological samples obtained from persons who came in contact with the waste.
- However, both WHO and MSF concluded that preventing further human contact with the waste material itself, and removing the waste from the disposal site, were the most effective ways to reduce the risk of potential health effects.

5. *What possibility is there that the dumping could result in long-term threats to human and environmental safety?*

- The site does not currently pose a significant threat to human health or the environment, nor is it likely to do so in the foreseeable future. However, WHO would encourage the Government of Cambodia to continue to periodically monitor the site for a while longer to ensure its safety.