

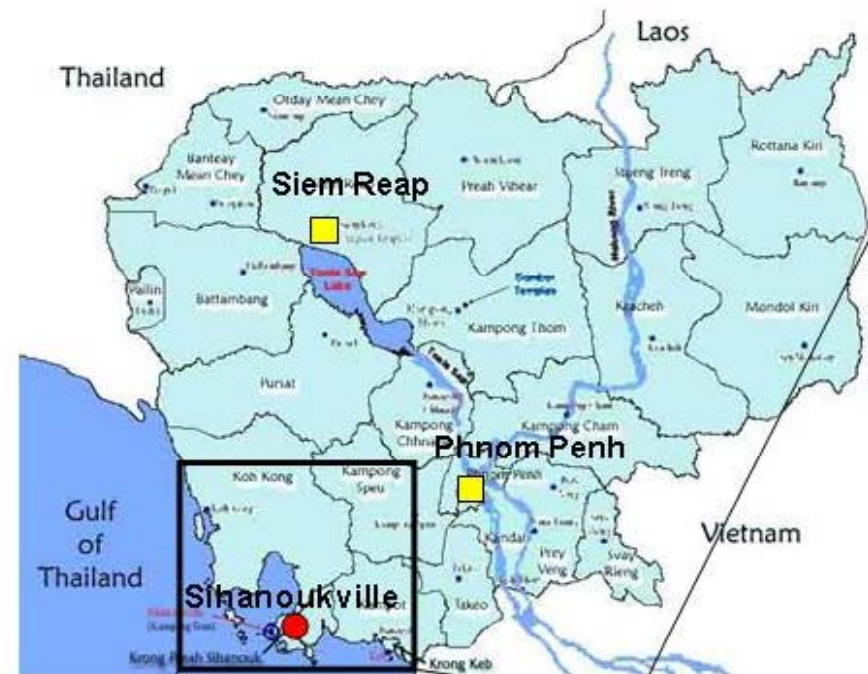
Workshop 2010 of the Asian Network for Prevention  
of Illegal Transboundary Movement of HW  
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# **Lesson learned of taking back the illegal dumping HW in Cambodia**

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# Dumping Site of Illegally Imported HW

- Illegally imported HW contaminated with Hg was dumped in Sihanoukville
- It located in the south-west part of the country, about 230 km from the capital of Phnom Penh
- It is a coastal province where the tourist and international port activities has been busy



# Information of Illegally Imported HW

- Hazardous waste that illegally imported into Cambodia is the concrete brine sludge contaminated with mercury, (called Hg waste)
- This Hg waste belonged to Taiwan company named Formosa Plastics Corporation
- It was the waste from manufacturing of chlor-alkali products

## Information of Illegally Imported HW cont.

- Hg waste was solidified by  $\text{Na}_2\text{S}$  &  $\text{CaCl}_2$  to transform Hg into stable and insoluble  $\text{HgS}$  which was mixed with white cement to become a cement block



# Illegally Imported Process

- Formosa Plastics Corporation commissioned another Taiwan Company named Jade Fortune International to dispose its Hg waste
- Jade Fortune Int. and its locally appointed company named Muth Vuthy Import & Export had proceeded document to import and dump Hg waste in Cambodia

# Illegally Imported Process cont.

- To get an imported permit, Jade F.I. gave a fake information to its local representative
- According to a ship bill, it had confirmed to the check point authorities that the imported products is a cement cakes as a raw materials for producing house roofs
- Due to a lack of legislation, experience and monitoring facilities an imported application was accepted

# Illegally Imported Process cont.

- November 28<sup>th</sup>, 1998, 2,799 MT of Hg waste under the fake name, cement cakes, was shipped into Cambodian International Port at Sihanoukville
- Imported products, Hg waste, was packed in plastic bag
- December 4<sup>th</sup>, imported products was unloaded and transported to dump at an open site (10,000 m<sup>2</sup>), about 5 Km far from the central



# Unloading Hg Waste at Sihanoukville Port



Disembarkament from ship



Disembarkament from ship



# Hg Waste Dumping at Open Site



# What Happening After Illegal Dumping ?

- Truck drivers and villagers close by the site took :
  - ✓ all plastic bag for purpose of domestic use
  - ✓ some cement blocks for filling land in their houses
- Local newspaper released information about dumping the cement blocks at open site and had been doubted the case of dumping
- On December 7<sup>th</sup>, the MoE sent its technical staffs to see the site and conduct investigating such case

# Primary Actions

- Primary report of the dumping was submitted to the head of government with conclusion that it is surely waste, and not a raw material, cement cakes, as declared by the imported company
- Then the MoE informed to all relevant GA, WHO, UNEP & Basel secretariat about the case and requested tech. assistances in identifying such dumped material as well as conducting risk assessment of the dumped materials to health and environment

# Primary Actions cont.

- Several samples of dumped material were collected and sent in HK, SP & Japan for testing
- During the testing results have not yet in hand, and in order to prevent from any risk of such dumping some actions had been put in place as follows :
  - ✓ Isolating the dumping site as restricted area
  - ✓ Calling for bring back of packaged plastic material and cement block to the dumping site
  - ✓ Creating an inter-ministerial committee for inspecting and investigating such illegal dumping

# Testing Result Conducting by Lab of SP

- First test result, issued by Matcor Technology & Services based in Singapore, reported that the dumped material had contained high Hg concentration

Test Items	Method	Result
Mercury (Hg)	Mercury analyzer	675 ppm
Iron (Fe)	AAS	0.10%
Silica (SiO <sub>2</sub> )	Gravimetric method	2.60%
Sodium (Na)	AAS	0.28%
Calcium (Ca)	AAS	0.47%
Chloride (Cl)	Titration	1.60%

# Testing Result Conducting by Lab of HK

- Second test result, issued by Enviropace Limited based in Hong Kong, reported that dumped material contained high concentration of trace elements

Testing Items	Testing Results in Total			TCLP Testing
	Sample A (mg/kg)	Sample B (mg/kg)	Sample C (mg/kg)	
Cadmium	14.60	<b>195.90</b>	< 10.00	< 0.50
Chromium	36.30	<b>22,810.00</b>	< 20.00	1.22
Copper	< 60.00	<b>2,283.00</b>	< 60.00	< 0.50
Iron	<b>475,400.00</b>	<b>156,000.00</b>	<b>8,090.00</b>	< 1.00
Lead	58.30	<b>10,170.00</b>	36.50	< 1.00
Mercury	<b>10,971.00</b>	34.70	129.70	0.80
Nickel	< 60.00	<b>3,984.00</b>	< 60.00	< 0.50
Zinc	254.10	<b>156,500.00</b>	158.70	18.07



# Testing Result Conducting by NIMD

- Third test result, issued by National Institute for Minamata disease, reported that dumped material contained high concentration of total Hg and one sample contained Methyl Hg

Sample Property	Color	Moisture %	Total Hg (µg/g)	Methyl Hg (ng/g)
<b>Solid (fragile)</b>	Gray	28.40	<b>496.00</b>	-
<b>Solid (fragile)</b>	Gray	26.40	<b>724.00</b>	-
<b>Solid (hard)</b>	Black	11.40	<b>2,497.00</b>	-
<b>Solid (hard)</b>	Black	1.30	<b>3,984.00</b>	-
<b>Sand</b>	Brown	31.10	<b>97.00</b>	<b>33.7</b>

# Immediate Actions

- When it was known as an hazardous waste contained Hg and other trace elements, the inter-ministerial committee decided taking immediate actions as follows :
  - ✓ Constructing dam surrounded the dumping site
  - ✓ Temporarily packaging the Hg waste into oil drum
  - ✓ Initially controlling quality of surface and ground water in the area of and close by dumping site
  - ✓ Communicating with relevant Int. body to request comments on what procedure to return such waste back out of Cambodia

# Step Forward to Negotiation

- January 1999, a National Negotiation Commission was established
- Several questions were raised before negotiation :
  - ✓ Who should we negotiate with, TW Gov. or Formosa Company
  - ✓ What options that we want to receive from negotiation :
    - ☞ Return-back and clean up, or
    - ☞ Compensation, or
    - ☞ Both

# Step Forward to Negotiation cont.

- February 1999, bilateral negotiation between Cambodia Negotiation Commission and Formosa Company had been conducted 2 times (Taipei & Phnom Penh)
- Both sides reached signing an agreement on February 25<sup>th</sup>, with key conditions as follows:
  - ✓ Transport all Hg wastes out of Camb. within 60 days
  - ✓ Waste Transporting Operations (repackaging, site cleanup & transportation out of Camb.) will be followed St-Pr of BS
  - ✓ WTO will be supervised by 3<sup>rd</sup> party, who has an Int. expertise in that field
  - ✓ Be responsible for a claim of Cambodian patient suffered from Hg waste, if it was confirmed by both parties

# Withdrawing Hg Waste from Temporary Storage Drum





# Removing Soil Layer & Site Cleanup





# Repackaging Process



# Waste Transporting Operations Process

- Parties involved in implementation of WTO process :
  - ✓ Cambodia provided manpower & controlled cleanup process
  - ✓ Formosa company provided technical expert and all expense
  - ✓ CDM Int. controlled & supervised all activities during the process
- Country's WHO representative also involved in controlling site cleanup and repackaging process, as well as overseeing the test of water and soil quality conducted by Formosa's expert
- Total amount of Hg waste after repackaging process was of 4,483 MT (325 int. standard drums) ,and it was transported out of Cambodia to the original place on early April 1999

# Actions Post WTO

- The dumping site, that ready cleaned up, has been put as restricted area
- Groundwater quality monitoring in and near by the dumping site, was continued to conduct for 1 year after the waste taking back out of Cambodia
- Test analysis result conducted by NIMD showed that concentration of trace element (Methyl Hg) is under WHO's Guideline

# Jurisdiction Process

- The illegal waste dumping case has been locally processed in a court
- This prosecution is much focused on suing the Taiwan transportation company of the waste and its locally appointed company for the illegal waste dumping

# Conclusion

- The shortage of monitoring experience, relevant legislations and cooperation, as well as not being a party of the BC, was the reason causing an illegal import of Hg waste into Cambodia
- Negotiation options to take back all imported waste is the best solution better than focusing more to get compensation
- All technical support, comment and advice from relevant UN bodies, BC secretariat and countries with high experience in that field are the key factors to help Cambodia being successful in taking back process

Thank  
for Your Attention