

OUR ENVIRONMENT OUR HERITAGE

SUSTAINABLE MANAGEMENT OF CHEMICALS

The use of chemicals has become indispensable in many development activities in Samoa particularly in agriculture, health, education and industry. According to the Department of Statistics Samoa expended a large sum of money for the procurement of chemicals as well as to import petroleum products. While there is growing national need for chemicals they can also cause health and environmental problems if not effectively controlled. The Ministry developed a **National Chemicals Management Strategy 2007-2017** (NCMS) which provides a framework for the sustainable management of all chemicals through the various stages during their life-cycle - procurement, transportation, storage, distribution, use and waste disposal.

Adverse affects of chemicals:

Chemicals are widely distributed in the environment. Therefore, there are many possible sources of exposure to these chemicals for humans. Chemicals can enter our body by ingestion, inhalation or by absorption through the skin and different chemicals will cause different adverse effects. In fact, not all chemicals absorbed into the body will cause adverse effects; however, it depends not only on the chemical to which one is exposed but also on the type/route of exposure and level/dose of exposure.

Effects of chemicals can pose serious health defects in the respiratory system, liver, kidney, nervous system, immune and reproductive systems. Cancer is one of the leading causes of death due to exposure to chemicals. Hazardous chemicals not only have adverse effects on human health but can also disrupt ecological systems that exist in rivers, lakes oceans, seas, forests and soils. The discoveries of a growing hole in the stratospheric ozone layer, is evidence of the enhanced greenhouse effect, due to chemical contamination and pollution.

There is growing concern over the use of persistent organic pollutants (POPs) and persistent toxic substances (PTS) as exposure to such would cause significant public health and environmental problems. Of the 12 types of POPs controlled under the Stockholm Convention for POPs, **eight** are present in Samoa including aldrin, chlordane, dieldrin, DDT, PCBs, dioxins and furans and HCB (impurities).

These chemicals are among the most dangerous that have ever been created - they are transported by air, water and migratory animals over long distances, often miles from their original sources. They dissolve in water, can easily enter the food chain, are absorbed readily in fatty tissues and can remain active for years before they break down. They are known to cause or contribute to a number of major health problems in humans including:

immune system alterations;

reproductive deficiency;

neuro-behavioural impairment and

various forms of cancers.

PTS have similar properties to those of POPs and their sources, however, environmental concentrations and effects are to be addressed such as endosulfan, pentachlorophenol, lindane, organic mercury, organic lead and polynuclear aromatic hydrocarbons and other heavy metals.

There is concern over each stage in the chemical life cycle - procurement, storage, transportation, distribution, utilization and waste disposal:

Priority Concerns:

Procurement:

A variety of chemicals are imported from a number of countries in various forms and categories poses a range of problems which raises enormous concerns.

The absence of facilities and mechanisms to identify what chemicals are actually brought into this country is a serious concern for Samoa. This is to protect against chemicals that are not needed and also for the purpose of identifying chemicals which are prohibited from entry into the country. Some chemicals may be imported in bulk and then repackaged without adequate labeling, resulting in accidental poisonings.

Chemicals imported for industrial, agricultural or consumer purposes maybe sit in a stockroom until the containers deteriorate and the contents spill out or seep down into the groundwater. More importantly, is the lack of adequate legislation to control the importation, distribution, use and disposal of these toxic chemicals to cater for a satisfactory control process.

Storage, transport and distribution:

To ensure rapid and convenient access to chemicals, chemical users usually order chemicals and store them in their own laboratories / chemical storage areas. One drawback of such a practice is that unused chemicals often end up staying on shelves beyond their shelf life is there is no established system to encourage chemical transfer and exchange. The transport and distribution of chemicals from place to place require proper handling, packaging and safety measures to prevent from leaking and inhaling of chemical odor / vapor.

Utilization:

Chemical users are the ones who determine what chemicals to use, and how much is needed. There is tendency towards an increase in the use of chemicals for a number of reasons such as agricultural, industrial, health, school and domestic purposes. Thus, human exposure to toxic chemicals will be increased, resulting in both health and environmental problems. Accidents with toxic chemicals are potentially more serious within the limited environment of Samoa. The limited expertise and experience in identifying poisoning by toxic chemicals will probably results in most incidents going undetected and unreported.

Waste:

The origin of chemical waste in Samoa and the manner in which they are managed varies. Agricultural, consumer and industrial wastes for example, are mostly stockpiled for indefinite periods. In some instances, these waste are inappropriately stored and as such pose a threat to human health and the environment. Residual household chemicals are not separated from the remainder of domestic waste and is disposed of in the Tafaigata (Upolu)

and Vaiaata (Savaii) landfills. The non-segregation of household and industrial chemical wastes poses a potential occupational health and safety as well as environmental risk. Therefore formal country-wide data/survey concerning the chemical waste generation and emissions is required in order to monitor all types and sources of chemical waste.

Disposal:

Samoa does not have any centralized or dedicated hazardous chemical waste storage, treatment or disposal facilities. Most of the chemical waste is disposed off either into the nearby drains and or other outlets. Due to the lack of appropriate facilities for the disposal of chemical wastes, these substances are either store at the site of generation or at off-site location or are removed out of the country. Therefore, there is great need for dedicated facilities to store and treat chemical wastes, particularly the more toxic substances as well as to identify the quality and quantity of chemical waste generated within the country.

Responsibilities & Implementation:

Implementing agencies are unique and have a collective responsibility in ensuring a sound management of chemicals at various stages of its life cycle. These responsibilities span from health, agriculture, environmental protection, workplace, education and homes. One of the greatest challenges is the coordination of implementing agencies efforts and mobilization of resources in ensuring a collaborative and holistic approach to achieving the goals and outcomes of the developed strategy.

The Ministry has the overall responsibility for the direct and indirect effects of releasing chemicals into the environment as emissions and waste to air, water and land. The Ministry is also responsible for policy development in the field of natural resources management and sustainable development.

This publication is extracted from the - *National Chemicals Management Strategy 2007-2017* you can visit our website www.mnre.gov.ws to view the full version or contact our Division of Environment & Conservation - POPs section - DBS building - Floor 5 - telephone number 23800.

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