TOXICS ALERT
US Toxic Legacies: Toxic Hotspots in Clark and Subic

After almost a century of military presence in its former colony, the Philippines, the United States was forced to withdraw from its bases, including Clark Air Base and Subic Naval Base, in the Philippines after the Philippine Senate rejected an extension of the RP-US bases treaty in 1991. When the Americans left Clark and Subic, it soon became apparent that they also left behind a lethal legacy of toxic wastes brought about by irresponsible use, storage and disposal of hazardous materials including persistent organic pollutants such as Poly Chlorinated Biphenyls (PCBs) and organochlorine pesticides.

Toxic Contamination at Clark & Subic
A January 1992 report by the US General Accounting Office (GAO) revealed that the US military had failed to comply with its own environmental standards in its bases in the Philippines. As a consequence, cleaning-up the damage left behind in both bases could reach Superfund proportions. Subsequent studies include evidence suggesting severe environmental contamination, and potential for associated health risks for communities, in both bases.

More recently, the Philippine government which has undertaken extensive efforts to convert the former bases into flagship economic centers, commissioned environmental baseline studies in Clark and Subic to assess the actual extent of contamination. The Clark study, conducted by Weston International, found, among other things, that:

- high levels of the persistent toxic pesticide dieldrin in four operational wells and six back-up wells inside Clark, fueling fears that the underground aquifers that supply drinking water in and around the base are contaminated. The wells are all located near or down-gradient of the golf course. The dieldrin found in the wells may be the breakdown product of aldrin, a pesticide which may have been used in the golf course;

- high levels of aldrin, dieldrin, lindane, chlordane, heptachlor, and HCB were also found in the soil samples from several sites. The sample sites include a municipal landfill near a residential area in the town of Mabalacat, an abandoned motor pool now used as a relocation site for evacuees of the Mt. Pinatubo volcanic eruption, the old fire training area, and the Civil Engineering Entomology center;

- elevated levels of PCB in soil were detected in the decommissioned power plant and transformer sites, with one site recording a high of 7,800 parts per million (ppm).

The People’s Task Force for Bases Clean-up, an NGO working to make the US clean-up its former bases in the Philippines, believes that the Weston study validates fears of extensive contamination in Clark. The findings provide only a “window to a much bigger problem.”

Communities near the base may already be suffering the effects of exposure to the toxics from the bases. This may explain the high incidence of birth abnormalities and impaired intelligence among local children. In a letter to President Ramos, Dr. Rosalie Bertell – President of the International Institute of Concern for Public Health (IICPH) – asserted that “the level of kidney diseases and symptoms of kidney problems reported in this area is startlingly high.” The IICPH is monitoring the health of over 700 families living near Clark.

Unfortunately, the Philippines government has taken a lackadaisical approach to pushing the US to clean up the toxic wastes left behind by its forces. Worse, Philippine base conversion authorities, especially during the term of President Fidel Ramos, have intentionally downplayed the contamination problem out of fear that reports about contamination may erode the real estate value of the bases and scare away potential investors.

For instance, the Subic Bay Metropolitan Authority (SBMA) commissioned Woodward Clyde, an environmental consulting firm to do an environmental baseline study (EBS). The Woodward -Clyde study which was financed by a $650,000 loan from the World Bank did not identify the widespread and severe contamination in the former naval base prompting Philippine base conversion authorities
to describe the problem in Subic as “minimal”. However, a subsequent review of the Woodward -Clyde study by Clearwater Revival Company (CRC), an American based environmental consulting firm with expertise in toxic waste remediation and base conversion issues, stated that “the [Woodward-Clyde] EBS does not accurately characterize contamination at the Subic Bay Freeport Zone, and the potential for adverse impacts to human health and the environment.” Describing the report as “terribly designed”, Dr. Paul Bloom, a noted soil scientist with the United States Working Group for Philippine Bases Clean-up, said that the EBS “was an attempt to spend the most amount of money to produce the least amount of results.”

There are many other omissions in the Woodward-Clyde study – most of which are failures to investigate and account for recorded pollutive practices by the US Navy in Subic. Retired Admiral Eugene Carroll, a 37-year US Navy Veteran who used to command US carriers and battleships into Subic admitted how the US Navy was “endlessly producing industrial toxic chemicals and discarding them without due regard for the pollution (in Subic).” In a 1992 article published by the Philippine Center for Investigative Journalism (PCIJ), Carroll recalls how the US Navy routinely flushed and left behind a trail of waste and toxic materials in the process of ship repair. The PCIJ article also revealed the double standard applied by the US, particularly in the use of PCBs in transformers a practice that had been banned in the US since 1976. Filipino base workers said they dealt with PCB-contaminated fuel without adequate protection, with the knowledge of their American superiors.

Health Problems at Clark Airforce Base
In 1994, health problems were beginning to be monitored in certain communities around Clark, particularly in CABCOM, a government evacuation center for people displaced by the explosion of Mt Pinatubo. The center was located atop a contaminated motor pool of the former air base.

People in CABCOM described the water as having a funny smell or an oily sheen. They also complained of skin irritation after bathing or washing, stomachs bloating to the size of a basketball, and unusual numbers of miscarriages and spontaneous abortions. In one small neighbourhood, nine children were born with central nervous system problems; only one survived.

In response to these problems local community groups in 1994 initiated a health survey of 761 households in 13 communities around Clark. The results revealed that:

- Certain communities around Clark Air Force Base report conspicuously high levels of kidney, urinary, nervous and female system health problems.
- The weight and height of older children were abnormally low despite adequate nutritional status
- Respiratory problems in children were at high rates ranging from 23 to 31 percent in each of the 13 communities surveyed.

According to local people, nearly 100 people from communities around Clark are thought to have died due to ailments caused by the toxics contamination. At least 63 people report a number of unusual ailments, including cancer, leukemia, and skin problems. At the Subic Naval base, a high incidence of leukemia cases is reported. More than 1000 former base-workers were diagnosed with asbestosis a type of lung cancer contracted due to exposure (usually occupational) to asbestos.

American Denial & Double Standards
In a Report to the US Congress in 1999 the US Department of Defense recommended the clean up and disposal of more than 3 million pounds of PCB stored in capacitors and transformers at military installations in Belgium, Germany, Italy, Japan, Korea, Spain, Turkey and the United Kingdom. The United States, however, does not consider the same measures necessary for the Philippines.

The US government has consistently denied its liability, stressing at every turn that it is under no legal obligation to clean-up its former bases in the Philippines. As elsewhere, and especially in less industrialized countries, polluters like the US should pay.
Greenpeace Demands:

**Polluter Pays:** The United States Government should pay for the full clean-up of its ex-military installations in the Philippines particularly Clark and Subic. The US Government should also compensate the victims for the health damages caused as a result of exposure to the contamination in the bases.

**Estrada Take Action:** The Philippine Government should take this issue as a matter of priority with the US, ideally during President Estrada’s planned state visit to the US in April 2000. The Philippine Government should push for full US liability for environmental remediation and compensation to victims.

END
TOXICS ALERT
Use & Effects of PCBs

What are PCBs?

Polychlorinated biphenyl's (PCBs) are a group of synthetic organic chemicals that contain 209 individual compounds (known as congeners) with varying chemical contents and pattern of chlorine substitution. There are no known natural sources of polychlorinated biphenyls in the environment. PCBs are either oily liquids or solids and are colorless to light yellow in color. They have no known smell or taste. PCBs enter the environment as mixtures containing a variety of individual components and impurities.

Health & Environmental Effects

The specifics of the health effects and the toxicity of the different PCB congeners vary. Some PCB congeners exhibit dioxin-like toxicity. Also, when PCBs oils are heated (as often happens in a transformer) furans and dioxins can be created. For example, the recent dioxin scandal in Belgium that lead to worldwide bans on Belgian food products chicken products was probably caused by used PCB oils that were mixed into commercial animal feed. The observed dioxin-like toxicity observed in the chickens appears to have been caused by furans and dioxins present in the PCB oil as contaminants and also by the dioxin-like PCB congeners.

Exposure to PCBs in high concentrations can have various acute effects including: a skin disease known as chloracne; liver damage including clinical hepatitis; and clinically diagnosable damage to the nervous system with symptoms such as numbness and tingling in the arms and legs.

The literature also suggests that exposure to lower levels of PCBs – such as can occur as the result of environmental exposure – can also cause significant human health impacts. These include:

- **Neurologic and Development Effects:** Studies of children exposed to higher than average concentrations of PCBs during fetal development show deficits in mental functions such as IQ, memory and reading comprehension.

- **The Immune System:** Evidence from animal studies and PCB workers are emerging which suggests that PCBs may suppress the immune system.

- **The Reproductive System.** Animal studies show that high levels of PCBs can reduce fertility, but equivalent exposure in humans is very unlikely today. Human exposure to PCBs in cases of poisoning where a pregnant mother has been exposed to levels sufficient to shows of toxicity, have been shown to cause miscarriage or spontaneous abortion. Evidence also exists for a correlative link between chronic PCB exposure and impaired reproductive success in some wildlife species e.g seals.

- **Cancer.** The World Health Organization’s International Agency for Research on Cancer (IARC) considers PCBs to be probably carcinogenic. There is strong evidence associating PCBs with cancer of the liver, biliary track and gall bladder; and some studies have also found associations with malignant melanoma and non-Hodgkins lymphoma.

- **Environmental Impacts:** PCBs are bioaccumulative and toxic to the environment. The effects of chronic exposure to PCBs in marine mammals have been found to include physical deformity and impairment of reproductive success. They have also been implicated in the outbreaks of disease amongst populations of seals and exposure to elevated levels of PCBs has also been implicated in increasing the susceptibility of seal and other marine mammals to certain diseases suggesting that they may have a disruptive influence on immune capability.
Uses of PCBs

From the 1930s, PCBs were produced commercially for use as dielectrics in transformers and large capacitors; in heat transfer and hydraulic systems; in the formulation of lubricating and cutting oils and wax extenders; as plasticisers in paints, ink solvent/carriers in carbonless copy paper, adhesives, sealants, flame retardant and plastics.

After 1970, as a result of concern about possible health and environmental effects of PCBs, production decreased sharply due to the voluntary limitation of sales by major manufacture in the USA, Monsanto. Capacitors and transformers provided the major use of PCBs in most OECD countries in 1971.

It has been estimated that, at a global level, between 1 million and 2 millions tones of PCB were manufactured. The United States has been one of the main producers of PCB. By the end of 1980, the United States is estimated to produce 647,700 tones of PCB, over 61% of known production until 1980. Between 1930 –1980 the US is estimated to have used around 256,000 tones of PCB in transformers and capacitors, around 55% of the world total use.  

PCB Bans & Regulation

In 1972, several countries restricted sales of PCBs; in Sweden the importation and use of PCBs were restricted by law, the United Kingdom, as in the USA, sales were voluntarily restricted to the lower chlorinated PCBs for use as dielectrics in enclosed systems. In 1973, the 24 OECD countries adopted a Decision limiting the use of PCBs to specific applications and asking for the control of the manufacture, import and export of bulk PCBs, for adequate waste treatment and for the special labeling for PCs and PCBs products.

The Council of the OECD, in 1987 provided a further Decision – Recommendation (C(87)2 (final) on “Further measures of the protection of the environment by control of polychlorinated biphenyls”). With this Decision- Recommendation, the OECD member countries committed themselves to ban virtually all new uses of PCBs, accelerate the phase out of PCBs from existing uses, control PCBs in contaminated products articles, or equipment, and ensure appropriate disposal methods for PCB-containing wastes.

Internationally, a concentration of 50ppm is commonly used as a cut-off point for unauthorised PCB equipment or waste movements (import/export or disposal). It marks no toxicological or environmental turning point. Some countries have developed and applied tighter standards for different environments. For example:

- The US lists 5 ppm as the maximum level allowed in soap; 10 ppm is the maximum allowable soil concentration for normal residential development and 25 ppm is the maximum allowable contamination for landfill waste. 50 ppm is also the cut-off point for use in equipment (hydraulic and heat transfer) and import/export for disposal.
- Canada, and Germany use the 50 ppm threshold only for the control of import/export for disposal and significantly lower levels for contamination in fuels, reprocessing oil and soil.
- The OECD recommended the 50 ppm level as cut-off point for the agency control of contaminated fluids and soils.
- Swedish legislation declines to offer any level for PCB contamination. Instead, “waste containing PCB” (i.e. any level) is taken for the purposes of the ordinance, to be hazardous chemicals and subject to permitting.
- Japan also applies much lower thresholds levels between 0.15 ppm and 0.003 ppm for PCB contaminated waste which is landfilled, or dumped or discharged to the ocean.
- PCBs are one of the 12 Persistent Organic Pollutants identified by the United Nations Environment Program for elimination under a global treaty presently being negotiated by over 100 governments.

1 Bletchly, J.D (1983.), “Report to the Commission of the European Communities on a study of measures to avoid dispersion into the environment of polychlorinated biphenyl’s (PCBs) and Polychlorinated terphenyls (PCTs) from existing installations”. Luxembourg, Commission of the European Communities, pp 22-23., Also found in Sinclair Knight Merz Pty Ltd., PCB Background Paper., Australian New Zealand Environment and Conservation Council (ANZECC) Scheduled Waste Management Group., November 1994
TOXICS ALERT
United States Toxic Legacy Continues

- Greenpeace investigators discovered a transformer clearly marked as containing PCBs and unsecured in a residential area in Mabalacat, Pampanga, the Philippines.

- The PCB-containing transformer is clearly leaking. According to local residents, it was originally pilfered from the Clarke airbase in the early 1990s and moved to a vacant lot in the nearby suburb. This site is now residential housing.

- Some years later, the transformer was moved to a location near the back fence of the scrap dealer on the corner of two residential streets. It was kept there in a state of disrepair until discovery by local environmental activists.

- The transformer was clearly marked as containing PCBs. USEPA warning labels suggest that in the case of leakage, contact the United States Environment Protection Authority.

- Both oil and soil from around the transformer were found to contain PCBs at levels at which they are considered hazardous materials.

- Soil samples around the transformer were found to contain PCBs up to levels three times the level considered hazardous waste, and up to 18 times higher than levels considered safe for residential areas.

- The transformer was again moved in early February 2000 to a nearby wrecking yard. The item was disassembled and drained by workers without appropriate protective gear. Greenpeace activists informed the plant owner of the contamination and the item was isolated and secured pending arrangement of suitable containment equipment.

Greenpeace Takes Action

- Disassembled transformer and oil will be secured and contained by Greenpeace Toxics Patrol in accordance with international best practice standards and using full protective equipment. Greenpeace Toxics Patrol contaminated soil from the street corner in Mabalacat was also removed and contained to best practice standards.
SOEAST ASIA

TOXICS ALERT
Why the US Airforce Mabalacat Transformer is Hazardous Waste

Greenpeace PCB Analytical Results - Mabalacat Transformer

<table>
<thead>
<tr>
<th>Sample</th>
<th>Description</th>
<th>Total PCB (mg/kg dry weight, ppm)</th>
<th>Aroclor type estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP9004</td>
<td>Sediment collected under the front of transformer at Mabalacat</td>
<td>20.3 mg/kg</td>
<td>clear dominance of tri and tetra CBs, suggestive of Aroclor 1242</td>
</tr>
<tr>
<td>PP9011</td>
<td>soil from left hand corner of transformer, black sludge</td>
<td>185</td>
<td>Aroclor 1242</td>
</tr>
<tr>
<td>PP9012</td>
<td>soil 50 cm from left hand corner (i.e. from PP9011), silty</td>
<td>0.7</td>
<td>Mixture of Aroclors 1242 and 1254</td>
</tr>
<tr>
<td>PP9013</td>
<td>soil 5cm from right hand side of transformer, grey</td>
<td>0.32</td>
<td>Mixture of Aroclors 1242 and 1254</td>
</tr>
<tr>
<td>PP9014</td>
<td>oil from valve on tap of transformer, light brown</td>
<td>66</td>
<td>Aroclor 1242</td>
</tr>
</tbody>
</table>

- Soil appears to be contaminated under and directly around the area where the old transformer was stored, with total PCB concentrations in the range 2.7 mg/kg - 185 mg/kg. A concentration 20.3 mg/kg total PCBs was directly beneath the transformer.

- Patchy PCB contamination was found directly underneath and around the transformer, levels dropped to below 1 mg/kg 50 cm from the left-hand side of the transformer and were as high as 185 mg/kg on the right-hand side directly adjacent to the equipment.

- Oil was taken from the tap of the transformer and found to contain 66 mg/kg of PCB, total PCB. Analyses suggested the presence of an Aroclor 1242, similar to PCB type and content to some of the soil samples. It is likely that considering the similarity in PCB mixture in the soil and oil that the oil from the transformer or similar units stored there previously is responsible for the contamination of the soil.

- Levels of contamination in soil around the transformer are at levels, which would require clean up in the USA. USEPA spill response procedures would require clean up at levels above 10 mg/kg for residential soils. Greenpeace will remove and contain soils from the site consistent with USEPA Spill response procedures, for clean up of oil less than 1000 L and containing less than 500 mg/kg PCBs (see USEPA PCB Regulations – Clean Up Criteria).

- In the United States and many other countries any material with more than 50 mg/kg of PCB is considered hazardous waste. The transformer oil in this case contained 66 mg/kg PCB, Aroclor 1242 and the highest level of contamination on and around the transformer was 185 mg/kg, more than three times higher than the hazardous waste threshold.

END
TOXICS ALERT
US Threatens to block treaty on toxic pollutants

On the 3rd of February 2000, Greenpeace released to the press a leaked letter that had been sent by the US Department of State to each member government of the European Union (EU). In this letter, the US demands the EU reverse its current commitments to support measures to eliminate some of the world’s most toxic chemicals. The letter also states that the US rejects the development of a global fund to assist countries with developing economies deal with toxic legacies and ongoing pollution.

The U.S. letter was sent out while governments were preparing for the fourth meeting of an Intergovernmental Negotiating Committee (INC-4) whose mandate is to establish a global treaty on persistent organic pollutants (POPs). The letter begins: “The U.S. is seriously concerned that, unless the U.S. and EU countries change tactics before INC-4, POPs negotiations will not conclude this year as scheduled and may collapse.” INC-4 begins March 20, 2000 in Bonn, Germany.

At previous negotiating sessions, the EU—with support from many developing countries (G-77)—tabled language establishing an aim of “continuing minimisation and ultimate elimination” for certain synthetic chemicals like dioxins and other by-products of industrial processes. The US letter, on the other hand, explicitly calls on the EU to reverse what it calls “the goal of eliminating by-product POPs” and gives as a reason, the limited “amount of aid that can reasonably be expected to be available.” Instead, the US has only supported proposed commitments to reduce the environmental release of these dangerous poisons to some unclear and unspecified degree.

The dioxin issue has taken on special importance in light of a number of very high profile and worrisome dioxin scandals in the past few years in countries such as Belgium, Japan and Brazil. It is widely believed that with more monitoring now taking place, many more dioxin scandals will emerge. Dioxins are known to be human carcinogens and are widely believed to inhibit learning ability and intelligence in children; to weaken the immune system; and to interfere with the ability to reproduce. It is also believed that these harmful effects start to occur at levels of exposure now considered within the “normal range” in many countries.

The letter also indicates that the U.S. rejects the proposal to establish any new fund for this purpose, and it also appears to reject any other formal treaty obligation that would entail a commitment to provide financial assistance for less industrialised or newly industrialised countries. It states:

“… the G-77 must also accept that the POPs issue is not a global commons issue to the same degree as ozone depletion or climate change. The most significant deleterious effects of POPs are often felt near to where they are produced and/or used. Thus, the G-77 needs to accept that the OECD is not prepared to bear all the cost of implementing POPs.” [OECD stands for the “Organization for Economic Cooperation and Development,” shorthand for the club of wealthier nations.]

“Unless and until the G-77 comes to this realization, the negotiation with the G-77 will not yield a realistic assessment of the obligations they are prepared to undertake. If the G-77 insists on obligations caveated on the OECD/WEOG paying for them, no treaty will be successfully concluded”. [WEOG stands for “Western Europeans and Others Group,” another shorthand name for the same club of wealthier nations.]

Despite what the U.S. says, however, POPs are a global problem. In most countries with developing economies, many of the POPs that now pollute the environment were originally imported from the US or from other OECD countries. Industrial technologies and inappropriate materials that generate POPs as unwanted byproducts also are often imported. Filipino people and the environment are contaminated and injured, especially at places such as the former US bases at Clark and Subic. For example, PCBs have never been produced in the Philippines, but entered this country mainly as internal cooling fluids in imported transformers and other electrical equipment. In this regard, US and other OECD countries have an obligation to provide assistance under the Polluter Pays Principle and as a matter of elementary justice.
POPs, however, are a global problem for another reason as well. Once POPs enter the environment, they can travel very long distances. For example, PCB contamination is well documented as a potential source of serious health and environmental injury to the Arctic and to the Great Lakes Regions of North America. It is also well documented that these PCBs (and other POPs) come from far off sources (and also from nearby sources). Because of this, there is no way that the US Government can protect its people and ecosystems from POPs that originate in far-off places unless it helps provide needed assistance to countries with developing economies such as the Philippines.

There is proposed Treaty language that would require every country to identify all products and articles that still contain PCBs; to make certain these are retired from use by some specified date, and to require that they are handled, stored and destroyed in an environmentally sound manner. There is also proposed language that would require countries with financial and technical capacity to provide assistance to those who lack it in the implementation of these measures and in the cleanup of contaminated sites. These measures are essential to protect human health and the environment from serious injury.

Greenpeace Demands

Greenpeace calls on the Philippine Government to:

1) Support a strong and effective Global POPs Treaty that establishes, as its ultimate aim, the elimination of all POPs including PCBs, dioxins, chlordane, and others.

2) Support provisions to provide technical and financial assistance to those countries that need such assistance to meet their obligations under the treaty; establish that the Treaty’s Conference of the Parties will have the obligation to create effective mechanisms for this purpose and to adequately fund them.

3) Support Treaty provisions requiring the identification of all transformers and other equipment containing PCBs; require the retirement of such equipment by a date certain; and require the environmentally sound destruction of these PCB and the proper cleanup of all PCB-contaminated sites.

4) Join in the demand that the U.S. to move away from the positions articulated in its letter to the EU.

Greenpeace demands that the U.S. Government:

1) Reverse the position stated in the letter to the EU.

2) Support a strong and effective POPs Treaty that establishes clear commitments to proceed toward the ultimate aim of eliminating all global POPs and their sources;

3) Support provisions to establish appropriate mechanisms to provide adequate technical and financial assistance to countries that need such assistance to meet their obligations under the Treaty.

4) As a matter of justice, and as a sign of good faith, provide the needed assistance to properly cleanup the toxic contamination at the former US military bases at Clark and Subic Bay; and to properly destroy the POPs and other organic toxic pollutants at these sites.

2 Soil and Baseline Study Report., prepared by Weston International for the Clark Development Corporation, Philippines, August 1997.
3 Letter written by Dr. Rosalie Bertell to President Fidel Ramos and the People’s Task Force for Bases Clean-up dated October 9, 1997.
5 Environmental Baseline Survey of Former United States Navy Installation, Subic Bay, Philippines; An Arc Ecology Technical Review produced for the People’s Task Force for Bases Clean-up, with analysis provided by the Clearwater Revival Company (CRC), 1998.
7 Bertell, R., Health for All Survey., International Institute for the Concern for Public Health (IICPH), 1996.