THE NATIONAL IMPLEMENTATION PLANS (NIPs) FOR THE MANAGEMENT OF PERSISTENT ORGANIC POLLUTANTS (POPs) IN ZAMBIA

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EXECUTIVE SUMMARY

This document constitutes Zambia's National Implementation Plan (NIP) for the management of Persistent Organic Pollutants (POPs), and the implementation of the said plan under the Stockholm Convention (SC) obligations. These pollutants include DDT, PCBs, Dioxins and Furans, and POPs Pesticides.

The objective of the SC as set in Article 1 of the SC states as follows: "Mindful of the precautionary approach as set forth in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Convention is to protect human health and the environment from POPs".

Therefore, the key obligation of Parties to the SC, as outlined in sub-paragraph (a), paragraph 1 of Article 7, is to draw up a National Implementation Plan (NIP) which is to be implemented by each party in order to fulfill its obligations under the Convention. Zambia became a signatory to the SC in May 2001. The current status is that Zambia is a Party to the Convention and it came into force on 5th October 2006.

In August 2002, Zambia launched the "Development of NIPs" Project, which culminated into a series of activities to the development of this document.

This document presents a country profile which outlines the geographical, demographic, political, economic, and environmental overview of Zambia. In addition, an outline of the current status of the institutional, policy and regulatory framework relevant to issues of POPs and an assessment of these issues is also given. The document also provides an action plan for the implementation of the NIP.

Zambia is located in Southern Africa between 8^0 – 18^0 South longitude and 22^0 – 34^0 East latitude, and covers an area of 752 614 km^2, sharing borders with Democratic Republic of Congo (DRC) and Tanzania in the north; Malawi and Mozambique in the east; Zimbabwe and Botswana in the south, Namibia in the southwest and Angola in the west.

According to the 2000 national census, the population of Zambia was 10 757 192. Males constituted 49.1% of the population and 50.9% were females, 67% of the total population were estimated to be less than 15 years old. Life expectancy was 48 years and 52 years respectively for males and females. The population growth rate was 2.9 per cent per annum with fertility levels of 6 children per woman.

Zambia's economy is free-market oriented with the majority of investments vested in the private sector. The national currency is the Zambian Kwacha. Mining is the largest economic activity which accounts for 90% of the national foreign exchange revenue through international trade. Non-traditional export commodities such as vegetables and flowers have added value to the national foreign exchange earnings. The manufacturing sector contributes 14% to Zambia's export earnings and accounted for 10.7% of GDP in 2002. Agriculture accounted for over 14.9% of GDP in 2002. The main agricultural crops grown are maize, sweet potatoes, groundnuts, sorghum, millet, cotton, soya beans, mixed beans, sunflower and paddy rice.

In the environmental sector, Zambia has been experiencing land degradation due to application of chemical fertilizers and lime coupled with improper agricultural practices. A total of 20,717,147 kg of top-dressing fertilizer, 19,852,424 kg of Basal fertilizer and 106,675 kg of lime were applied to crops countrywide during the 2000/2001 agricultural season. Over-fishing and the use of unsuitable fishing methods has been on an increase. Forest reserves which account for 7.4 million hectares of land have continued to experience widespread depletion resulting in biodiversity loss due to high demand for fuel wood. The depletion of forest reserves has led to desertification, soil erosion, siltation and a reduction in the flow of streams. Water and air pollution from industrial sites and inadequate control in the transportation of hazardous chemicals and wastes has also been rising.

Zambia is a democratic Republic whose government exercises its powers through three independent organs comprising the Executive, Judiciary and Legislature. The executive power of the Republic is vested in the President who is the head of State and Government. The Judiciary consists of the Supreme Court, High Court, Industrial Relations Court, Subordinate Courts, Local Courts and such lower courts as may be prescribed by an Act of Parliament. The Legislature comprises the President and the National Assembly.

The National Assembly consists of 150 elected members and not more than 10 members are nominated by the President. The National Assembly is vested with powers to, among other things, make laws.

The institutional framework through which the NIP will be implemented includes several government line ministries and agencies. The line ministries include Ministry of Tourism, Environment and Natural Resources (MTENR), Ministry of Health (MoH), Ministry of Labour and Social Security (MLSS), Ministry of Agriculture and Co-operatives (MACO), Ministry of Mines and Minerals Development (MMMD), Ministry of Science, Technology and Vocational Training (MSTVT), Ministry of Education (MoE), Ministry of Commerce, Trade and Industry; and Ministry of Energy and Water Development. Agencies that have relevance to the implementation of the NIP include Environmental Council of Zambia (ECZ), Food and Drugs Control Laboratory, National Institute for Scientific and Industrial Research, National Malaria Control Centre, Zambia Agriculture Research Institute, Zambia Bureau of Standards, Zambia Revenue Authority and some institutions of higher learning.

To ensure effective implementation, deliberate efforts were made to formulate a NIP that conforms to the Zambian Fifth National Development Plan (FNDP), Vision 2030 and the Millennium Development Goals (MDGs).

The national lead agency in the implementation of the NIP will be ECZ, a quasi-government statutory body under MTENR. ECZ is the National Focal Point in matters related to the sound management of chemicals. ECZ provides vital technical competence base for information exchange with international, regional, sub-regional, national and local stakeholder institutions.

Some of the key regulatory mechanisms that will aid the implementation of these are the; Environmental Protection and Pollution Control Act (which is the principal Act on Environment), Public Health Act, Local Government Act, National Council for Construction, Food and Drugs Act, Natural Resources Conservation Act, Petroleum Act, and Mines and Minerals Act. Others are the Pharmaceutical Regulatory Act, Occupational Health and Safety Act, Water Act, Weeds Control Act and Standards Act.

Persistent Organic Pollutants (POPs)

POPs constitute a class of organic compounds that possess toxic properties, resist natural degradation, bio-accumulate and are transported through air, water and migratory species. POPs accumulate in the fatty tissues of living organisms and their concentration increases higher in the food chain. Exposure to POPs has been associated with adverse health effects such as cancer, reproductive defects, immune system suppression, hormonal disruptions etc.

Currently the SC only identifies twelve chemicals as POPs. These include those that are intentionally produced for use as pesticides i.e. Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, and Toxaphene. Polychlorinated Biphenyls (PCBs) though also intentionally produced are used as dielectric fluids in electricity transformers, capacitors and other such equipment. The last category are chemicals that are unintentionally produced from thermal processes involving organic matter and chlorine as a result of incomplete combustion. Chemicals falling under this group include polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs).

Current Status of POPs issues in Zambia

The POPs of major concern in Zambia are Chlordane, DDT, PCBs, and PCDDs/PCDFs. Chlordane is used for termite control in the construction industry and in plantations. The lack of cost-effective alternatives for termite control implies that the use of Chlordane will continue for some time to come. DDT is exclusively used for malaria vector control and there has been a steady increase in the quantities used, particularly for Indoor Residue Spray. The PCBs found in Zambia are contained in equipment such as transformers and capacitors. Though the importation of such PCB containing equipment was banned in the 1980s, there are still a number of them, both obsolete and in use countrywide. PCDDs/PCDFs are also of major concern in Zambia due to among other things, poor management of solid waste and practices such as open air burning.

POPs Pesticides

None of the POPs pesticides are locally produced. The countrywide inventory survey carried out in 2004 revealed that the country had been using about 145 metric tones of POPs pesticides annually before the mid 1980s. It was also noted that Chlordane is still in use for termite control mainly in the construction industry.

Poly Chlorinated Biphenyls (PCBs)

The 2004 national inventory revealed that there were 15 262 transformers countrywide, mostly owned by electrical utilities and mining companies. Out of this number, 76 were PCBs containing and these were stored at Kariba North Bank and Konkola Copper Mines, 57 tonnes of PCBs contaminated soil and 2 700 litres of PCB-oil was stored in drums at Kariba North Bank and ZCCM – IH. In addition, there were 1 642 capacitors countrywide.

Dichloro diphenyl trichloroethane (DDT)

DDT is not locally produced in the country. The national inventory of 2004 revealed that DDT in Zambia was exclusively used for Indoor Residual Spraying (IRS). From 2000 to 2004, the country used a total of 29,615Kg of DDT for IRS. At the time the inventory was done the projected amount of DDT to be procured by the Ministry of Health for IRS in the 2004/2005 transmission period was 11,055kg and in the 2005/2006 transmission period was 7,500. The amount projected for procurement in the 2006/2007 transmission period was expected to increase by 65% to reach the quantity of 56,280kg.

Polychlorinated DibenzoDioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs)

According to the 2004 national inventory, the major release routes for PCDDs/PCDFs were air, land and residue. The total amount of PCDDs/PCDFs released to these vectors was estimated at 483.1g TEQ/a and this was broken down as follows: air 289.7g TEQ/a; residue 144.9g TEQ/a; land 48.4g TEQ/a. The single, largest source of these releases was uncontrolled combustion processes i.e. forest fires and open air burning, which emitted significant amounts to all the release vectors. This was followed by ferrous and non-ferrous metal production which made significant contributions to the amount of PCDDs/PCDFs released to air and residue. The next major source of releases was from waste incineration which contributed mainly to the emissions to air and residue.

The implementation of the proposed NIP especially PCDDs and PCDFs Action Plans will not only result in elimination of POPs but will also result in reduced Green House Gas emission and contribute to mitigating Climate Change.

National Priorities in Relation to POPs Management

The 2004 inventory findings formed the basis for prioritising issues with regards to the management of POPs. The priority areas related to POPs production, use/disposal in the country include pollution of inland/ground waters, air, soils and foods. Treatment of hazardous waste, control of chemical imports, emergency preparedness, occupational health and safety of workers in the agricultural, industrial and transport sectors are other areas of concern. Zambia is a developing country and open air burning is very rampant. This was estimated to be the major source of PCDDs/PCDFs in the country. As a result, this NIP takes into consideration several strategies aimed at mitigating this problem.

Priorities issues

The following are some of the priority issues identified in the management of POPs in Zambia:

1. Develop a system for management and control of Chlordane.
2. Develop an effective management of PCBs.
3. Evaluate the persistence of DDT in different matrices including soil, water, food and breast milk.
4. Strengthen the existing legal framework in order to address PCDD and PCDF releases.

Strategy and Action Plan Elements.

Implementation Strategy

The NIP for Zambia will be implemented through a multi stakeholder approach where ECZ on behalf of MTENR will continue to serve as the National Focal Point for the SC. An inter-ministerial Coordinating Committee will be set up to coordinate the implementation of the NIP. This committee will comprise of relevant ministries involved in POPs management such as agriculture, environment, health, industry and labour. In addition, civil society and public interest groups will be integrated into this framework. The outlined institutional and legal framework will facilitate smooth implementation strategies through responsible ministries and agencies as earmarked in the Action Plans.

Action Plans and Cost of Implementation

1. Institutional and Regulatory Strengthening measures: US$ 181,000.
2. Production, Import and Export, Use, Stockpiles and Wastes of Pesticides POPs (Annex A, Part 1 Chemicals): US$ 277,000.
3. Production, Import and Export, Use, Identification, Labeling, Removal, Storage and Disposal of PCBs and Equipment Containing PCBs (Annex A, Part II Chemicals): USD 1,478,000.
4. Production, Import and Export, Use, Stockpiles and Wastes of DDT (Annex B Chemicals): US$ 244,143.
5. Releases from Unintentional Production of PCDDs/PCDFs, HCB and PCBs**:** US$ 19,741,800.
6. Identification of Relevant Stockpiles, Articles-in-Use and Wastes – Plan for Assessment and Mitigation of Releases from Stockpiles and Wastes: Pesticides, DDT, PCBs and HCB (Annexes A, B and C Chemicals): Yet to be costed.
7. Identification and Appropriate Management of Contaminated Sites (Annex A, B and C Chemicals): US$ 2,038, 571.
8. Public Awareness, Information and Training: US$ 44,286.
9. Monitoring and Reporting: US$ 184,314.
10. Periodic Review and Updating Mechanism: US$ 9,957.
11. Development and Capacity Building Proposals and Priorities: yet to be costed

The total cost for NIP implementation covering both short term and long term action plans is twenty four million fifty nine thousand and forty three United States Dollars (US$ 24,059,043). The financing will be shared by the Private Sector, Donors and the Government of the Republic of Zambia.

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AAS	Atomic Absorption Spectrometry
AMCEN	African Ministerial Conference on Environment
ASP	African Stockpile Project
AU	African Union
BAT	Best Available Techniques
BEP	Best Environmental Practices
BSI	British Standards Institute
CEC	Copperbelt Energy Corporation
CIDA	Canadian Development Agency
CHC	Chemical Hazard Communication
COMESA	Common Market for Eastern and Southern Africa
DDT	Dichloro diphenyl trichloroethane
DRC	Democratic Republic of the Congo
ECZ	Environmental Council of Zambia
EIA	Environmental Impact Assessment
EPPCA	Environmental Protection and Pollution Control Act
ERB	Energy Regulation Board
ESM	Environmentally Sound Manner
EU	European Union
FAO	Food and Agriculture Organization
FPD	Flame Photometric Detector
GDP	Gross Domestic Product
GEF	Global Environment Fund
GHS	Globally Harmonized System
GIS	Geographical Information System
GLC	Gas Liquid Chromatography
GLP	Good Laboratory Practice
GRZ	Government of the Republic of Zambia
GTZ	Gesellschaft für Technische Zusammenarbeit
HCB	Hexachlorobenzene
ICT	Information and Communication Technology
IFCS	Inter-Governmental Forum on Chemical Safety
ILO	International Labor Organization
IFCS	Intergovernmental Forum on Chemical Safety
IRPTC	International Register of Potentially Toxic Chemicals
IRS	Indoor Residual Spraying