TRINIDAD AND TOBAGO:

STATE OF THE ENVIRONMENT 1998 REPORT

CHAIRMAN'S MESSAGE

The 1998 State of the Environment Report is the second of our annual reports that focuses on a selected area or aspect of the environment, which the Environmental Management Authority (EMA) has prioritised for attention. The 1997 Report dealt with Biodiversity while the focus this year is on freshwater because of the importance of this resource to our quality of life and indeed our very survival. Freshwater management is also critical to the sustenance of our wildlife and ecosystems. We should be careful to note though, that in one of the marvels of nature, our forested watersheds provide us with free water management services by purifying water and impeding flooding in low lying areas. We ignore these facts at our peril. Continuing deforestation is the major cause of the annual flooding which has now become common place in Trinidad during the wet season. This phenomenon is coupled with the paradox of inadequate supplies of potable water for some members of the populace.

Freshwater is also a critical resource for industry. Industrial applications range from the use of water for equipment cooling to its use as a receptacle for liquid wastes. It is this latter use that frequently conflicts with its other use in sustaining life. The pervasive nature of freshwater pollution from domestic sewage, agricultural and industrial effluent, is a significant threat to the environment in Trinidad and Tobago.

This report on freshwater represents part of the process of educating the public about the state of our freshwater sources and the imperatives for management. The EMA's Water Pollution Management Programme will be implemented via the Water Pollution Rules, which the EMA have recommended to Government. These Rules will among other things:

1. Prohibit the discharge of water pollutants from industrial, commercial, agricultural premises, or sewage works, without a Permit from the EMA.

2. Allow the EMA to impose the water pollution standards and reporting requirements, which each applicant for a Permit will be required to meet.

3. Allow the EMA to enter premises with a warrant to verify compliance with the conditions of a Permit.

4. Establish a National Register of Permits that will be open to the public for inspection.

Dr. John Agard
CHAIRMAN

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LIST OF ACRONYMS AND ABBREVIATIONS

ACRONYMS/ ABBREVIATIONS	MEANING
NH_3	Ammonia
BOD_5	5-day Biochemical Oxygen Demand
BTEX	Benzene, toluene, ethylbenzene and xylene
CAWTP	Caroni Arena Water Treatment Plant
Cu	Copper
m^3/d	Cubic metres per day
m^3/yr	Cubic metres per year
^0C	Degrees Celsius
DO	Dissolved oxygen
EMA	Environmental Management Authority
EIA	Environmental Impact Assessment
ha	Hectares
IMA	Institute of Marine Affairs
pH	Hydrogen ion concentration
km	Kilometres
km/hr	Kilometres per hour
#	Number
mm	Millimetres
MCM	Million cubic metres
P	Phosphorous
km^2	Square kilometres
UST	Underground Storage Tank
WASA	Water and Sewerage Authority
Zn	Zinc

GLOSSARY OF TERMS

Hydrologic Cycle	Biogeochemical cycle that collects, purifies and distributes the earth's fixed supply of water, from the environment to living organisms and then back to the environment.
Ecosystem	A unit to denote a region of the environment inclusive of the habitats contained therein, the biota (living entities) and their relationships with each other and the abiotic environment.
Aquifer	An underground rock body (or underground geological formation) that has a high-to-moderate permeability and can yield an economically significant amount of water.
Wetland	Land that is inundated on a frequent or permanent basis with salt or freshwater, excluding streams, lakes and the open ocean.
Catchment	The area drained by a river or body of water. Also called catchment basin.
Watershed	The entire drainage area that contributes water to a river, wetland, aquifer or other body of water.
Point source	Any discernible, confined and discrete conveyance source from which pollutants are or may be discharged.
Non-point Source	Pollution that is diffuse entering a waterway from a wide geographic area rather than a single point.
Contamination	The introduction of a foreign chemical or element to an area in trace or significant quantities which results in adverse effects.
Deforestation	The process of large-scale denudation of an area's forests without adequate revegetation.
Effluent	The liquid drainage output that is discharged to an inland, nearshore or offshore receiving water body.
Environmental Impact Assessment	A process of systematic study used to predict the environmental consequence of a proposed development activity.

Biochemical Oxygen Demand (BOD)	The quantity of dissolved oxygen consumed by micro-organisms in decomposing organic material in a given volume of polluted water, at a certain temperature over a specified time period.
Feedlot	Confined outdoor or indoor space used to raise large numbers of domestic livestock.
Landfill	1. Sanitary landfill is a land disposal site for non-hazardous solid wastes at which the waste is spread in layers, compacted to the smallest practical volume, and cover material applied at the end of each operating day. 2. Secure chemical landfill is a disposal site for hazardous waste. They are selected and designed to minimise the chance of releases of hazardous substances into the environment.
Leachate	The chemical(s) or element(s) that are transported from upper soil layers (or the soil surface) to lower soil layers through the processes of percolation or dissolution. A liquid that results from water collecting contaminants as it trickles through wastes, agricultural pesticides, or fertilisers. Leaching may occur in farming areas, feedlots, and landfills, and may result in hazardous substances entering surface water, ground water, or soil.
Monitoring	Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, animals, and other living things.
Organic	Derived from living organisms; or containing carbon.
Pollutant	Substance causing deviation from natural conditions in the environment which may cause harm to human health or the environment
Pollution	The creation or existence of any deviation from natural conditions within the environment, which may cause harm to human health, or the environment.
Pollution Prevention	The establishment and maintenance of measures to eliminate the root causes of pollution.

Receiving Water	A standing or dynamic, inshore or coastal body of water that is the destination of effluents.
Release	Includes any disposing, spilling, leaking, emitting or other incidence of discharge into the environment of any hazardous substance/pollutant.
Run-off	That part of precipitation or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into the receiving waters.
Sewage	The waste and wastewater produced by residential and commercial establishments and discharged into sewers.
Silt	Fine particles of sand or rock that can be picked up by the air or water and deposited and discharged into sewers.
Total Suspended Solids	The portion of total solids retained by a 0.45 micron filter under defined conditions.
Underground Storage Tank	Any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of substances, and the volume of which is 10% or more beneath the surface of the ground.
Waste	1. Unwanted materials left over from an agricultural, commercial, industrial manufacturing, mining or other extraction process. 2. Refuse from places of human or animal habitation.
Wastewater	Water that may contain dissolved or suspended matter, discharged after being used in, or produced by, a process, and which is of no further immediate use or