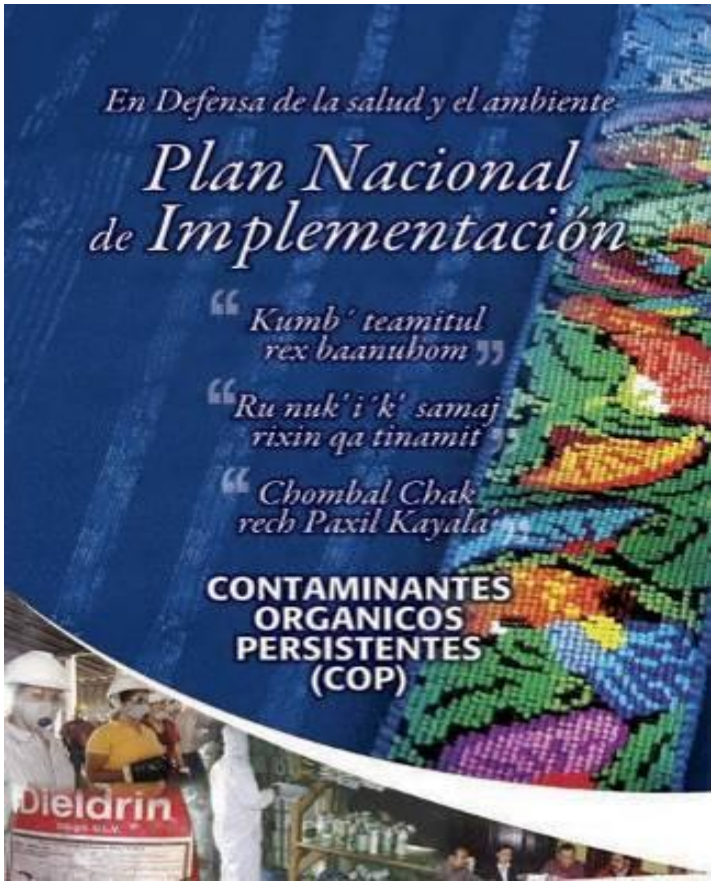
NATIONAL IMPLEMENTATION PLAN (NIP)
2010 – 2025



MINISTRY OF ENVIRONMENT AND NATURAL RESOURCES

OFFICE OF ENVIRONMENT AND NATURAL RESOURCES

VICE OFFICE OF ENVIRONMENT

ENVIRONMENTALLY SOUND MANAGEMENT OF CHEMICALS AND HAZARDOUS WASTES COORDINATION UNIT

Ministro

MINISTERIO DE AMBIENTE Y RECURSOS NATURALES
GUATEMALA, C. A.

ACUERDO MINISTERIAL No. 465-2011

Guatemala, 21 de noviembre de 2011

EL MINISTRO DE AMBIENTE Y RECURSOS NATURALES

CONSIDERANDO:

Que mediante Acuerdo Gubernativo número 284-2008 del 3 de noviembre de 2008, el Ministerio de Ambiente y Recursos Naturales fue designado como Centro Nacional de Coordinación para el intercambio de información relativo a la reducción o la eliminación de la producción, utilización y liberación de contaminantes orgánicos persistentes y las alternativas a los contaminantes orgánicos persistentes, incluida la información relacionada con sus peligros y sus costos económicos y sociales a que se refiere el Convenio de Estocolmo sobre Contaminantes Orgánicos Persistentes, suscrito por Guatemala el 29 de enero de 2001 y aprobado mediante el Decreto número 62-2007 del Congreso de la República de Guatemala, ratificado el 22 de abril de 2008 por el Presidente de la República de Guatemala, y su instrumento de ratificación fue presentado a la Sección de Tratados de las Naciones Unidas el 30 de julio de 2008.

CONSIDERANDO:

Que de conformidad con el Acuerdo Ministerial 240-2007 del 9 de abril de 2009, el Ministerio de Ambiente y Recursos Naturales, creó la Unidad de Coordinación para el Manejo Ambientalmente Racional de Productos Químicos y Desechos Peligrosos en Guatemala, para dar cumplimiento y apoyar a los puntos focales técnicos de cada uno de los convenios internacionales, regionales o nacionales en materia de productos químicos, siendo uno de sus compromisos el elaborar un plan para el cumplimiento de las obligaciones emanadas del Convenio de Estocolmo sobre Contaminantes Orgánicos Persistentes, razón por la cual es necesario emitir la disposición legal de aprobación del mismo.

POR TANTO:

En el ejercicio de las funciones que le confiere el artículo 194, incisos a) y f) y con fundamento en el artículo 97 de la Constitución Política de la República de Guatemala; y, 29 "bis" de la Ley del Organismo Ejecutivo, Decreto Número 114-97 del Congreso de la República de Guatemala.

MINISTERIO DE AMBIENTE Y RECURSOS NATURALES

ACUERDA:

Artículo 1. Aprobar el "Plan Nacional de Implementación sobre Contaminantes Orgánicos Persistentes -PNI-COP-.

Artículo 2. El Ministerio de Ambiente y Recursos Naturales, en el ejercicio de la rectoría sectorial que le corresponde, será el responsable de la difusión, revisión y actualización del PNI-COP. Asimismo, será el encargado de ejercer la coordinación y facilitación de las acciones entre las diferentes instituciones que correspondan, para garantizar su cumplimiento.

Artículo 3. El presente Acuerdo Ministerial comienza a regir el día siguiente de su publicación en el Diario de Centroamérica.

COMUNÍQUESE.

MINISTERIO DE AMBIENTE Y RECURSOS NATURALES — MINISTRO — SECRETARIA

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RECURSOS NATURALES

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Ministerio de Ambiente y Recursos Naturales

NATIONAL IMPLEMENTATION PLAN (NIP)

ON PERSISTENT ORGANIC POLLUTANTS
2010-2025

PROJECT No. GF/GUA/02/015
"TRAINING ACTIVITIES TO FACILITATE THE IMPLENTATION OF THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS"

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POP NATIONAL COORDINATION COMMISSION (CNC-COP in Spanish)
Ministry of Agriculture, Livestock, and Food (*Ministerio de Agricultura Ganadería y Alimentación*)
Ministry of Communication, Infrastructure and Housing (*Ministerio de Comunicaciones, Infraestructura y Vivienda*)
Ministry of Economy (*Ministerio de Economía*)
Ministry of Education (*Ministerio de Educación*)
Ministry of Energy and Mines (*Ministerio de Energía y Minas*)
Ministry of Environment and Natural Resources (*Ministerio de Ambiente y Recursos Naturales*)
Ministry of Foreign Affairs (*Ministerio de Relaciones Exteriores*)
Ministry of Labor and Social Security (*Ministerio de Trabajo y Previsión Social*)
Ministry of National Defense (*Ministerio de la Defensa Nacional*)
Ministry of Public Finances (*Ministerio de Finanzas Públicas*)
Ministry of Public Health and Social Assistance (*Ministerio de Salud Pública y Asistencia Social*)
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Guatemalan Center for Cleaner Production (Centro Guatemalteco de Producción más Limpia)
Guatemalan Chamber of Commerce (*Cámara de Comercio de Guatemala*)
Guatemalan Electric Company (*Empresa Eléctrica de Guatemala*)
Guatemalan Federation of Agricultural Associations (*Federación de Asociaciones Agrícolas de Guatemala*)
Guatemalan Industry Chamber (*Cámara de Industria de Guatemala*)
Guatemalan Institute for Social Security (*Instituto Guatemalteco de Seguridad Social*)
Guild Association of Exporters (*Asociación Gremial de Exportadores*)
Guild Association of Agricultural Chemists (*Asociación Gremial de Químicos Agrícolas*)
Guild Association of Urban Pest Controllers (*Asociación Gremial de Controladores de Plagas Urbanas*)

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National Association of Non Governmental Organizations for the Environmental and Natural Resources (*Asociación Nacional de Organizaciones No Gubernamentales de los Recursos Naturales y el Medio Ambiente*)
National Electrification Institute (*Instituto Nacional de Electrificación*)
National Forestry Institute (Instituto Nacional de Bosques)
National Generators Association (*Asociación Nacional de Generadores*)
National Health Laboratory (*Laboratorio Nacional de Salud*)
National Institute of Statistics (*Instituto Nacional de Estadística*)
National Network of Health and Environment Laboratories (*Red Nacional de Laboratorios de Salud y Ambiente)*
National Secretariat of Science and Technology (*Secretaría Nacional de Ciencia y Tecnología*)
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ii. EXECUTIVE SUMMARY

In February 1997, UNEP Governing Council prepared an international legally binding instrument to implement international actions on certain highly dangerous substances, the persistent organic pollutants - POP- . Initially, a list of 12 substances was analyzed, since the substances' nature could cause significant damage to human health and the environment. This first list included the following substances: aldrin, dieldrin, endrin, chlordane, DDT, dioxins, furans, hexachlorobenzene, heptachlor, mirex, PCB/BPC and toxaphene. In 2009, another 8 additional POP substances were approved: alpha hexachlorocyclohexane, beta hexachlorocilohexano, chlordecone, hexabromobiphenyl, lindane, octabromodiphenyl ether, pentabromodiphenyl ether, pentachlorobenzene and perflorooctane sulfonate.

The persistent organic pollutants – POP- are chlorinated organic compounds with harmful characteristics to a global scale. These features are: persistence in the environment, accumulation in organisms (bioaccumulation); highly toxic; have the ability to be transported long distances from its source, such as air, water and migratory species and are deposited far from the place of their release. These substances can cause cancer, damage to central and peripheral nervous systems, disorders to the immune and reproductive systems, and interference in child development, among others.

On May 22nd and 23rd of 2001 in Stockholm, Sweden, the Stockholm Convention on Persistent Organic Pollutants (POP) was approved with the overall objective of protecting human health and the environment from these compounds. The Convention aims to eliminate and phase out these substances, whether such are intentionally or unintentionally released, and it integrates other factors such as to incorporate a chemical safety policy, strengthen the existing regulations, inclusion of new technologies and stimulate research on other new substances with POP characteristics.

--Current status of Guatemala regarding the Stockholm Convention.

- Signed the Stockholm Convention on January 29th, 2002.
- Adoption of the Convention by the Congress of the Republic pursuant to Decree No. 60-2007 dated on November 14th, 2007.
- Ratification of the Convention by the President of the Republic on April 22nd, 2008; the ratification instrument was submitted to the Treaty Section of the United Nations on July 30th, 2008.
- The Governmental Agreement No. 284-2008 appoints MARN as the National Coordination Entity for Information Exchange regarding the reduction or elimination of production, usage and releases of persistent organic pollutants; this agreement was published on the Official Gazette on January 2nd, 2009.

In order to comply with the provisions of the Convention, Guatemala, through the Ministry of Environment and Natural Resources and the Environmentally Sound Management of Chemical Products and Hazardous Wastes Coordination Unit, agreed to execute the Project No. GF/GUA/02/015 "TRAINING ACTIVITIES TO FACILITATE THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS IMPLEMENTATION" with financial support from GEF consisting in $495,200. Guatemala also agreed to work under the technical assistance from the United Nations Organization for Industrial Development –UNIDO- in order to develop the National Implementation Plan – NIP -, this work will lead the country to the elimination of POP stockpiles still present in Guatemala and will consolidate the national capacity by increasing the knowledge and understanding among the stakeholders and decision makers regarding POP.

"TRAINING ACTIVITIES TO FACILITATE THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS IMPLEMENTATION"

During the decade of the 60's the use of certain chemicals increased significantly in Guatemala, including POP, such were used in agriculture as pesticides. These compounds were primarily used in the south area of the country, mainly for cotton harvesting. In addition, another of these compounds, DDT, was used by the health sector in order to tackle malaria.

Guatemala used these compounds largely up to recent years when the Ministry of Agriculture, Livestock and Food, by means of ministerial agreements, banned the use of the majority. However, due to their innate characteristics, their persistence and bioaccumulation, such may still be present in the environment.

Through the execution of the Project, a work group was formed in the Environmentally Sound Management of Chemical Products and Hazardous Wastes Coordination Unit, which coordinated all activities. National inventories were developed for these substances and a baseline regarding the stocks was created; several information and education workshops were carried out informing large numbers of people directly related to these compounds; a National Implementation Plan was also developed, which aims to reduce releases and eliminate found stocks by the year 2025.

--Project objectives.

1. Develop POP National Inventories and prepare a National Implementation Plan (NIP).
2. Prepare and strengthen national capacities for POP management.

--Project phases.

PHASE I. Establishment of a coordinating mechanism and a process of organization.
PHASE II. Development of national inventories, assessment of national infrastructure and capacity through other research.
PHASE III. Priority assessment and objective setting.
PHASE IV. Formulation of Specific National Plans for POP and National Implementation Plan (NIP) for Guatemala.
PHASE V. Endorsement of the NIP to national and International stakeholders.

--Phase I. Mechanism of coordination and organization processes.

During the first phase of the Project, the Project Coordination Unit of POP (PCU) was established, this unit is the responsible for the development of national inventories, national action plans and the National Implementation Plan; in addition, it coordinates, through MARN, all actions established in the Convention between UNIDO and the Guatemalan Government. The National Coordination Commission for POP (POP NCC) was also established, with the participation of 32 professionals which represent public and private institutions, NGOs, civil society, academic sector, research institutions, etc. The Coordination Unit acquired equipment, recruited national consultants and identified a specific location for its operation.

--Phase II. Development of national inventories, assessment of national infrastructure and capacity through other research.

As part of the execution of the Project's second phase, several studies were carried out to set the baseline of the current situation regarding POP in Guatemala. A total of 9 inventories and 2 diagnoses were conducted in the following areas:

1. Preliminary inventory of POP pesticides. This inventory provides background information regarding import, use and management of POP in Guatemala; it presents a diagnosis of existing regulations regarding POP pesticides and geographical identification and quantification of found stockpiles.

2. Preliminary inventory of DDT. In order to develop this inventory, special emphasis was made to DDT used in the public sector. A diagnosis of DDT situation, since its exporting years, is also presented; its use in areas suffering from malaria; and, the storage conditions of the stockpiles found. The relating regulation is ascertained as well.

3. Preliminary inventory of polychlorinated biphenyls. An update of the preliminary inventory carried out in 2005 – 2006 was made, which included other activities aimed to: a) validate data of the electric sector obtained in the preliminary inventory (2005-2006), b) continue the identification of equipment with PCB/BPC, c) identify contaminated sites, and d) awareness raising stage to all sectors in order to disseminate the Convention and its project's objectives.

4. Dioxins and furans. Since these POP are unintentionally released, the most important sub-categories that may be producing releases in our country were identified. The results for each category of dioxins and furans emissions source are unified in a table to establish the complete data regarding the quantification of the total estimated in the country. The methodology of Standardized Toolkit for Identification and Quantification of Dioxin and Furans Releases, proposed by UNEP, was used during this inventory.

5. Contaminated sites. 9 sites contaminated with POP pesticides were chosen from the stockpile areas already identified. Regarding the polychlorinated biphenyls, 13 contaminated sites were identified, which are located in different areas of the country and possess old facilities and equipment contaminated with PCB/BPC.

Other sites possibly contaminated with PCDD/PCDF were identified, which are precisely sites for residue disposal, mainly open dumps where uncontrolled combustion processes generally take place.

6. Technical infrastructure. The Ministry of Environment and Natural Resources gave the first steps to strengthen the technical infrastructure and national capacity regarding chemical substances and POP, when it created the Environmentally Sound Management of Chemical Products and Hazardous Wastes Coordination Unit, which is responsible for overseeing the international conventions or agreements relating to chemical substances.

Furthermore, it has National Coordination Commissions regarding SAICM (Strategic Approach to International Chemicals Management) and POP National Coordination Commission, with their respective Sub-Commissions on PCB/BPC, dioxins and furans, and POP pesticides. Such sub-commissions are expected to address the implementation of POP national plan. This inter-institutional coordination will reinforce the work that will take place in the future. In addition, there are other commissions in the country that will contribute in this issue, such as: MSPAS Pesticides Commission and MAGA Multi-sector Pesticides Commission.

7. Analytical capacity and monitoring. The information found regarding monitoring shows that actions were taken from 1970 to 1998 by different governmental institutions, which in turn have taken the role of monitoring and follow up through different public and private laboratories. This monitoring was carried out since the country had special interest in overseeing the trading of meat and vegetables, and specifically to maintain trade standards demanded by other countries for the consumption of such goods. Additionally, Guatemala does not have the analytical capacity to monitor the unintentional releases of dioxins and furans. From a total of 35 surveyed laboratories, the project only identified 3 that possess the analytical capacity regarding POP.

8. Public information. This inventory identified the entities that, at some point or another, have provided information on persistent organic pollutants. It also highlights MARN, throughout the Project, for the Stockholm Convention compliance and shows important progress on POP information. A preliminary inventory for PCB/BPC was carried out in 2005 – 2007, and thereafter MARN has informed different sectors on the risk and safe management of such compounds. In addition, several activities of dissemination, training, conferences and education workshops were carried out by different entities such as: Guatemalan Cleaner Production Center (Centro Guatemalteco de Producción Más Limpia), which trained on PCB/BPC; and, MSPAS regarding DDT in Central America with support from PHO. Since there is an absence of information about dissemination programs regarding POP in the country, a communication strategy was designed, and some actions were executed throughout the Project, uni-bilateral meetings were carried out with several entities, such as women organizations, guild and agricultural organizations, pesticides distributers, national laboratories network, academic and industry sector, NGOs, etc.

9. NGOs activities. This inventory identified that Guatemala has an array of NGOs that provides a variety of services, from specific training services to development of productive project and environmental activities, which have had significant activities since 1993. Nonetheless, the environmental NGOs do not address the matter of chemical substances and do not have information activities relating POP. Despite the Guatemalan NGOs do not address POP, some of them have shown interest in participating.

--Other 2 researches on POP were developed.

1. POP socio-economic implications: To undergo a meticulous assessment on the social and economic impact, a wide variety of human and financial resources, as well of time, were highly needed. Consequently, several quick research techniques were used to determine the most relevant impacts in this subject. An implemented methodology consisted in “cabinet” work through which secondary information was reviewed, such information consisted in: social, economic, political, morbidity and mortality context information; POP inventories in the country; diagnosis on information access; health, environment, biodiversity, economics, public participation; and, governance studies. In addition, a number of surveys were carried out to Stockholm Convention sub-commissions representatives and to chemical network representatives; individual queries with professionals related to hazardous chemical products, were also conducted.

Of the total population, in general, the most vulnerable groups due to POP are children, women, farmers, elderly people and workers with lower income.

2. Exemptions requirements: The other research was conducted on exemptions, since it is an unknown subject for the majority; and, in particular if such concerns to a determined group of specific compounds. A diagnosis was developed on the current situation regarding the exemptions of the products included in the Stockholm Convention’s lists, and the need to address this topic and comply with the Convention was also identified. Guatemala has acquired the commitment to seek for alternatives to POP use, mainly of DDT to tackle malaria; therefore, there are no plans for requesting exemptions for any POP product. Regarding the new POP included in annexes A and B, it is planned to create procedures and have an operational structure in the institutions involved, if in the future there is the desire to obtain exemptions.

--Phase III. Priority and objective setting.

The prioritization phase, programmed to be executed in the third phase of the project, allowed to identify the existing problems regarding POP and set strategic objectives that will help to the establishment of logical frameworks and to design activities, strategies, and action plans to be included in the NIP. The methodology used in this phases was the logical framework of the University of Wolver Hampton.
This phase began with a sound analysis on the identified problematic for each of POP groups (pesticides, PCB/BPC, dioxins and furans) in addition to the analysis of critical areas and the setting of strategic objectives, which were subject to a prioritization process; all of these tasks were carried out by the hard work of the POP NCC members, which approved it with a wide participation.

The results of the prioritization for POP indicated that the establishment of a POP Legal Framework is the most important matter, since there is a weakness or deficiency of such in the current regulation. Three topics were proposed as second priority, which should be developed in parallel: have the proper analytical capacity for POP; education, training and dissemination regarding POP; and, strengthening of the institutional infrastructure. If these aspects are strengthened, efforts on the sound and environmentally management of each POP group could be initiated; and thus, achieving the remediation of contaminated sites. This issue is widely discussed in section 3.2.5 of this document.

National Priorities Regarding POP

Regulatory framework (legislation)		
Analytical capacity		**Information**
Pop pesticides management	**Pcb/bpc management**	**Dioxins and furans management**
Contaminated sites management or remediation		

--Phase IV. Formulation of activities, strategies and POP specific national plans and of the national implementation plan for Guatemala.

During the fourth phase of the Project, and taking into consideration the prioritization completed on the third phase, several steps were carried out, such as the development of activities, strategies and national action plans. A total of 17 documents contain all the actions that supported the development of the NIP. The addressed issues are the following:

1. Activity: Institutional Strengthening Measures.
2. Activity: Measures to Reduce or Eliminate Releases from Intentional Production and Use.
3. Activity: Production, Import and Export, Use, Stockpiles and Wastes, annex A (POP Pesticides, Part 1 chemicals).
4. Activity: Production, Import and Export, Use, Identification, Labeling, Removal, Storage and Disposal of PCB/BPC and Equipment Containing PCB/BPC (Annex A, Part II.).
5. Activity: Production, Import and Export, Use, Stockpiles and Wastes of DDT.
6. Activity: Register for Specific Exemptions.
7. Action Plan: Measures to Reduce Releases from Unintentional Production.
8. Activity: Measures to Reduce the Releases of Stockpiles and Wastes.
9. Strategy: Identification of Stockpiles, Articles in Use and Wastes.
10. Activity: Management of Stockpiles and Appropriate Measures for Handling and Disposal of Articles in Use.

11. Strategy: Identification of Contaminated Sites (Annex A, B and C) and Remediation in an Environmentally Sound Manner.
12. Activity: Facilitating or Undertaking Information Exchange and Stakeholder Involvement.
13. Activity: Public Awareness, Information, and Education.
14. Activity: Effectiveness Evaluation.
15. Activity: Reporting.
16. Activity: Research, Development and Monitoring.
17. Activity: Technical and Financial Assistance.

Each document details its objectives, outcomes, activities, monitoring channels, responsibilities, execution period, and costs, which are addressed in section 3.3 of this document.

--Phase V. Endorsement of the NIP to national and international stakeholders.

When the NIP was concluded, such was presented to all the sectors involved with the subject and that belong to the POP National Coordinating Commission, for its review and later approval.

The completion of this project has several advantages such as: cross-sectional information and shared decision making by the POP National Coordination Commission which is comprised of all sectors involved in the subject, including public and private entities, and including the civil society in general.

Regarding the protection of the environment, this project will help in the conservation of biodiversity. By means of mass awareness campaigns, people will change some common practices that may be releasing certain persistent organic pollutants which could be entering the environment.

Additionally, the project aims to implement better practices and techniques, such as better alternatives for treating industrial and hospital wastes, a cleaner production for the industry sector, which may be unintentionally releasing dioxins and furans into the atmosphere or other emissions into other environmental systems.

The compliance with the Stockholm Convention provides a positive impact primarily in populations with limited socio-economic opportunities, that is, rural or urban populations with poverty or extreme poverty since they are the most vulnerable to environmental degradation and harmful health effects due to POP; this is the case of mothers and children who have been exposed to breast milk contamination or accumulation of POP in adipose tissue.

iii. ACRONYMS

ACRONYM	SIGNIFIER
AGEXPORT	Guild Association of Exporters *(Asociación Gremial de Exportadores)*
AGREQUIMA	Guild Association of Agricultural Chemists *(Asociación del Gremio Químico Agrícola)*
ANAM	National Association of Municipalities *(Asociación Nacional de Municipalidades)*
ANG	National Association of Generators (*Asociación Nacional de Generadores)*
BAT	Best Available Technologies
BEP	Best Environmental Practices
CGP+L	Guatemalan Center for Cleaner Production *(Centro Guatemalteco de Producción más Limpia)*
CIAT	Center for Toxicology Information and Advisory (Centro de Información y Asesoría Toxicológica)
CIG	Guatemala Industry Chamber *(Cámara de Industria de Guatemala)*
COGUANOR	Guatemalan Standard Commission *(Comisión Guatemalteca de Normas)*
CONADES	National Council of Solid Waste *(Consejo Nacional de Desechos Sólidos)*
CONCYT	National Council for Science and Technology *(Consejo Nacional de Ciencia y Tecnología)*
DDT	Dichloro biphenyl trichloroethane
DIGARN	General Department of Environment and Natural Resources of MARN *(Dirección General de Ambiente y Recursos Naturales)*
DOAN	Anti-Narcotics Operation Department *(Departamento de Operaciones antinarcóticos)*
EPS	Supervised Professional Practice *(Ejercicio Profesional Supervisado)*
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GEF	Global Environment Facility
HCB	Hexachlorobenzene
ICAITI	Central American Institute of Industrial Research and Technology (*Instituto Centro Americano de Investigación y Tecnología Industrial)*
IGSS	Guatemalan Institute of Social Security *(Instituto Guatemalteco de Seguridad Social)*
INAB	National Forestry Institute *(Instituto Nacional de Bosques)*
INDE	National Electrification Institute (*Instituto Nacional de Electrificación)*
INE	National Statistics Institute *(Instituto Nacional de Estadística)*
INFOM	Municipal Development Institute *(Instituto de Fomento Municipal*)
LFA	Logical Framework Approach
LNS - NHL	National Health Laboratory *(Laboratorio Nacional de Salud)*
LUCAM	Food Quality and Drugs Unified Laboratory *(Laboratorio Unificado de Calidad de alimentos y Medicamentos)*
MARN	Ministry of Environment and Natural Resources *(Ministerio de Ambiente y Recursos Naturales)*
MEM	Ministry of Energy and Mines *(Ministerio de Energía y Minas)*
MINEDUC	Ministry of Education *(Ministerio de Educación)*

ACRONYM	SIGNIFIER
MSPAS	Ministry of Public Health and Social Assistance *(Ministerio de Salud Pública y Asistencia Social)*
MTPS [sic]	Ministry of Labor and Social Security *(Ministerio de Trabajo y Previsión Social)*
NAP	National Application Plan
NCC	National Coordinating Commission (Stockholm Convention)
NGOs	Non-Governmental Organization
NIP	National Implementation Plan
NLA	National Coordination Agency
OCDE	Organization for Economic Cooperation and Development *(Organización de Cooperación y Desarrollo Económico)*
OCOIF	Information Coordination Body for POP *(Órgano Coordinador de Información sobre COP)*
OIT	International Labour Organization
PCB/BPC	Polychlorinated Biphenyls
PCDD/PCDF	Dioxins and Furans (Polychlorinated Dibenzo-Dioxin/Polychlorinated Dibenzo-Furan)
PCU	Project Coordination Unit
PNC	Project's National Consultants
POP	Persistent Organic Pollutants
POP NCC	POP National Coordinating Commission
QSPTF	Quick Star Programme – Trust Fund
SAT	Tax Administration Superintendency *(Superintendencia de Administración Tributaria)*
SCCOP	Sites Contaminated with POP *(Sitios contaminados con COP)*
SEGEPLAN	General Secretariat for Planning *(Secretaría General de Planificación)*
TE	Toxic Equivalent
UF	Unión FENOSA
UNEP	United Nations Environmental Programme
UNIDO	United Nations Organization for Industrial Development
UNITAR	United Nations Institute for Training and Research
USAC	San Carlos de Guatemala University (Universidad de San Carlos de Guatemala)
WHO	World Health Organization

1. PART I. INTRODUCTION.

The National Implementation Plan (NIP) is the final product of the project "Training Activities to Facilitate the Stockholm Convention on Persistent Organic Pollutants (POP) Implementation". The NIP suggests specific actions regarding the strengthening of the legal and institutional POP framework, proper management of existing stockpiles and their proper final disposal, considering national strategies that include all participating sectors on an integral, efficient and environmentally safe management. To carry out the NIP, the country's POP baseline was created, through national inventories with the effort of public and private entities in the country.

--What are the Persistent Organic Pollutants - POP?

They are organic chlorinated compounds with properties such as: persistency in the environment by accumulating inside organisms, they are easily absorbed by any part of the body that is exposed directly to them (bioaccumulation); highly toxic; capacity to travel long distances away from the source of emission or release, causing hazardous effects on a global scale; they can be transported by air, water and migrating species, enabling them to go from one country to another, and depositing themselves far away from their emission source and because they accumulate in ground ecosystems, they can be found in lime, fish, soil, walls, breast milk and can be transferred to new generations. Scientific evidence shows that exposure to low doses can cause damage to the central and peripheral nervous system, change the immune and reproductive systems and interfere with child development.

Three types of POP products stand out: chemical products used as chlorate pesticides; chemical products of industrial use; and, secondary sub-products used for incomplete combustion processes or with impurities of primary compounds.

Following, there is a list of the persistent organic pollutants included in annex A and B of the Convention.

Stockholm Convention, annexes A and B original lists and their exemptions
ELIMINATION

Chemical Product	Specific exemption
Aldrin	None
No. CAS: 309-00-2	Local ectoparasiticide Insecticide
Chlordane	The allowed in the parts included in the registry.
CAS: 57-74-9	Local ectoparasiticide, insecticide, termiticides in buildings and damns, termiticide in roads, adhesive additive for plywood.
Dieldrin	None
No. CAS: 60-57-1	In agricultural activities
Endrin	None
No. CAS: 72-20-8	None
Heptachlor	None
No. CAS 76.44.8	Termiticides in housing structures, termiticide (underground), wood treatment, underground wire boxes.

Chemical Product	Specific exemption
Hexachlorobenzene No. CAS 118-74-1	The allowed by the parties included in the registry
	Termiticide.
Mirex No. CAS 2385-85-5	The allowed by the parties included in the registry
	Termiticide
Toxaphene No. CAS: 8001-35-2	None
	None
Polychlorinated Biphenyls	None
	Articles in use under arrangement with the dispositions in part II of the annex.

Listed products on annex B, part I and its specific exemptions
RESTRICTION

Chemical Product	Acceptable purpose or Specific exemption
DDT (1,1,1-tricloro-2.2-bis (4-clorofenil) (ethane) No. CAS : 50-29-3	Acceptable purpose. Use against disease vectors according to part II of this annex. Specific Exemption: Intermediary of the dicofol production. Intermediary.
	Acceptable purpose, Use against disease vectors according to part II of this annex. Specific Exemption: Intermediary of dicofol production.

Listed products on annex C
NON-INTENTIONAL PRODUCTION

Chemical Product	Acceptable purpose or Specific exemption
Polychlorinated Dibenzo-para-dioxins and Polychlorinated dibenzofurans PCDD/PCDF Hexachlorobenzene (HCB) No CAS 118-74-1 Polychlorinated biphenyls (PCB/BPC)	

--National and international POP situation.

The Stockholm Convention seeks to foster a legislative prevention and safe management system for all residues from dangerous substances (POP), in order to protect the environment and human health. In the future, it could define other substances that are toxic or persistent and bio accumulative; or, those that are cause of concern. The Convention also gives emphasis to the prohibition of new chemical products that have the persistent organic pollutants contaminating properties. Currently, 21 POP substances, that contain previously mentioned characteristics, have been identified. The Convention's Secretariat has encourage all participating countries to begin their work, having as an objective that each Party carries out a national implementation plan as intended by the Convention, in order to eliminate or reduce POP worldwide.

--Effects on human health and environment.

For decades, these highly toxic chemical products have killed and injured people and wildlife, causing cancer, damaging nervous, reproductive and immunological systems; as well as, causing congenital deformities.

It is important to highlight the fact that the **persistent organic pollutants;** due to their toxic, persistent, bio accumulative and traveling abilities; can deteriorate human and animal health in places far from where they were originally produced or used. These compounds collaborate to create serious health problems, product of local exposure and especially in and through women to future generations.

PCB/BPC mainly accumulate in the liver, they are easily absorbed by exposed areas and remain for long periods of time within the adipose tissue. Research has proven that these substances contribute to the development of malignant and benign tumors in some mammals, like rats and monkeys, and they are oncogenic. In addition, contact with eyes can cause pain and redness, lachrymal gland hyper secretion and conjunctivitis. When intake, they cause headaches, fever, skin dryness, irritation and redness, severe skin lesions, acne and hyper pigmentation.

The nervous system presents other types of functional disorders, especially in the cerebral cortex, and in many patients it causes headaches, vertigo, depression, fatigue and nervous breakdowns. Effects on the reproductive system were also noted, newborn malformation, low sperm count, size reduction of reproductive organs, circulatory system disorders like anemia and hyperleukocytosis. The respiratory system shows effects such as pharyngitis, laryngitis, bronchitis.

PCCD/PCDF can enter the body by inhalation, through the skin and by ingestion. Because of the bioaccumulation characteristics, according to scientific research, elimination average life in humans of 2, 3, 7, 8 (Tetrachlorodibenzodioxin) is between 7 and 11 years[1], making it the most toxic dioxin [sic]. The most important effects take place in the development of neurological, reproductive and endocrine systems, mood changes, reduction of mental capacity, interference on the average male/female births, and reduction of the testosterone levels; and, in newborns it can increase the levels of thyroxin, delay development, cause behavior disorders and reduce height. Frequently, in women, it increases the chance of tumor formation, liver and immune toxicity, tetratogenesis and lethality, risk of developing diabetes, reduces immunity to infants and young children, increases infections, dental defects, chloracne and possible human carcinogen.

--Commitment of the national implementation plan.

The NIP has been carried out in compliance with article 7 of the Stockholm Convention, addressing the obligation of participating countries to formulate a national plan for the safe POP management and elimination. It should be submitted to the Conference of the Parties for its review and approval. Parties also have the responsibility to periodically review and update it; and additionally, to oversee its application.

[1] (MuKerjee, 1998)

The NIP implementation requires the coordination between sectors of the civil society, government and state institutions, all which should work in an integrated manner to achieve the set objectives on each activity, strategy and national plan that has been presented.

--NIP structure.
This document has been prepared under the guidelines and terms of reference of the project advisory agency, the United Nations Industrial Development Organization (UNIDO). The national implementation plan has important segments such as: geographic, political, legal and environmental profile of Guatemala; generation of information on current POP status in the country, which were obtained by 9 inventories on these products and two researches related to this issue; and, the NIP's strategy elements, describing each activity, strategy and developed plans and in which all actions, products, indicators, execution times, responsible and costs are included.

--Review of activities, strategies, action plans and the NIP.
The activities, strategies and action plans that are part of the NIP's third section, according to the subject, were presented, reviewed and approved by representatives of the POP National Coordination Commission. They were also reviewed and analyzed by an internal commission from MARN, formed by members of different departments within the Ministry, a representative of the Minister advisor and a representative of each one of the vice ministries, along with the Coordinator of the Environmentally Sound Management of Chemical Products and Hazardous Wastes Coordination Unit. The main objective of this internal review group was to evaluate the commitment regarding the Stockholm Convention compliance, which through this document, the Ministry will acquire in the future.

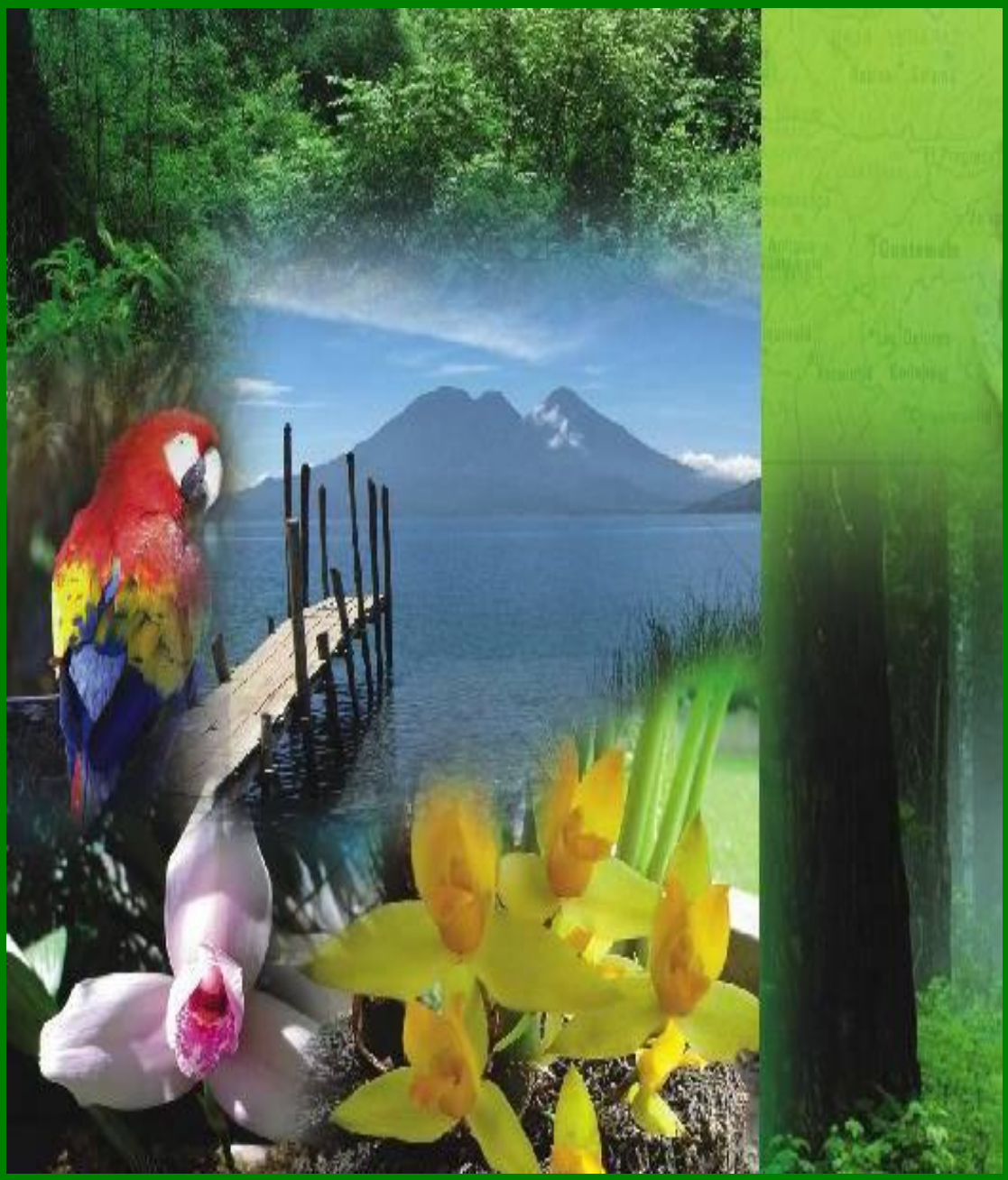
This document presents the national implementation plan, which contains all activities that Guatemala's government needs to carry out. Such activities will be developed in coordination with the Ministry of Environment and Natural Resources, which is Stockholm Convention's focal point, the POP National Coordination Commission, Basil and Rotterdam Convention Focal Points, public and private institutions; as well as, the civil society, in order to achieve the reduction or elimination of POP in the timeframe established by the Secretariat and comply with the presentation of periodical reports, informing on the national plan implementation progress.

The NIP implementation will be executed in a period of 15 years, beginning in 2010, emphasizing the first 10 years in which 80% of the proposed activities are expected to be carried out. During this period, it is expected to educate and create awareness raising in most vulnerable population; also, to implement a regulatory framework for the use, management and environmental disposal of POP. The total implementation cost for this plan is of Q194,364,927.16 equivalent to US$24,144,711.50 with the contribution of institutions in the public and private sector, NGOs, universities and civil society, which are part of the POP National Coordination Commission. Some activities are also planned to be executed with external funding. In this document it was used the currency exchange referred to dollar as Q8.05 x US$1.00 from Bank of Guatemala.

The POP NIP must also be executed within the framework of the Policy for the Conservation, Protection and Improvement of the Environment and Natural Resources, whose primary objective is to define and provide guidelines to the different sectors in order to improve the environment and the life quality for the people in the country, the maintenance of ecological balance and the sustainable use of natural resources. This NIP must also be executed in accordance with the country's sustainable development strategies, aiming to include within the previous two, each one of the activities proposed by the POP NIP.

The general objective of the NIP implementation is to execute all proposed actions on each one of the activities, strategies and national plans presented in this document; as well as, to oversee its accurate application.

2ND CHAPTER - BASE LINE



2. PART II. COUNTRY BASELINE

2.1 COUNTRY PROFILE.

2.1.1 Geography and population.

Guatemala is located in the geographical center of the Americas, between two great land masses: North and South America, specifically between 13º 44' and 18º 30' north latitude, the meridian 87º 30' and 92 º 13' west longitude.

Guatemala is in the Central American region and it is part of the Central American economic and geopolitical group. It shares borders with Mexico, Belize, Honduras and El Salvador. It has coasts in the Pacific Ocean and Caribbean Sea. Guatemala has an area of 108,889 square kilometers and a population of nearly 13 million inhabitants to 2009.

In Guatemala, there are at least five freshwater eco-regions and nine terrestrial eco-regions. The lowlands of Belize, Central Caribbean and Yucatan, the highlands of Guatemala and karstic lands of Central America are of special importance for conservation, since these eco-regions have been considered of high regional importance for its biological richness, endemism, ecosystem diversity and habitat uniqueness (CONAP, 1999). The following terrestrial eco-regions represent most part of SIGAP: Petén rainforest, pine and oak forests, humid forest of the Atlantic side of Central America and the humid forests of the Sierra Madre.

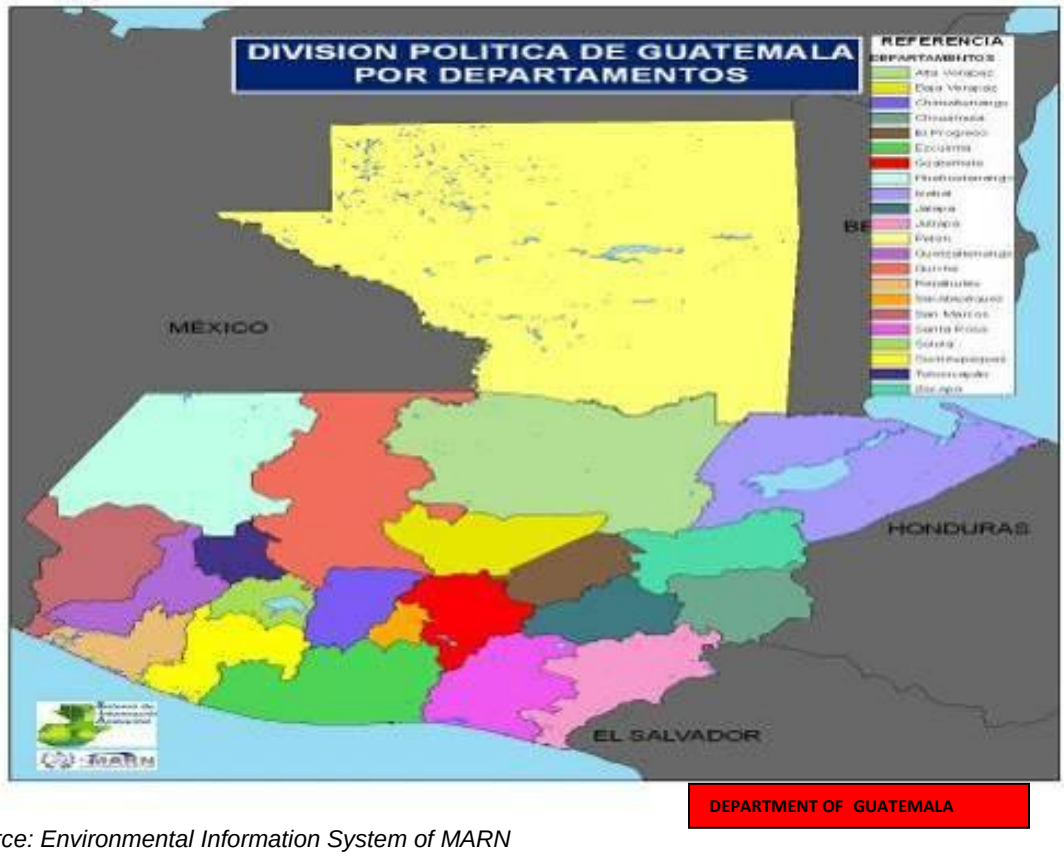
Figure No 1. *Guatemala, as part of the Central American Isthmus.*

Guatemala's territory is divided into departments or counties (22), and subsequently those are divided in municipalities (333), and then in villages, hamlets and other sub-municipal forms of organization (among them all, it is important to mention the different forms or organization, participation and management of communities and indigenous people). Guatemala also has a division of eight regions, whose planning and land administration functionality is under review.[2]

The topography of the land is totally irregular, due to the mountain range that crosses the country, which is divided into two branches: one that forms the Sierra Madre system in the central highlands, which marks the division of waterways; and, the Cuchumatanes branch, which is the highest elevation of Central America. This topography characteristic makes the country a mountainous region, excepting for the south coast area and the northern lands in the department of Petén; due to this, Guatemala is divided into three regions: the highlands, the pacific coast and the Petén region. In addition, Guatemala has 37 volcanoes, 4 of which are in activity: Pacaya, Santiaguito, Fuego and Tacaná.

[2] SEGEPLAN. 2009

Figure No 2. Map of the Political Division of Guatemala by Departments



Source: Environmental Information System of MARN

Additionally, these land characteristics have led to the formation of ravines, hills, and valleys; these contrasts allow the variation in elevation, climate and landscape. The climate is variable and temperatures range from cold, mild and warm. In the highlands the weather is cold (in December and January, temperatures can reach up to 5°C below zero). In the lowlands the climate is tropical, hot and humid, and in other regions the climate is very arid and temperatures can reach 43° C.

Guatemala is one of the few places in the world where three tectonic plates converge in a confined space, these tectonic plates are: Cocos, Caribbean and North America. This characteristic is the main reason of the volcanic chain formation across the top of the central mountain range, which defines the territory as a place with high seismic activity.

The continental waters of the country drain by three water basins: Pacific, Atlantic and Caribbean Sea, with a set of 38 watersheds. The most important rivers are the Usumacinta, Motagua, Sarstún, Ixcán and Polochic. The 0.9% of the national territory (950 km^2) is occupied by inland waters, including lakes and ponds.[3]

The last national census conducted by the National Statistics Institute (INE) in 2002, indicates that Guatemala has a population of 11,237.196 inhabitants, of which 5,496,839 (48.9%) are men and 5,740,357 (51.1%) are women (INE: July 2003). The population distribution consists of 6,052,361 for rural population (53.9%) and 5,184,835 for urban population (46.1%).

[3] Environmental Profile of Guatemala, 2004.

The 2010 human development report, states that the total population increased to 14.4 million, 51.2% women and 48.8% men. It also presents population data shown in the following table 1.

Table No 1. Population data.

Natural growth rate	25. 1 (per one thousand habitants) 2010
Human development index	0.704 (2010)
Gender development index	0.684 (2005)
Gender empowerment index	0.442 (2005)
Life expectancy at birth Women Men	71.4 years (2010) 75.0 years (2010) 67.9 years (2010)

Source: UNDP. Human Development Report 2010. Guatemala.

Nationwide, the urban population is the 46%; consequently, the population has a greater presence in rural areas. However, this distribution is unequal since it is in the department of Guatemala, where the capital is located, where more than one-fifth of the entire population lives.

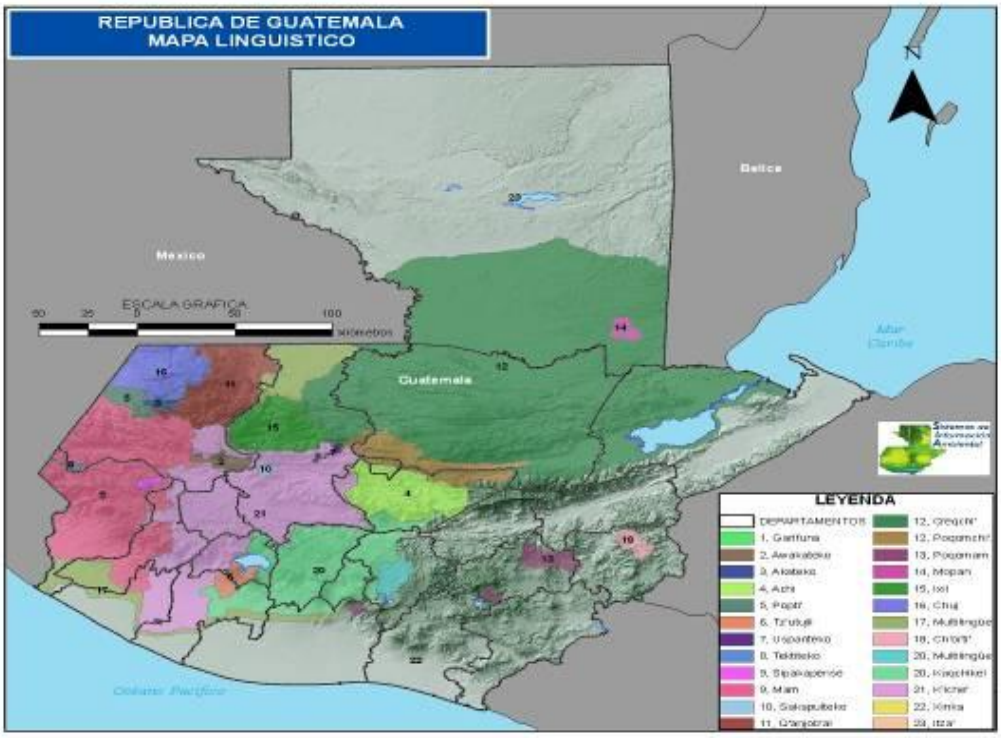
The most urbanized departments are Guatemala and Quetzaltenango, which contrast with the departments of San Marcos, Alta Verapaz and Huehuetenango, which are those with the highest levels of rural development.

The Guatemalan population has several socio-cultural and linguistic groups; the most prominent groups are: maya, ladino, garífuna and xinca.

Of the total population, INE 2002 makes a single ethnic subdivision between maya 39.45%, garífuna 0.05%, xinca 0.14% and ladino 60.36%. INE also indicates that, 49 of every 100 Guatemalans belong to one of the 22 original native ethnic groups (kiché, achi, kaqchiquel, mam, mopan, akateko, awakateko qeqchi, tzutujil, poqoman, itza, etc.). However, this demographic rate is not reflected in the social and economic importance of these communities which live in the poorest departments of the country.

Guatemala, geographically, is a small country; however, it has a unique worldwide natural and cultural diversity. The relationship between the natural and cultural diversity have led to different and varied forms of interaction that is reflected in the ecosystems occupation and the use of wild species, essential to the diet of the Guatemalan population. Following there is a map of the country's indigenous regions.

Figure No 3. Linguistic map of Guatemala



Source: Environmental Information System of MARN

2.1.2 Political and economic profile.

--Economic profile.

In Guatemala, the inequality in access to means of production and the unfair distribution of income have resulted in a 56% of the population being poor and a 21% being extremely poor. It has been determined that under these current conditions, such rates would increase negatively, especially in the rural indigenous population established in the western highlands. According to the GINI index, 63% of GDP (Gross Domestic Product) is concentrated in 20% of the population, while the remaining 80% is not even covered by social security[4]. In recent decades, Guatemala has had economic growth rates below the global and regional average levels. [5]

The recent economic history of Guatemala allows identifying three stages:

a) *Sustained growth and relative macroeconomic stability*. During the decades of the 50's until the late 70's of the XX century, it was characterized by a continued trend of economic growth with relatively high rates, and this growth was under the central axis of the primary exporting sector, that is coffee, sugar, banana and cotton.

b) A deep economic recession that started a slowdown of the economy, crisis, and strong instability from 1980 to 1988 approximately, and,

c) *A slow recovery*, characterized by a weak economic grow.

[4] Data obtained from Carlos Barrada Report. *DR-Cafta Imposition and poverty in Guatemala; Monitoring Report*. July 2006
[5] UNDP. Human Development Report 2008. Guatemala

Guatemalan's economic system has experienced periods of reduced growth. The GDP (gross domestic product) per capita for 2006 was 18%, higher than 1990. However, this amounted to a per capita growth rate of only 1% per annum for 1990-2006 periods, which means that growth remains below the Latin American average.[6]

The annual average growth rate from 1980 to 2007 was of 2.7%, which means that it would take 27 years to double the GDP (gross domestic product).

The economically active population increased from a 53% in 1989 to a 58.8% in 2006, but income distribution is uneven in the country: less than 10% of companies collect the equivalent of two fifths of GDP (gross domestic product) as net profit. The group of small family companies gets only about a fifth of GDP (gross domestic product) as income. Between these two groups are the employees who represent approximately 35%.

Guatemala is experiencing a very particular situation with the signing of peace in 1996, and the privatization of major state enterprises in the areas of telecommunications and electricity.

In this period, peace and economic and political stability contributed to a favorable climate for the repatriation of capital and investment; as well as, the substantial increase of international economic cooperation.

Over the past 20 years, the importance of the primary sector as a generator of employment and wealth declined. In 2006, the sector accounted for only 12.6% of GDP (gross domestic product) and provided employment only to a third of the working-age population. Instead, the tertiary sector, characterized by the diversity of activities, grew. Currently the tertiary sector, accounts for two thirds of the GDP (gross domestic product); and, employs more than 50% of the population.

Although the new jobs in the tertiary sector cover a large amount of manpower, in general such jobs do not have the adequate working conditions and income. For 2006, an 81.8% of the employed population lacked social insurance and less than 20% had a formal contract.

There are sectors that work harder, as indigenous people and specially women, who had an increased from 25% in 1989 to 42% in 2006; however, the income from such employment, as percentage of their total income, has not increased. Thus the income distribution is uneven; there are groups that are disadvantaged in obtaining means to improve their quality of life.

The little capacity of the market to generate jobs has reinforced the creation of informal jobs and the search for unearned income or secondary income sources. Over 20% of families' income comes from not labor related activities; since 2000, the income from remittances has gained enormous importance. In 2007, it was reported that income for remittances was equivalent to 12% of total GDP (gross domestic product) of the country.

The income by abroad remittances has prevented further deterioration of the income per capita. According to the International Organization for Migration (IOM), about 1.1 million Guatemalans, 10% of the population in 2002, has moved abroad. In 2004, it was estimated that about 1 million Guatemalans sent remittances to their relatives, of whom 71.5% are men and 28.5% are women; before migrating 41.8% lived in urban areas and 58.2% lived in rural areas. The 78.5% speaks Spanish and 21.5% a mayan language.

[6] UNDP. Human Development Report, 2008. Guatemala

Remittances benefit about 3.4 million people: more than a half, 51% of the resources are sent by children, 17.6% by spouses and 13.4% by brothers. 712 thousand indigenous people have relatives abroad: akatecos 60%, qanjobal 34%, chuj 30%, mam 26.6%, jakalteco 24%, and kiche 18%. The average of mayan people with family abroad is 15.4% and non-indigenous is 39.5%.[7]

Due to the financial meltdown, Central America is estimated to grow 1.1% in 2009 (4.3% in 2008), essentially since there is a lower demand for Central American exports, especially from the United States of America, which is the main trading partner of the region. Additionally, the reduction of the income generated by tourism, the reduction of remittances and the falling of industrial production will have an impact on the reduction of economic dynamism in Central America. [8]

Guatemala has implemented measures in the framework of the Emergency and Recovery Economic Program that includes the following policies and actions:

1) Fiscal Policy; 2) Security; 3) Employment Policy; 4) Social Protection Policy; 5) Priority Sectored Policies; 6) Implementation of the Competitiveness Agenda; 7) Monetary, Foreing Exchange and Credit Policy; 8) Financial Policy: 9) Banking Policy; 10) Central American Integration; 11) Transparency and Spending Quality.

Following, there is a summary of some data of the Guatemalan economy:

Table No 2. Guatemalan economy data.

Economic participation rate	58.8 % (2006)
Open unemployment rate	1.8 % of PEA (2006)
Informality	71.3 % of working population (2006)
Underemployment	15.2 % of working population (2006)
Dependant working population below the minimum official wage	50.1 % (2006)
Dependant working population with a wage lower than the value of the vital “canasta básica” [basic basket of goods]	87.0 % (2006)
Dependant working population with a wage lower than the basic “canasta de alimentos” [basic food basket]	61.4
Total poverty	6.57 millions of inhabitants (2006)
Extremely poverty	1.96 millions of inhabitants (2006)
Socio-economical strata Extremely low Low Medium low Medium High	 15.2 % (2006) 34.4 % (2006) 36.5 % (2006) 10.0% (2006) 3.9% (2006)

Source: Human Development Report 2007. UNDP. Guatemala.

[7] UNDP. Human Development Report. 2005

[8] Bank of Guatemala, Monetary Policy. 2009

The foreign trade of Guatemala during the past 7 years has been positive, since it has had a constant growth for exports and imports:

Figure No 4. Foreign Trade 2002-2008

*projected data

Source: BANGUAT

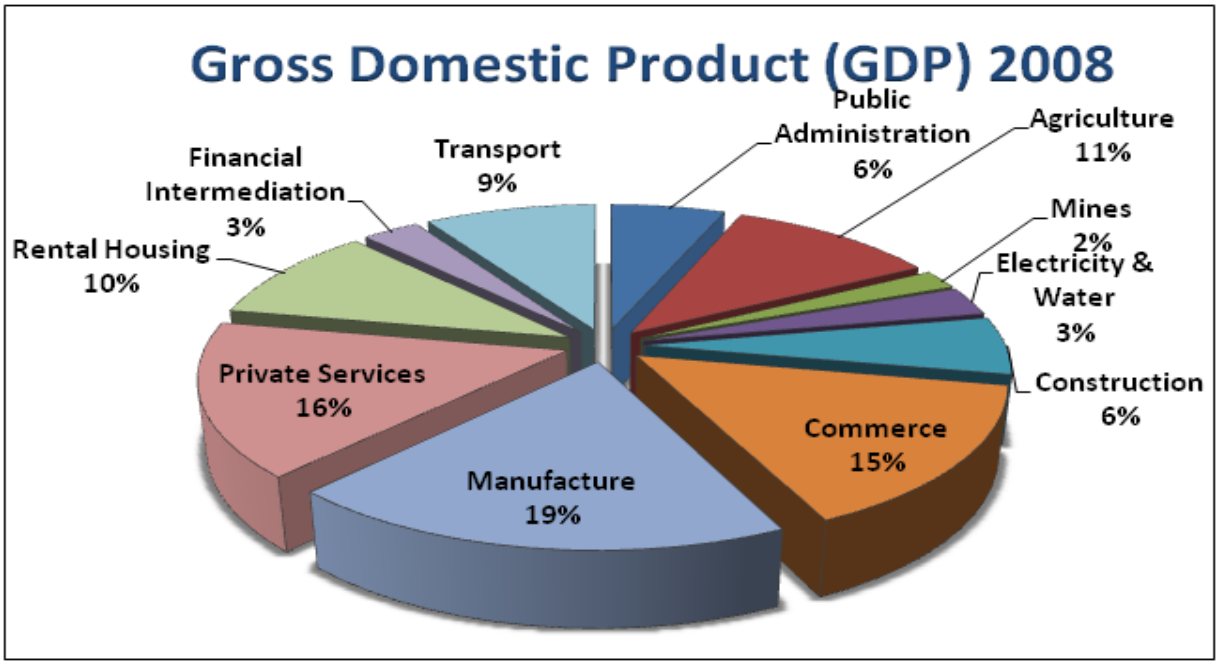
The sectors that contributed in the gross domestic product (GDP) in 2008 were: manufacture, private services, trade and agriculture, in order of importance as shown in the following chart.

Moreover, the macroeconomic stability of Guatemala allowed ending 2008 with a projected economic growth of 4.0%, making the country a highly attractive destination for foreign investors.

A state policy that promotes development and encourages teamwork between the Guatemalan government and the country's private sector, in recent years, has facilitated economic growth and access to major global markets. Recent studies of investment banking highlight the great economic stability of Guatemala throughout its history.[9]

[9] Invest in Guatemala

Figure No 5. Gross domestic product (GDP), year 2008.



Source: BANGUAT, cited by Invest in Guatemala

Guatemala has a solid financial system, good levels of international reserves, and the lowest external debt in the region. The national currency is the Quetzal. The exchange system is floating and the limits are set by the Bank of Guatemala, which publishes the exchange rate based on supply and demand.

--Political profile.

The Political Constitution of the Republic of Guatemala, in its article 40, states that Guatemala is a free, independent and sovereign country, organized to ensure its inhabitants the free exercise of their rights and freedoms. Its Government system is republican, democratic and representative. The state exercise full sovereignty over a) the national territory comprising soil, subsoil, internal water, territorial sea in the extension stated in the law and the air space extended over the territory; b) the immediately adjacent sea area to the territorial sea, for the exercise of certain activities recognized by international law; and, c) the natural and living resources of the seabed and subsoil and those in the adjacent cost outside the territorial sea, which are the exclusive economic zone in the extension established by law, in accordance with the international practice.

The political aspects of the country are governed by three bodies: the Executive, Legislative and Judicial Branches.

--Executive branch: Constituted by the President of the Republic, that is the head of the state of Guatemala and who exercises the functions of the Executive Branch by the people's mandate. The President of the Republic shall always act with the Vice President, Ministers, Vice- Ministers and other officials who constitute this Body. The president is also the general commander of the army and represents national unity and shall ensure the interests of the entire population of the Republic. The current president of the Republic of Guatemala is Ing. Alvaro Colón Caballeros and the Vice President of the Republic of Guatemala is Dr. Rafael Espada.

--Legislative branch: The legislative authority belongs to the Congress of the Republic, which is constituted by "diputados" or delegates; such are elected for a period of four years directly by the people through universal and secret suffrage by the system of electoral districts and national list. Each of the departments (counties) of Guatemala is an electoral district. Currently, the Congress is formed by a chamber with 158 delegates.

--Judicial branch: The main function of this body is exercised by the Supreme Court of Justice and the tribunals (courts) established by law. Based on the premise that justice is administered in accordance with the Constitution and laws of the Republic (Article 203 of the Constitution of the Republic of Guatemala), it is incumbent upon the tribunals the power to judge and to promote the execution of courts. Currently, it is formed by 13 ministers of justice, including its president, all of whom are elected by the Congress of the Republic for a period of 5 years.

In the history of Guatemala, there have been at least seven political Constitutions, which have represented, in their moment, the relative strengths of the dominant groups and the struggle of the subordinate groups. The Constitution of 1985 is, technically speaking, an improved and enlarged continuation of the 1954 scheme, that is an scheme that violently broke with the balance of the power of 1944, but was incapable of completely eradicate it; and thus, preserving or "dragging" social and institutional measures recognized in the Constitution of 1945.

In Guatemala, the history of the efforts of large segments of the population for political inclusion is the difficult chronic citizenship process: until recently, more than 40 years ago, it is estimated that about 75% of the population were non-citizens; the illiterate, women or poor, did not vote.

The exercise of political rights has been executed for several decades, particularly after the 1944 revolution, when the universal citizenship was recognized. However, the voting exercise is only practiced by a minority; Guatemala is in the world's lowest levels of voting.

Since 1985, the abstention rate increases in the general elections of 1990, 1995 and 1999 to 54.4%, 48.8% and 53.4% respectively. In the 2003 elections, 2,937,169 citizens voted and a total of 5,073.282 were registered to do so, that is, there was about 42.1% of secondary abstention and 51% of primary abstention. In that election, 44% of registered voters were women.

As part of the process of democratization of society, the dimension of the municipal role has had an increasing importance, since it reflects the communal interests. The State has promoted such participation under the act of urban and rural development councils, the general law on decentralization, and reforms to the municipal code.

The three laws have a common purpose, expressed from different lenses, to promote public participation. The development councils had begun to function as instances of multi-sectoral participation, though still with some difficulties in its operation they can meet the basic objectives. More specifically, the creation of the development councils, in its five levels, relies on and promotes the participation of indigenous and non-indigenous people in the governance development, taking into account principles of national, multiethnic, multicultural and multilingual unity of Guatemalan [sic].

2.1.3 Profiles of economic sectors.

The last twenty years in Guatemala have been marked by important changes in the productive sector. The historic structure, marked over 200 years ago by the growing of coffee, is slowly moving to a greater diversification in agriculture, but mostly dominated by the service sector that has become an output area due to the lack of opportunities in the country.

The composition of the national production sector has changed significantly in recent decades. The primary sector within the gross domestic product (GDP) declined, as its growth rates were very low. The opposite occurred in the tertiary sector, the dynamism and growth improved. The secondary sector on the other hand, although during the sixties and seventies achieved its greatest growth; has declined ever since.

--Primary sector.
As mentioned earlier, the Guatemalan economy has always defined itself as agricultural. For two centuries, the primary sector absorbed most of the employed population, produced the bulk of total gross domestic product (GDP), and maintained its dominance in total exports.

The major export products, after the independence, were coffee, bananas, cotton and sugar, with the production of basic grains as a mainstay food of most of the population.

The production of agro-fuels has been opening its own way into this sector. Consequently, the conclave of the World Bank held in Antigua Guatemala in 2006-2007, discussed it as its central theme. The expansion of African oil palm cultivation in northern Alta Verapaz (Chisec) and sugarcane in the region of Polochic would, among its purposes, foster the production of agro-fuels. Apparently, following this logic, a good part of the Northern Transversal Strip is an area where the production of these crops can be expanded or is in its expansion process. So far, there are no indicators that the yellow corn production (not the Creole, but the genetically engineered) have such purpose, but it seems to be a future goal. [10]

In recent years there have been significant changes in the sector. Although its importance declined in total gross domestic product (GDP), such sector has been diversifying, in this sense, it is expected that the future lead to improved conditions of employment in agriculture and the expansion of the production base to small and medium land, instead of developing again *latifundio* - smallholding.

--Secondary sector.
The emergence of the industrial sector in Guatemala is a challenge. The birth of this sector has been a positive innovation. In 1940 the Guatemalan industrial economy was still nascent. It comprised the crafts and individual companies. There were only few large monopoly companies: cement, beer and soap.

The real industry began with the Central American common market in the period of 1960-1970. The industry exceeded the gross domestic product (GDP) by almost 50%. The few intermediate industries of the country were created, industries of consumer goods (appliances) emerged, and, non-durable consumer goods industries (food, shoes) were established. There were changes in technology, the production diversified and the quality improved.

Currently, the non-durable consumer goods, the traditional products such as food and beverages, remain the fundamental pillars of this sector (for the year 2006, represented a 47%).

It is important to highlight that the three most important industries of the country, for its export orientation, weight in the industrial gross domestic product (GDP), and employment generation capacity, are: the maquilas, food and beverages, and chemicals and pharmaceuticals.

--Tertiary sector.
In Guatemala, this sector includes various activities, including: wholesale and retail trade, electricity, water, financial services, transportation, storage and communications, construction, hotels and restaurants, rental, public administration and defense. The tertiary sector has shown greater dynamism in services.

[10] Coyuntura No. 82. Guatemala. 2009

The production of services destined to the market, for private use, can be identified within the service sector.

Between 2002 and 2005, the activities of market services had the fastest growing rate. In 2006, trade generated 12.8% of gross domestic product (GDP) and employed over one million people, representing almost a quarter of all workers in the country.

Tourism is another activity which generates approximately 2.9% of gross domestic product (GDP) and experienced significant growth in recent years. It currently represents 16.7% of all foreign currencies that enters Guatemala, almost equaling the foreign currency generated by coffee and sugar exports.

Despite some progress, the industry sector has failed to play the expected role in the context of import substitution, energizing and transforming the productivity, full employment and universal social security.[11]

2.1.4. Environmental overview.

The environmental situation in Guatemala has worsened since the mid-twentieth century and continues to deteriorate rapidly; such situation has increased in recent decades. There is a strong and growing demand, pressures and impacts on the environment and natural resources, determined by the high and disorderly territorial growth, demographic and productive distribution, in addition of high levels of extreme poverty and growing weakness of the governance and institutional capacity, among others.

Guatemala is recurrently affected by a variety of phenomena and natural hazards due to a combination of factors. The first factor is the country's geographical location in Central America, the region's particular position is located within two large continental landmass, similarly to a bridge; it is also situated between two oceans, in a band affected by the inter-tropical convergence zone; additionally, it suffers the incidence of hydro meteorological events such as hurricanes, heavy rains and storms, which result in flooding and landslides.

The second factor is the strong influence of three tectonic plates: the Cocos, the Caribbean and the North American plate, which have their encounter point in the country, and when interacting with each other, led to the steep topography; as well as, the continued readjustment of the crust.

Some of the natural hazards in the country are: aquatic phenomena such as droughts (5,500 km2 of the territory is in the categories of "very high and extremely high" threat by drought), frost (7.622 km2 surface - 7% of total national area-, which has an annual probability, greater than 50%, of suffering the effects of frost); especially in areas above 2,200 meters above sea level - Sierra Madre and the Cuchumatanes. Other threats are earthquakes and floods. This last phenomenon, 1996-2000, generally occurred in the basins of the Río Maria Linda, Río Motagua, Río Achiguate and Río Coyolate (rivers).

Recent studies reveal the following as the main environmental problems:

--Loss and depletion of biological diversity and landscape. In March 2007, Guatemala had approximately 3,987.831 hectares as protected areas, which is 36.62% of the national territory. About 109 species were reported extinct, 881 endangered and 788 as special handling, which represents 19.25% from a total of 9,219 recorded species. According to CITES, 361 species of flora and fauna are threatened.

[11] UNDP. Human Development Report. Guatemala, 2008

There are a number of conditions that exacerbate this situation: a growing demand of ecosystems to be used in short-term production activities, mainly for provisions; the absence of legal certainty in property rights on publicly accessible wilderness areas; the fragmented and uncoordinated management of wild areas; and insufficient knowledge and information for their sustainable management.

The declining quality and quantity of water resources, about 65% of the gross flow, is lost in ecological processes and by pollution; remaining for Guatemala a net amount of 35% from the total. [12]

The pressures on water resources are directly associated to demand, which arises from its different uses (domestic, agricultural, industrial, services and livestock). A significant proportion of surface water bodies are contaminated by liquid and solid waste, agrichemicals and silting. Moreover, groundwater is under-utilized and exploited, reducing the recharge capacity of aquifers and causing disturbances in the water cycle.

In terms of marine and coastal resources, studies reveal that there is deterioration, particularly associated with population growth pressures. The decline is fastest in the Pacific coast than in the Atlantic.

--Accelerated loss of forests. The problems associated with land tenure, the extreme levels of poverty, high population growth rates, low educational levels and poor forest culture remain the main sources of pressure to 4.3 million hectares of forest that cover the country.

Regarding forests, the forestry coverage remains at between 37.26% (map of vegetation and land use, MAGA 2003) and 40% of the territory (forest cover map of Guatemala, INAB 2004). The majority of the forest is within protected areas (55%) and the highest proportion (70%) is located in three departments: Petén, Alta Verapaz and Izabal.

The number of forest fires occurred in recent years show a direct relationship with the climate conditions occurring globally. In 2006, forest fires affected 12,203.7 hectares, 49% of which was coniferous forest.

The rate of forest's use exceeds the natural regeneration rate and the increasing pressure of change of forest for more profitable activities in the short term, but not necessarily in the long term, it is rapidly shrinking the forest assets. This has adverse consequences on agricultural, forestry and hydro-biological production.

--Territorial and environmental vulnerability. This has been accelerated due to human manipulation in the ecosystems, primarily by increased deforestation, poor land management and increased water pollution. This vulnerability increases in the upper reaches of watersheds with greater population density, and impacts populations of middle and lower lands. The increase in the intensity and magnitude of natural phenomena on one hand, and greater territorial vulnerability, caused by environmental degradation and loss of natural goods and services; on the other, create social disasters and threaten the poorest populations.

--Accelerated environmental pollution.
The release and discharge of pollutants into the environment are affecting not only the components of the natural heritage in its availability and quality, but also human welfare conditions and their associated costs. It is particularly significant the improper management of liquid waste and sewage, solid waste and agro-chemical residues; as well as, the lack of abatement of air pollutants.

[12] INE. Environmental Yearbook 2007. Guatemala, 2008.

With regard to DDT, there are studies of organochlorine pesticide residues in human milk from 1971 to 1982. In addition to DDT, high levels of other organochlorines were also found, fortunately since 1974, their importation was regulated.

The environmental problems previously mentioned are caused by: consumption habits, the predatory attitude toward natural resources, the unsolved land tenure problem, the increased demand for land for farming, and poverty that affects more than half of the population.

It is important to highlight that there are linkages between poverty, social inequality and the environment, since the vicious circle of deprivation is providing feedback and reinforcement, and it is becoming a model of poverty, deprivation and eventually deterioration of the quality of life and shortening of the years of existence.

According to this context, it is important to integrate concerns regarding the environment and natural resources development; that is, to encourage development processes that seek to improve living conditions for society through the promotion of productive efficiency principles, social equity and environmental care.

2.2 INSTITUTIONAL POLICY AND REGULATORY FRAMEWORK.

2.2.1 Environmental policy, sustainable development policy and general legislative framework.

The country has a comprehensive framework of policies that define objectives and strategic actions of national relevance.

Following, there is a brief description of some national policies:

--Conservation, protection and improvement of the environment and natural resources policy. This policy was issued by MARN on March 2007, by means of the Governmental Agreement No. 63-2007; this policy has as objective to define and provide guidelines to different sectors regarding the improvement of the environment and the quality of life of the inhabitants of the country, the maintenance of ecological balance, and the sustainable use of natural resources.

It was created to guide the work of the Government, civil society, private sector and the international community on environmental issues for the next 20 years. Some strategic guidelines are: development of environmental mechanisms and tools for production and environmental quality management; use and sustainable management of natural resources; promotion of renewable energy generation in coordination with MEM; an integrated management of water resources; and, watershed management for the promotion of sustainable development in the country.

--Energy Policy 2008-2015. It was published in October 2007 by the MEM with the objective to "*provide general guidelines of work that leads proper and better functioning of the national energy sector*". The policy refers to diversify the country's energy matrix prioritizing renewable energy; it specifically mentions hydro, geothermal, wind and solar energy, and bio-fuels. Moreover, it seeks the coordination between MARN, SEGEPLAN and academic and research institutions, in order to establish a national territorial planning for the development of activities related to energy projects; increase energy efficiency seeking specific actions, such as a regulation approval requiring the use of ethanol as an additive to gasoline; and, develop a national bio-fuels strategy for 2008. Other actions would aim to improve the flow of vehicles in urban areas, encourage the use of more efficient bulbs in public and private lighting, reduce energy consumption in industry, promote the use of more efficient appliances, promote conservation and efficiency of household energy, and promote the use of organic waste as fuel.

--Forestry policy. It declares the reforestation and forest conservation as national emergency and social interest. It provides the basis for pursuing the set objectives: the creation of a steering mechanism, promotion of forestation, reforestation and forest industries (with incentives), and the norms and regulations for the management of this resource.

--Guatemala forestry agenda for 2003-2012. It was approved by INAB under the National Forest Program of Guatemala. Among its actions, it is mentioned the conservation and protection of the forest, especially in protected areas that form the Guatemalan System of Protected Areas (SIGAP), and in order to carry out such action, the agenda mentions seven strategic actions, each with a series of activities. A second important area concerns the environmental services, which aims to promote mechanisms of financial compensation for carbon reduction. It should be mentioned that the forestry sector has being very proactive in improving the country's ability to access international carbon markets.

--National policy for the sound management of residues and solid waste - 2005. It seeks the involvement and participation of all entities of the Guatemalan society, and creates awareness of the sound management of the residues and solid wastes; additionally, introduces the cleaner production practices, incorporating the environmental approach.

--Genre equity policy. It contains elements to guide programs promoted and encouraged by the Ministry of Environment and Natural Resources. These programs aim to improve the lives of Guatemalan women, especially women in rural areas, who -as an expression of Guatemalan cultural wealth- combine ancestral knowledge and their world view in the daily struggle for their survival and their families [sic]. It has action axes: mainstreaming the gender perspective in MARN and the management of natural resources and environmental quality from a gender perspective.

--National policy of environmental education - 2003. It contains principles, objectives, policy guidelines, strategies and tools that will enable to the State governing bodies: Ministry of Environment and Natural Resources –MARN-, Ministry of Education –MINEDUC-, Ministry of Public Health and Social Assistance –MSPAS-, and the Ministry of Agriculture, Livestock and Food –MAGA- to provide direction and oversight to the educational processes related to the environment and improve its competitiveness.

--National policy of social development and population. The Policy of Social Development and Population contained in Decree No. 42-2001, has objectives and instruments which are expected to achieve cooperation and concerted action by all sectors of society and government, in accordance with Article 19, paragraphs 1, 2 and 3 of the Social Development Law. Its overall objective is to achieve the well-being and human development of the Guatemalan population, present and future.

The Ministry of Environment and Natural Resources has planned the coordination with other public institutions, and will conduct environmental impact assessments and research on the current links and effects between population and consumption, production, environment and natural resources, to provide guidance to conduct actions related to sustainable development.

--National policy of nutritional and food safety. It was published by the Presidency of the Republic in September 2005, to provide guidelines to improve conditions of nutrition and food safety, especially among the indigenous population in rural areas and marginal urban groups. One of the policy's actions refers to: monitor the type, existence and quality of basic food in communities to prevent and treat emergencies and climate events. A second line program focuses on building information, monitoring and early warning system of food and nutrition security that reaches all communities.

Simultaneously, several entities were created to strengthen institutions in the field, such as the National Council for Food and Nutrition Safety CONASAN and the Secretary of Food and Nutritional Security (SESAN), which is the entity in charge of executing the guidelines stated in the policies and by CONASAN. The food and nutrition security strategic plan for the period 2007-2016 includes objectives to improve the basic food availability and access of the population at risk.

--National decentralization policy. It guides the decentralized participatory territorial planning, from a gender perspective and multicultural approach, with necessary conditions to trigger new forms of relationship between the State and the Nation. These conditions will allow more comprehensive and inclusive strategies to reduce poverty, mitigate the impact of disasters and promote the exercise of full citizenship for Guatemalans. One of its principles is the restoration and maintenance of environmental balance and human development.

--National policy of chemicals management. This is a proposal that has been generated within the understanding agreement between MARN and UNITAR to initiate the SAICM activities, with financial support from QSPTF (Quick Start Program Trust/Fund Quick Launch). This proposal is currently under approval by the Executive. This recognizes the need to link the country's sustainable development with the rational use and proper management of chemicals by all stakeholders. Given the complexity for the effective monitoring and control of these substances, it is necessary to develop coordinated actions with the different institutions (Government, private sector, users).

2.2.2 Roles and responsibilities of ministries, agencies, and other governmental institutions involved in POP life cycles.

During the carried out work of the Stockholm Convention, the following governmental institutions with greater competence on the matter were identified:

--Ministry of Environment and Natural Resources.
MARN is the institution responsible to formulate and implement the policies related to its competence in an inclusive and equitable framework. MARN shall protect the natural systems, preserve and rationally utilize natural resources in order to achieve a trans-generational development, coordinating the institutional, economic and social environmental activities. [13]

Some of MARN's functions, pursuant to Decree 114-97 of the Executive Branch Act in its Article 29 "bis", among others are: to comply and enforce regulations regarding the environment and natural resources; guide the overall responsibilities of the Ministry; and especially, the regulatory, supervisory, and control functions; formulate, approve, coordinate, promote, manage, and lead the national environmental and natural resources policies in short, medium, and long terms in close coordination with economic, social and development policies of the country; exercise sector steering and coordinate MARN's actions with other ministries, public institutions, and the private sector; promote social participation and dialogue in order to provide national development regarding the environment and resources natural; foster a culture of environmental conservation and sound usage of natural resources; formulate the conservation, protection and improvement of environment and natural resources policy, and execute it in conjunction with other authorities with legal competence in the matter within the national and international regulatory framework.

The Ministry of Environment and Natural Resources -MARN- is the Coordinating Institution regarding the persistent organic pollutants -POP. Since the beginning of the Stockholm Convention implementation project, such was incorporated into the internal structure of MARN, and used the existing link with the Environmentally Sound Management of Chemicals and Hazardous Waste Coordination Unit –UPQDP.

[13] Ministry of Environment and Natural Resources, MARN's creation Law.

Such unit was created based on the commitments derived from various multilateral conventions, and where other projects and commitments are carried out, such as the Basel Convention, SAICM National Profile and other chemicals related projects.

--Ministry of Public Health and Social Assistance.
It is the entity responsible for the prevention, promotion, recovery, and rehabilitation of health in accordance with the Constitutional mandate. Decree 114-97, of the Executive Branch Act in its Article 39 defines the scope of its powers.

This Ministry has important units such as the General Department of Health Regulation, Monitoring and Control, which is responsible for addressing issues related to health and the environment, and is a department in the central level of the Ministry. It is also in charge for the development of technical standards of care related programs for the population, environment, disaster response and support systems. Additionally, it is responsible for developing technical standards for monitoring, controlling, overseeing and evaluating identified programs, undertaken in coordination with other dependencies, health attention and norms, and quality compliance control at regular intervals.

It also has under its responsibility: to issue the guidelines for registration, accreditation and licensing of health services; extension of reference health registry and health license in special cases established in the specific regulation; application and/or control of sanctions regime established by the commission for health violations. Moreover, it participates and supports the development of scientific research, human resource training, and dissemination of scientific and technical information and documents. [14]

--Ministry of Energy and Mines.
The Ministry of Energy and Mines -MEM- is the state agency whose functions are related to the study and promotion of the use of new and renewable sources of energy, promote their rational use and stimulate their development and the rational utilization of energy in their different ways. In addition, it coordinates the necessary actions to maintain an adequate and efficient supply of petroleum, petroleum products and natural gas, according to the country's demand. It must also regulate the activities related to surface recognition, exploration, exploitation, transport and processing of hydrocarbons, the sale and commerce of crude or reconstituted petroleum, natural gas and other derivatives.

It is relevant that MEM has designated tasks related to promote and comply with environmental standards regarding energy, and that is its main institutional strength, which can be highly beneficial for Guatemala regarding the regulation of the use and management of PCB/BPC, as well as the aspects related to the unintentional releases of dioxins and furans emitted by power plants.

Within its organizational structure, MEM has specific departments to address different issues in its agenda (energy, hydrocarbons and mining), and all these departments have a support unit. On regard of the support unit on POP, MEM has the Social Environment Management Unit, which aims to establish the use of mineral and energy resources in a sustainable manner, protecting the environment and improving the economic and social conditions of the country, acting in its area of competence. The mission of this unit is "to serve as an advisory body on environmental matters to the Ministerial Office and to the Technical Department within the Ministry of Energy and Mines Ministry, overseeing that the mining, hydrocarbon and power generation activities in the country be conducted in accordance with the principles and existing environmental protection regulations."[1516]

The legal institutional framework is derived from Articles 125 and 129 of the Constitution of the Republic, relating to exploitation of non-renewable natural resources and electrification respectively.

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[14] http://portal.mspas.gob.gt/direccion_general_de_regulacion_vigilancia_y_control_de_la_salud.html

[16] Ministry of Energy and Mines.

Furthermore, Decree 114-97 of the Executive Branch Act in its Article 34, sets out its responsibilities, primarily related to the production, distribution and marketing of energy and hydrocarbons, and the exploitation of mineral resources.

--Ministry of Agriculture, Livestock and Food.
The Ministry of Agriculture, Livestock and Food –MAGA- is the state agency in charge of administering the policies and strategies concerning the sustainable development of the agricultural, livestock, forestry, and hydro-biological sector.[17]

MAGA's main functions, according to the Executive Branch Act (Decree 114-97, Article 29) and with regard of POP, highlighting some of the functions related to this matter are: formulate and implement the policy for agricultural and hydro-biological development and the sustainable use of renewable natural resources in accordance with law; promote and ensure implementation of clear and solid rules in the field of agricultural, livestock, hydro-biological, forestry and phytozoosanitary activities, looking for efficiency and competitiveness in the markets and taking into account the conservation and protection of the environment; formulate the agricultural and environment education policy, promoting community participation in coordination with the Ministry of Education and the National Environment Commission; boost the business development of agricultural, forestry and hydro-biological organizations to promote productive and competitive development of the country; develop mechanisms that contribute to food security for the population and expand and strengthen the mechanisms of availability and access to strategic information to producers, traders and consumers, among others.

This Ministry has several units, called Central Units, and the Rules and Regulations Unit is one of the most important within MAGA. This unit is in charge of regulating the registry of production, import, distribution, and use of pesticides. This unit has issued many regulations and agreements, in which highlights the ministerial agreements that restrict and bane some POP pesticides. This is a unit where continues work should be carried out in a coordinated manner in order to increase the strengths of country in the fight against POP.

--Other entities or agencies interested in collaborating with POP reduction and elimination activities and those that had shown interest in environmental matters.

The agencies interested in the life cycles of the POP that could support the efforts of the country are: Global Environment Fund -GEF-, World Bank, United Nations Development Program-UNDP, United Nations Industrial Development Organization-UNIDO, among others.

The entities present in Guatemala, which are currently interested in supporting environmental issues and form part of the environmental sectorial table are: Embassy of Germany, IDB, World Bank, Embassy of the Republic of Colombia, Embassy of Denmark, Embassy of Spain, Embassy of the United States, Food and Agriculture Organization of United Nations, Embassy of Finland, Embassy of the Netherlands, Embassy of Japan, International Cooperation Agency of Japan, Embassy of Mexico, Organization of American States, United Nations Development Program System, European Commission Delegation, United Nations Children's Fund, Agency for International Development, and the Pan American Health Organization.

2.2.3 Relevant international commitments and obligations.

Some of the international and regional agreements or conventions ratified by Guatemala are: the Convention on Biological Diversity ratified by Guatemala in 1995; the Convention for the Conservation of Biodiversity and the Protection of Wilderness Areas in Central America; the United Nations Convention to Combat Desertification and Drought, adopted in Paris on June 1994 and later ratified by Guatemala in 1998; the United Nations Framework Convention on Climate Change, ratified in 1995;

[17] Document of the Ministry of Agriculture, Livestock, and Food.

the Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES; the Convention Concerning the Protection of World Cultural and Natural Heritage; Central American Regional Convention for the Management and Conservation of the Forest Natural.

Table 3 presents the international commitments that the Government of Guatemala has acquired and which are directly related to chemical substances and hazardous waste, specifically related to POP compounds and wastes.

Table No 3. International legal framework, related to hazardous chemicals and wastes.

CONVENTION	SIGNATURE AND RATIFICATION	TEXT
STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS.	**Signed in Guatemala on January 29, 2002 and approved by the Congress of the Republic pursuant to Decree 60-2007.** **Ratified on April 22, 2008 by the President of the Republic of Guatemala, the ratification instrument was submitted to the Treaty Section of the United Nations on July 30, 2008.**	Article 3. Measures to reduce or eliminate releases from intentional production and use. Shall prohibit and adopt legal and administrative measures to eliminate its production and use and shall eliminate their imports and exports.
BASEL CONVENTION ON THE INTERNATIONAL CONTROL TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES.	**Approved by Law Decree No. 3-95 dated on January 25, 1995.** **Ratified on April 25, 1995.**	Article 4-2 Reduces the national generation of hazardous wastes and other wastes; establish appropriate disposal facilities. Article 4.1 Prohibits the export of wastes in countries that have banned the import of such wastes or without the written consent of the importing country when it has not prohibited the import of wastes. Article 5. Bans waste trade with non-members.
CENTRAL AMERICAN CONVENTION …	**Approved by Law Decree 6-94 dated on January 19, 1994.** **Ratified on February 24, 1994.**	Article 3-1 Prohibits the importation and transit of waste to non-members [sic]. Prohibits the dumping of hazardous waste into the sea; to that effect oversees the carriers from non-member countries [sic].
ROTTERDAM CONVENTION **Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade**	**Adopted in 1998 and approved at the Plenipotentiary Conference held in Rotterdam on September 10, 1998.** **Entered into force on February 24, 2004, ninety days after the deposit of the fiftieth instrument of ratification.**	Article 3: Scope of Convention 1. This Convention shall apply to: a) chemicals banned or severely restricted; and b) Severely hazardous pesticide formulations. Article 5: Procedures relating to the chemicals banned or severely restricted. 1. Each Party that has adopted a final regulatory action will notify it in writing to the Secretariat. Such notification shall be made as soon as possible but no later than ninety days from the date on which the final regulatory action has come into force, and shall include, if possible, the information specified in Annex I

Source: International treaties and conventions

2.2.4 Description of existing legislation and regulations addressing POP.

The general legal framework for the compliance of the obligations under the Stockholm Convention is supported by constitutional mandates, which are established by the country in the 1985 Political Constitution of the Republic of Guatemala, reformed by Legislative Agreement No. 18-93 of November 17th, 1993.

The Constitution guarantees, at the beginning of its provisions, the protection to the persons and thus establishing the prevalence of the common good (Article 1), which is also highlighted in Article 46 that estates “the social interest prevails over private interest.” Concerning health and environment, the Constitution establishes in its Article 93 “the enjoyment of health is a fundamental human right, without any discrimination”. And its Article 97 establishes “the state, municipalities and the inhabitants of the national territory are required to foster social, economic, and technological development to prevent environmental contamination and to maintain an ecological balance”. All the necessary regulation will be issued to ensure the sound use and development of the fauna, flora, land and water, avoiding their predation”.

Similarly, there are specific laws that support the constitutional mandates, such is the case of the Health Code, Decree 90-97, which aims to preserve the health of the inhabitants; the purpose of the Protection and Improvement of the Environment Law, Decree 68-86, is "to ensure the maintenance of ecological balance and environmental quality to improve the quality of life of the inhabitants"; Decree 90-2000 creates the Ministry of Environment and Natural Resources, which shall be "responsible to formulate and implement policies related to its field, comply and enforce the rules concerning the conservation, protection, sustainability and improvement of the environmental and natural resources, and the human right to a healthy and ecologically balanced environment, prevent environment pollution, reduce environmental degradation and loss of natural heritage."

MARN has an **Environmental Management Framework Policy**, that states "the state - in order to develop and facilitate a proper environmental management- declares a set of principles, objectives, legal and institutional framework, policy areas, lines of policy and environmental policy proposals, natural resource management with a sustainable development approach that guarantees the quality of life in the country", and its two main policy areas are: "1) Area of Environmental Quality Management, and 2) Area of Sustainable Management of Natural Heritage”.

The **Policy of Conservation, Protection and Improvement of Environment and Natural Resources** (see policy section 2.2.1) has been issued.

Moreover, there are regulations for the control of pesticides, and number of developed regulation. Based on the Regulatory Law on Importing, Processing, Storage, Transport, Sale and Use of Pesticides, Law No. 43-74, from which derived a number of regulations including restrictions on DDT, Governmental Agreement 27-76, and the prohibition of certain POP pesticides since 1988 (MAGA Ministerial Agreement No. 03-88).

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Regarding PCB/BPC and unintentional releases, the general regulation also allows incorporating both issues, but on specific legislation; there are some ministerial agreements and norms that refers to them, but still in a secondary form.

However, considering that the country has signed and ratified the Stockholm Convention, such has become a General Observance Law, obligatory binding; therefore, Guatemala has the obligation to comply with it.

In each of inventories: POP pesticides, polychlorinated biphenyls, and dioxins and furans, there is more specific regulation related to each topic.

Also, the entire legal context, which gives support to the POP issue, was discussed and analyzed at the beginning of the project, in the document entitled "Compendium of International Treaties and Guatemalan Regulation Related to Chemicals, including the Persistent Organic Pollutants -POP -" of December 2007.

Currently, there are efforts in Guatemala to approve the National Policy on Chemicals Management, which recognizes the necessity to bind the country's sustainable development with the rational use and proper management of chemicals by all involved stakeholders.

Table No 4. Legal basis for the main laws, decrees, agreements and regulations related with POP pesticides in Guatemala.

Decrees	Legal basis
Constitution of the Republic of Guatemala, May 31, 1985.	"Carta Magna" (Magna Letter) in Guatemala establishes the constitutional mandates regarding the legal development of the entire legislative branch.
Law No. 43-74, Guatemala May 23, 1974	Regulatory law for the import, manufacture, storage, transport, sale and use of pesticide. Article 6 regulates the use of DDT, establishing the need to create a regulation to reduce it to 20% annually.
Decree 68-86 Law on Environmental Protection and Improvement Law November 28, 1986.	Regulates the environment protection actions, under the Ministry of Environment and Natural Resources (MARN).
Decree 60-2007 of the Congress of the Republic of Guatemala, December 4, 2007.	Stockholm Convention approval in Guatemala.
Decree 90-97, Heath Code, Legislative Branch dated on October 2, 1997	Guarantees the enjoyment of health as a fundamental right for human beings without discrimination.
Law Decree 36-98, Law on Animal and Vegetable Sanitation, June 8, 1998.	Ensures the protection and sanitation of plants, animals, forestry and hydro-biological species, MAGA is assigned as responsible for its implementation and enforcement.
Decree 17-73 Criminal Code September 15, 1973	Environmental crimes related to pesticides.
Governmental agreements	**Legal basis**
General Regulation on Hygiene and Safety on Work Places, Dec. 28, 1957	Warns workers about the danger when exposed to toxic substances.
Governmental Agreement 27-76, November 15, 1976.	Regulates DDT imports by assigning reduction quotes (1976-1980).
Governmental Agreement 1136-83	Government Agreement concerning all agrochemical products prior to registration, such must be evaluated in laboratory and through field assessment by the Institute of Agricultural Science and Technology (ICTA).
Governmental Agreement 377-90, Regulation regarding Recording, Commercialization, Use and Control of Agricultural Pesticides and Related Substances, April 18, 1990.	Regulates activities of registration, labeling, importation, processing, storage, transportation, sale, and so forth.
Governmental Agreement 377-90, modified by Governmental Agreement 4-94.	Regulation on the Registry, Trading, Use, and Control of Agricultural Pesticides and Similar Substances.
Governmental Agreement 27-76 dated on November 15, 1976	Regulates the import of DDT, establishing the rates of import and assigning specific import quotas, which gradually reduces the import of DDT until eliminating its use in agriculture.
Governmental Agreement 509-2001 Regulation for the Management of Hospital Waste.	A measurements record of released gases into the environment must be kept, establishing maximum values among others, levels for PCDD / PCDF: Polychlorinated dibenzo dioxins and Polychlorinated dibenzo furans "<0.5 ng/m3", with an annual measuring frequency.
Governmental Agreement 4-94, dated on January 20, 1994.	Modifies Governmental Agreement 377-90, amends articles 5, 6 and 20.

Decrees	Legal basis
Governmental Agreement 284-2008, published on January 2, 2009.	Designates MARN as the National Coordination Center for Exchange of Information on the reduction or elimination of the production, use and release of persistent organic pollutants, published in Diario de Centro América (Official gazette) on January 02, 2009.
Governmental Agreement 110-2001, dated on December 3, 2001.	It endorses Guatemala to the Stockholm Convention on POP.

Table No 5. Legal basis of technical norms and ministerial agreements.

Ministerial agreements	Legal basis
MAGA's Ministerial Agreement dated on May 21, 1985	Creates the Permanent Commission, who must follow up the matters related to pesticides in Guatemala and takes into consideration the public and private participation.
MAGA's Ministerial Agreement 03-88 dated on January 12, 1988.	Cancels the registration of the following pesticides: Camphechlor, Ethyl Parathion, Endrin, Dieldrin, Clordimefor chlordane, heptachlor, BHC and Lindane.
MAGA's Ministerial Agreement 152-93 dated on August 26, 1993	Procedures for Technical Supervision in places identified with pesticides.
MAGA's Ministerial Agreement 21-97 dated on March 13, 1997.	Recognizes the program of Use and Safe Management of Pesticides by AGREQUIMA.
MAGA's Ministerial Agreement 591-99 dated on August 4, 1999	Consolidate the actions of PIPAA as a program for health and plant monitoring of export products.
MAGA's Ministerial Agreement 1050-2000 dated on June 5, 2000	Instruct the UNR in the planning, implementation, campaigns and actions for prevention, control and eradication of pests and diseases in plants and animals.
MAGA's Ministerial Agreement 166-05 dated on February 7, 2005	Establish that the empty containers of chemicals can be categorized as non-hazardous provided that the total concentration of pesticides is less than 0.1% (1000 ppm) on the total weight of the material plastic, by AGREQUIMA through the program "Limpiemos Nuestros Campos" (let's clean our fields).
MAGA's Ministerial Agreement 240-2007 dated on April 9, 2007.	Establishment of the Coordination Unit for the Environmentally Sound Management of Chemicals and Hazardous Wastes in Guatemala.
MAGA's Ministerial Agreement 68-2007, modified by MAGA's Ministerial Agreement 173-2008.	National monitoring program to detect substances and harmful residues to human health in shrimp farming. Sets the likelihood of contact of cultured shrimp with various substances, therefore the controls and monitoring should be carried out for the following substances "Antibacterial substances, organochlorine compounds, heavy metals, polycyclic aromatic hydrocarbons, dioxins and dioxin-like PCB/BPC, mycotoxins and colors ."
Norms	**Legal basis**
Norm of the General Department of Health Services (Norma de la Dirección General de Servicios de Salud) without Number of norm, on March 30, 1987.	Norm that contains requirements for the vendors' establishments and storage facilities of agrochemicals.
COGUANOR Norms.	Are a set of standards issued by the Guatemalan Standards Commission of the Ministry of Economy in order to address different actions, and where Specific technical aspects are regulated: NGO Pesticide 44-97: storage and transportation; NGO44046 - 2003: Pesticides and Related Substances: Toxicological Classification; NGO44052: Pesticides: labeling of chemical pesticides formulated for use in agriculture; NGO44063: pesticide products labeled for domestic or industrial use; NGO44087: pesticides, active ingredient, concentration expression, and tolerance.

2.2.5 Key approaches and procedures for POP chemicals and pesticides management including enforcement and monitoring requirements.

In the process of the inventories, different approaches, procedures and needed monitoring have been identified and are summarized as follows:

-- Polychlorinated biphenyl PCB/BPC: Strengthen regulatory measurements; ensure that the equipment and oil containing polychlorinated biphenyls are not imported or exported, except for environmentally sound management of wastes; have enough warehouses to satisfy the demand of temporary storage of contaminated equipment and oil; possess specific transportation for the contaminated equipment and oil in accordance to environmentally sound procedures; identify, store and dispose in an environmentally safe way, goods containing more than 0.005% of polychlorinated biphenyl.

-- DDT: Implement legal and administrative measures to restrict the use and production of DDT, conduct research and develop alternatives to DDT, identify and eliminate DDT stockpiles.

-- POP pesticides: Disseminate existing laws, decrees, regulations and agreements in Guatemala that apply to POP pesticides and obsolete pesticides, reform and strengthen existing regulations addressing all of the POP pesticide's life cycle, establish surveillance systems and control over customs and distribution centers regarding illegal POP pesticide commerce, sound management of POP and obsolete pesticides stockpiles in a safe manner for humans and the environment.

-- Dioxins and furans: Strengthen legal framework to achieve the reduction and/or elimination of unintentional releases; strengthen the capacity of the institutions in charge of monitoring and control; verify the compliance with established parameters and/or standards; identify all of the dioxins and furans emission sources coming from anthropogenic sources; and, promote their reduction; define strategies to identify contaminated sites; strengthen the national technical and professional capacities for the identification of contaminated sites.

--Stockpiles and wastes: Identify articles in use and other wastes that contain POP Annex A, B and C to reduce or eliminate releases produced by POP stockpiles; strengthen MAGA's pesticide registry, including new POP pesticides; promote cooperation with the Basil Convention for a rational disposal.

--Exemptions: It has also been considered to create a regulation for the exemption of products included in Annex A or B of the Stockholm Convention, and to develop a procedure for the reception of exemptions; as well as, the creation of a registry. Other criteria are contemplated in the regulatory framework, existing policies and responsibilities that each institution has.

2.2.6 Legal problems regarding development of the NIP.

It was established in Guatemala's framework for the Stockholm Convention that there are no legal problems for its implementation; however, legislation is insufficient.

On the other hand, the existing legislation regarding chemical substances generally focuses mainly on the technical aspect, denoting weakness on the environmental topic. Limitations have also been identified regarding poor legislation application, such as resource scarceness for its implementation. Finally, it is important to highlight that the compliance with Guatemala's regulations is relatively effective when concerning to paperwork, but it's not on effective on field control, inspections, and testing among others.[18]

[18] MARN. Assessment of Capabilities. Guatemala, 2009.

2.3 ASSESSMENT OF THE POP ISSUE IN THE COUNTRY.

As part of the activities planned for the second phase of the project, the stage of gathering information and conducting inventories was initiated, in accordance with the provisions of the Convention in order to carry out an assessment of POP in the country. The timeframe used for this phase consisted in eight months of 2008, which is why the inventories had limitation in time and scope. However, in order to have a general overview of the country, several activities and priority sites were taken into consideration, therefore we are not referring to final inventories, but to preliminary ones, especially concerning POP pesticides and unintentional releases; specifically of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans. For the rest of the cases, there were efforts to have more reliable information in order to form the country's baseline. The most relevant data collected was considered regarding this matter.

As a preliminary stage, the project proceeded to conduct awareness raising and information activities to various entities related to the production, use, licensing, etc. on POP, in order to achieve certain opening and carry out the information-gathering work. During this stage it was evident that the public showed interest on the subject, although it is unknown to many, the general public appeared much more aware of the risks and dangers of poor management and were keen in learning what to do with the presence of such substances. Representatives of governmental entities, private companies, academia, manufacturers, traders, students, NGOs and civil society participated during this stage.

2.3.1 Assessment with respect to annex A, part I, chemicals (POP pesticides).

The assessment of POP pesticides is considered within Annex A of the Stockholm Convention (aldrin, chlordane, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, and toxaphene). For this purpose, several tasks were carried out to identify, characterize, quantify and determine the storage location and conditions, while addressing the issue of obsolete pesticides.

--Background on the use of POP pesticides in Guatemala.
The use of synthetic pesticides began in Guatemala in 1949 with the cultivation of cotton; during the decade of the 50's approximately 15,000ha were planted annually, and in cultivation reach about 150,000ha.

When the areas under cultivation began to grow, about eight pesticide sprayings per season were necessary. The level of used pesticide reached 50kg of active ingredient per hectare in the 1971-1972 season. In the 1974-1975 seasons, the levels reached 80kg of active ingredient per hectare.[19]

[19] ICAITI, CONAL, y para 1974/75 en Nicaragua, el Banco Nacional de Nicaragua.

The number of applications increased to 35 and in some cases reached up to 40 applications.[20] Maize production was affected by the pesticide use in cotton since it caused a disruption in the biological equilibrium, which allowed the development of populations of maize leafhopper or "chicharrita" (*Dalbulus maidis)* a mycoplasma vector in maize. Within the most widely used pesticides, it was found that DDT was applied in agriculture and health, and other products such as lindane, aldrin and toxaphene.

As indicated in the document "Problems associated with pesticide use in Guatemala," which was presented at the "Seminar on the problems associated with pesticide use in Central America and Panama", toxaphene was used almost exclusively in cotton and continued to be used even when other organochlorines were replaced by other types of pesticides. However, by 1985 the import was minimal in relation to previous years, as shown in the following table:

Table No 6. Toxaphene imports (kg) in Guatemala.

Imports of toxaphene (kg) in Guatemala.	
1978	4,963, 048.00
1979	2,373,271.00
1980	N/D
1981	491,267.00
1982	443,762.00
1983	790,735.00
1984	243,830.00
1985	61,219.00

Source: Problems associated with the use of Pesticides in Guatemala. Inga. Marit de Campos

Other POP pesticides used during this period were heptachlor and dieldrin; residues of these compounds were identified in the seeds of maize and barley. In addition to their use in agriculture, their use for sanitary measures and the effluents from the industrial makers reached the environment by wind and water erosion, affecting not only the pests that were desired to control, but also other forms of life, causing loss of life or effects such as low growth, changes in habitat, and low reproduction.

According to records of the Rules and Regulations Unit of MAGA, during 1971 to 1989, these pesticides were imported as formulated products or as technical material to be processed in the country by different companies. The imports of DDT for use in agriculture and health programs came primarily from Costa Rica, United States and El Salvador; aldrin from Costa Rica, El Salvador, United States; mirex mainly from Brazil; clordane from Costa Rica, United States, Holland; endrin from El Salvador, Costa Rica, Holland; toxaphene from Brazil, Holland, El Salvador and produced in Guatemala; heptachlor from the United States, Costa Rica and produced in Guatemala; dieldrin from Costa Rica; hexachlorobenzene from Costa Rica, El Salvador and the United States.

Additionally, there are reports on imports (in kilograms) of insecticides, herbicides, fungicides and others from 1978 to 1985 (Table No. 7).

On the other hand, there is information that imported insecticides, organochlorines, comprised 49% in 1978, 38% in 1981 and 7% in 1985.

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[20]- [3]Mejicanos

Despite the rise of cotton cultivation in the country, especially in the early 60's for the 1992-1993 seasons, the sown area had decreased to 22,500ha in the six cotton-producing areas of Guatemala. The main factor for this situation was the deficient control of pests and their cost. Over time, the cotton agriculture has used different pesticides, beginning with the chlorinated pesticides (DDT, hexachlorobenzene, toxaphene, chlordane), then switching to the organophosphates (methyl parathion, azinphos methyl, ethyl parathion, carbaryl); and more recently, the chemical groups of carbonates and pyrethroids.

Table No 7. Imports of insecticides, herbicides, fungicides, and other (kg.) (years 1978-85)

	1978	1979	1980	1981	1982	1983	1984	1985
Insecticides	15,655,321	9,433,302	9,258,078	3,741,674	3,468,268	4,917,739	1,336,024	1,497,520
Herbicides	1,856,195	1,915,434	1,479,737	1,432,869	961,843	1,186,777	2,558,447	702,805
Fungicides	585,990	1,214,926	7,314,419	10,905,843	1,716,289	1,889,151	1,614,396	2,607,097
Other	4,597,029	3,271,771	1,111,768	1,437,823	9,442,488	1,935,606	58,402	267,532
Total	22,694,535	15,835,433	19,164,002	17,518,209	15,588,888	9,929,273	5,567,269	5,074,954
							Total	**111,372,563**

Source: Ministry of Agriculture, Livestock and Food.

In 1976, pursuant the Governmental Agreement No. 27-76 dated on November 15th, the importation of DDT was regulated, setting rates and allocating specific quotas for the import to certain private enterprises, establishing a gradual reduction import, until eliminating its use in agriculture.

Similarly, the Ministry of Agriculture, Livestock and Food -MAGA-, which is the entity responsible for establishing and enforcing regulations related to registration, import, formulation, trade and use of agricultural pesticides and similar substances, through the Ministerial Agreement No. 03-88 dated on January 12th 1988, cancelled the registration of the following POP pesticides used in agriculture: aldrin, dieldrin, chlordane, endrin, heptachlor, hexachlorobenzene and other pesticides such as ethyl parathion, clordimefor, lindane (camphechlor, ethyl parathion, chlordimeform, chlordane, heptachlor, HCH and lindane).

--Methodology for the development of inventories.
The methodology to obtain information for the POP Pesticide Inventory consisted in documentary review, interviews, surveys and technical visits to different places. The survey preparation was developed taking the design suggested by FAO into consideration. Moreover, in addition to develop a POP Pesticides Inventory, it was suggested to gather information and carry out an inventory of obsolete pesticides, not in use or expired.

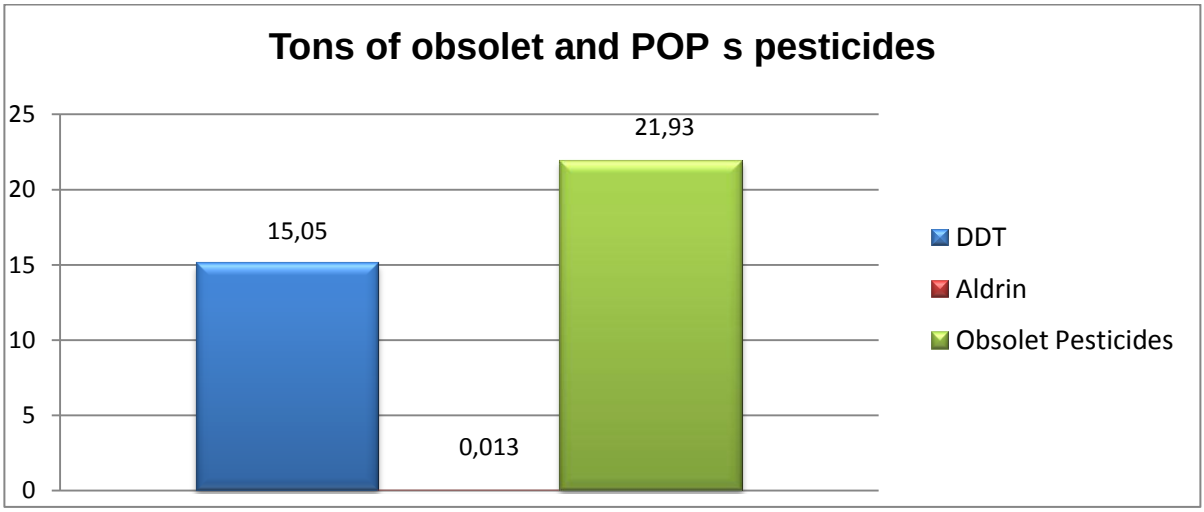
The consultations were carried out to: government institutions, manufacturers, agro-services companies, importing and exporting companies; and, applicator companies concerning the use and storage of pesticides.

--Results.
Prior to initiate the inventory, the project proceeded to carry out an awareness raising phase, which explained on POP, the Stockholm Convention, and POP pesticides.

The results obtained in the POP pesticides inventory were limited, since only the pesticide aldrin was found; and, regarding health sector, only DDT was found, which corresponds to the work within the Project DDT/GEF, that promotes the fight against the malaria without the use of DDT. The project's stocks have already been collected for their posterior management, which were about 15.05 tons of DDT.

Regarding the aldrin, the amount found was minimal, 0.133 tons equivalent to 13.3 kilograms of aldrin. Other obsolete pesticides were also found in this preliminary inventory, identifying about 21.93 tons of different types of pesticides, owned by several companies that provided data on their stocks. The following figure shows these results:

Figure No 6. Results of the POP pesticide inventory.



Source: COP and obsolete pesticides inventory

In the year 2009, around 36,424.84 tons of obsolete pesticides were reported, which are not included in the POP Pesticides and Obsolete Pesticides preliminary inventory document.

2.3.2 Assessment of polychlorinated biphenyls PCB/BPC (assessment with respect to annex A, part II, PCB/BPC chemicals).

-- Background of the polychlorinated biphenyls (PCB/BPC) in Guatemala.

Under the framework of the Basel Convention, a preliminary inventory of PCB/BPC was carried out during 2005 and 2006, by the project "National Inventory and Development of National Action Plan for the Environmentally Sound Management of PCB/BPC and Equipment containing it in Guatemala".

This project was undertaken as part of a Central American regional project entitled "Preparation of National Inventories and National Plans for the Environmentally Sound Management of PCB/BPC and equipment containing PCB/BPC in Central America". The project's objective was to identify and plan the main actions that should be implemented in Guatemala, to provide an environmentally sound management of polychlorinated biphenyls stocks identified in the country. That work also included the identification of sites contaminated with PCB/BPC; and, also enabled the generation of useful information about the condition of the identified equipment, including risks to health and environment.
The total amount of PCB/BPC identified during this inventory was 90,833 liters. The results obtained during this work period were taken as the basis for updating the following inventory, which was carried out under the Stockholm Convention in 2008.

-- Methodology for the PCB/BPC inventory update.

As part of the activities carried out in the second phase of the project "Training Activities to Facilitate the Stockholm Convention Implementation", it was stipulated to update this inventory, and for that purpose several tasks were planned in order to: a) validate data in the electricity sector obtained in the preliminary inventory (2005-2006); b) continue with the identification of equipment with PCB/BPC;
c) Identification of contaminated sites, d) awareness rising phase to all sectors in order to disseminate the objectives of the Convention Stockholm and the project.

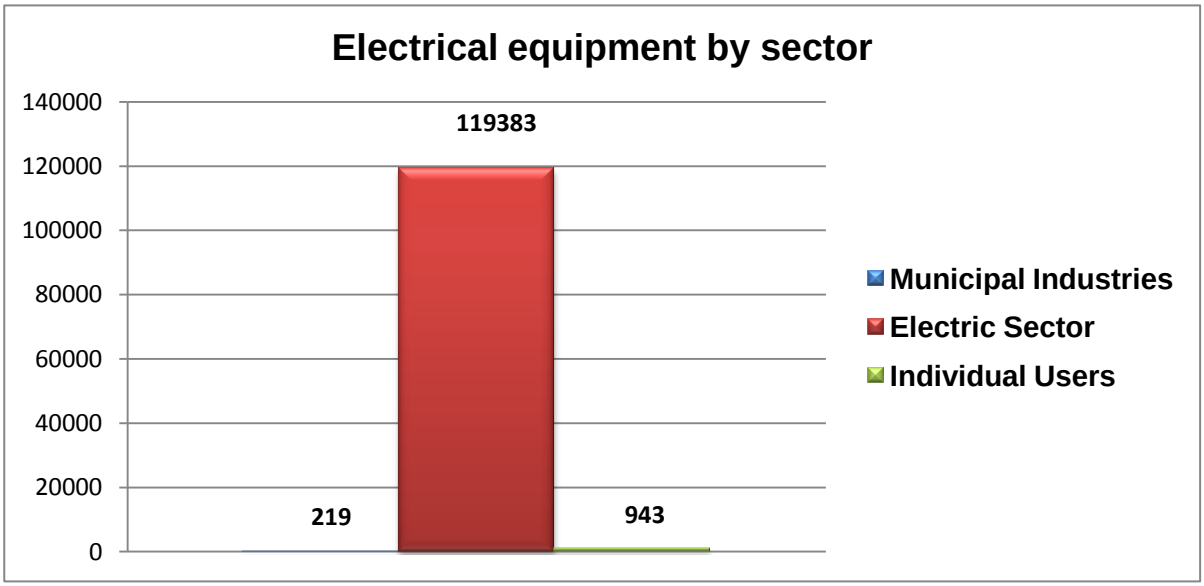
The individual actions consisted in reviewing the information obtained from preliminary meetings with representatives of the electric sector and thus validate and update data, field inspections to identify equipment containing PCB/BPC, quick measurements and gather information in ballots.

The work carried out in the PCB/BPC National Inventory updating includes only closed applications (electrical equipment such as transformers, obsolete and operating capacitors), and information regarding the storage of oils and wastes, which were contaminated with PCB/BPC, was also included.

-- Results.

The obtained results report 120,545 electrical equipment, distributed into three main sectors: the electricity sector comprising the most important electric companies in the country, such as UNION FENOSA, National Electrification Institute -INDE-, and Guatemalan Electric Company -EEGSA-, which combined have the largest quantity of equipment, about 119,383; the individuals users that comprise the mills, hospitals, industries, government institutions and others, have 943 teams; and lastly the municipal electric companies that have 219 equipment.

Figure No 7. Electrical equipment distribution by sectors.

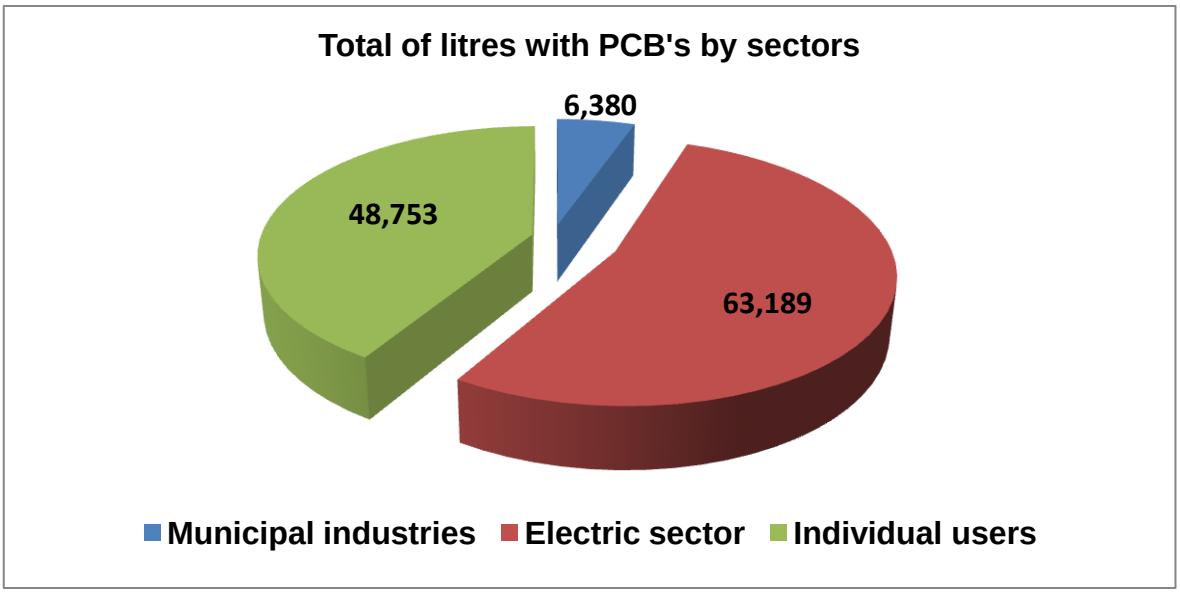


Source: Preliminary PCB/BPC inventory, 2008

Based on all the equipment reported in the inventories (2005-2008), fundamentally carried out for capacitors and transformers, both for power and distribution; the total reported amount of oil with BPC/BPC is 118,322 liters. Regarding this amount, the municipal companies have the least amount, with 6,380 liters; individual users have 48,753; and, the electricity sector reported the amount of 63,180 liters of equipment with PCB/BPC.

However, the quantity of PCB/BPC increased since 250 barrels with PCB/BPC oil were reported in one of the electric companies, which is equivalent to 53% of the total oil with PCB/BPC.

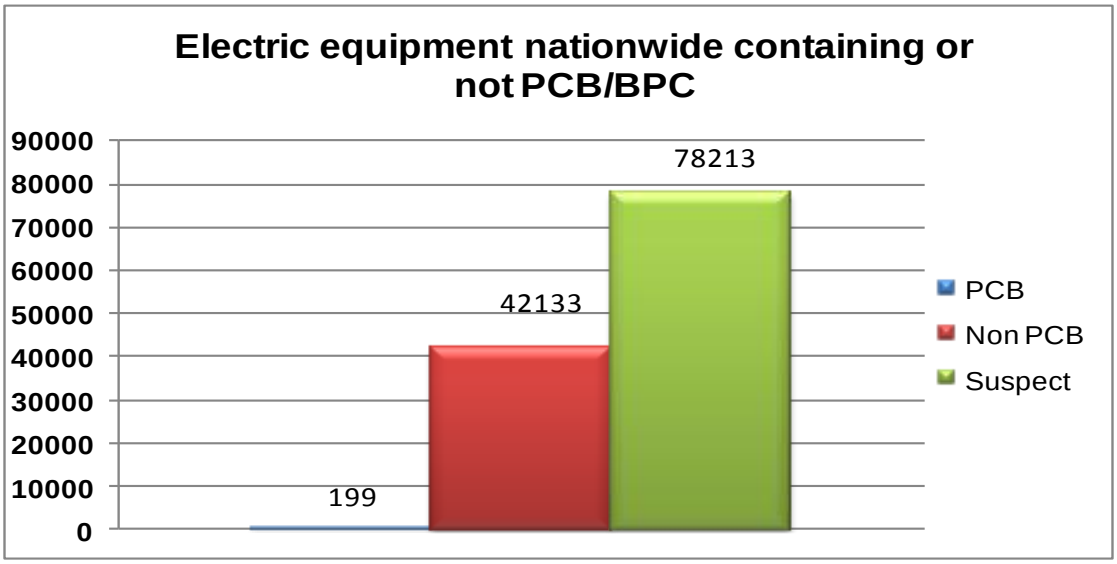
Figure No 8. Total of liters with PCB/BPC on the diferent sectors.



Source: Preliminary PCB/BPC inventory

For the analysis of electrical equipment nationwide, different methodologies were applied: i.e. eye-inspection of the transformer's plate, as long as it has not undergone maintenance; analysis with the chloro-N-oil kit; and mainly, transformer's year and brand. Through these investigations, it was determined the existence of 199 equipment containing PCB/BPC, which is equivalent to 0.17% from the total; 42,133 equipment without PCB/BPC was identified, which is equivalent to 34.95%; and those that could not be verified were classified as equipment "suspicious" of containing PCB/BPC or not, with a total of 78,213 equipment, which is equivalent to 64.88%; all the equipment represents a total of 120,545. The percentages are illustrated in the chart below:

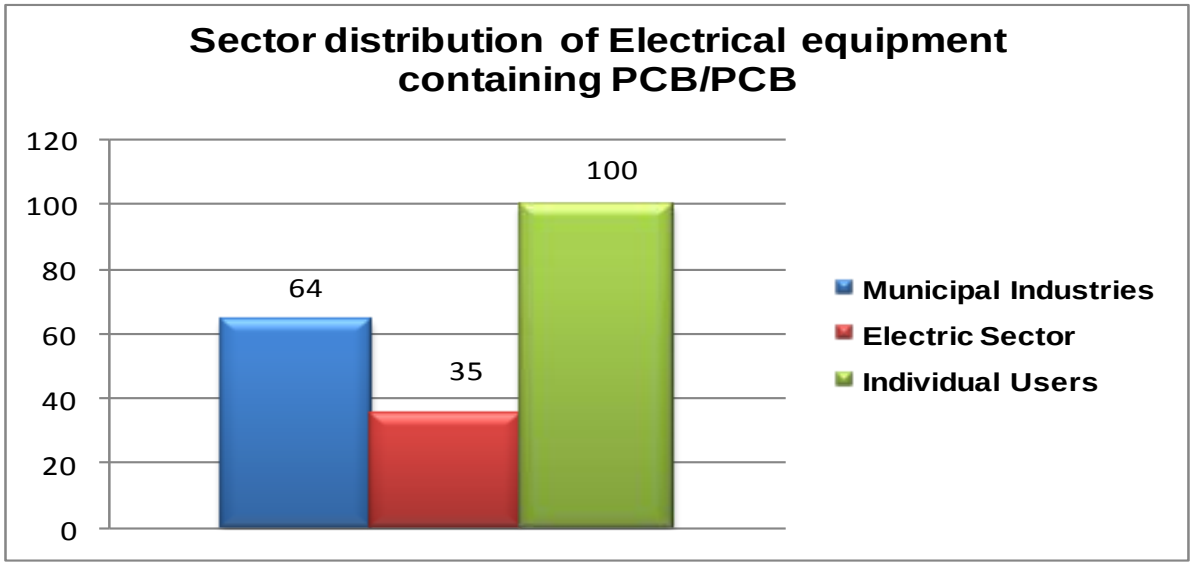
Figure No 9. Electrical equipment nationwide containing or not PCB/BPC.



Source: Preliminary PCB/BPC inventory, 2008.

The amount of various equipments containing PCB/BPC corresponds mainly to particular users, with a total of 100 equipments, equivalent to 50.25%; followed by municipal companies with 64 equipments, that represents 32.16%; and finally, the electricity sector with 35 equipments that represents 17.59%, according to data provided by the electric companies. This relationship is shown in the following chart.

Figure No 10. Sector distribution of electrical equipment containing PCB/BPC.

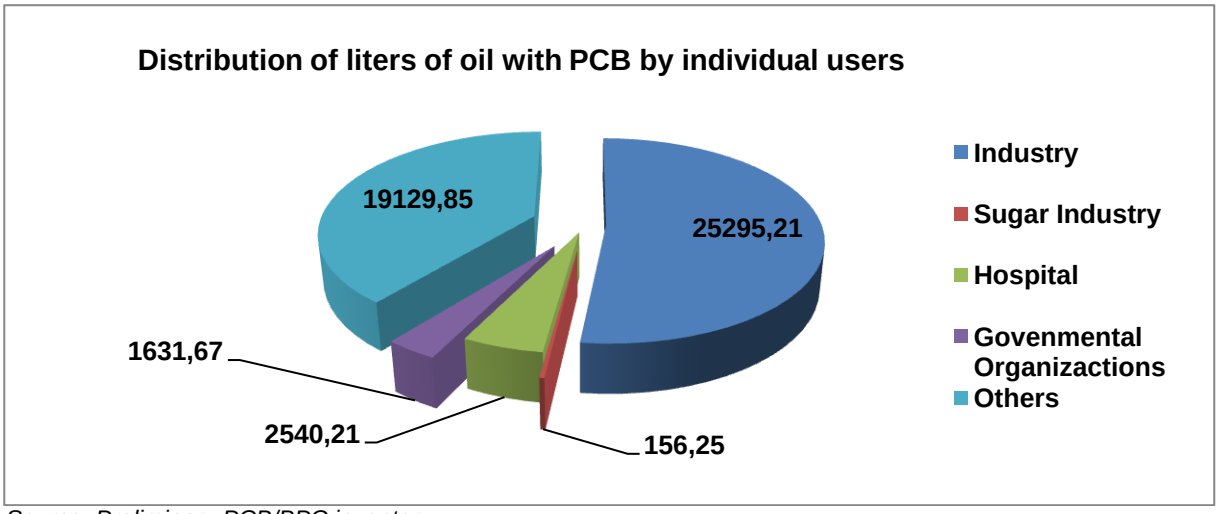


Source: Preliminary PCB/BPC inventory, 2008.

Although the sector of individual users has the largest amount of equipment with PCB/BPC, according to the data obtained in this preliminary inventory, it is important to highlight that such equipment remains in better storage conditions than the other sectors, specifically those owned by the municipal electric companies.

From a total amount of 943 reviewed equipment, belonging to individual and particular users, it was identified that the equipment containing PCB/BPC is: 100 equipment, of which 23 are power transformers, 72 distribution transformers and 5 capacitors and other equipment. Within the sector of individual users, the industry sector has the largest amount of equipment and the greater volume of oil with PCB/BPC, with a total of 25.295 liters, which represents a 51.88% of the total liters that the sector has.

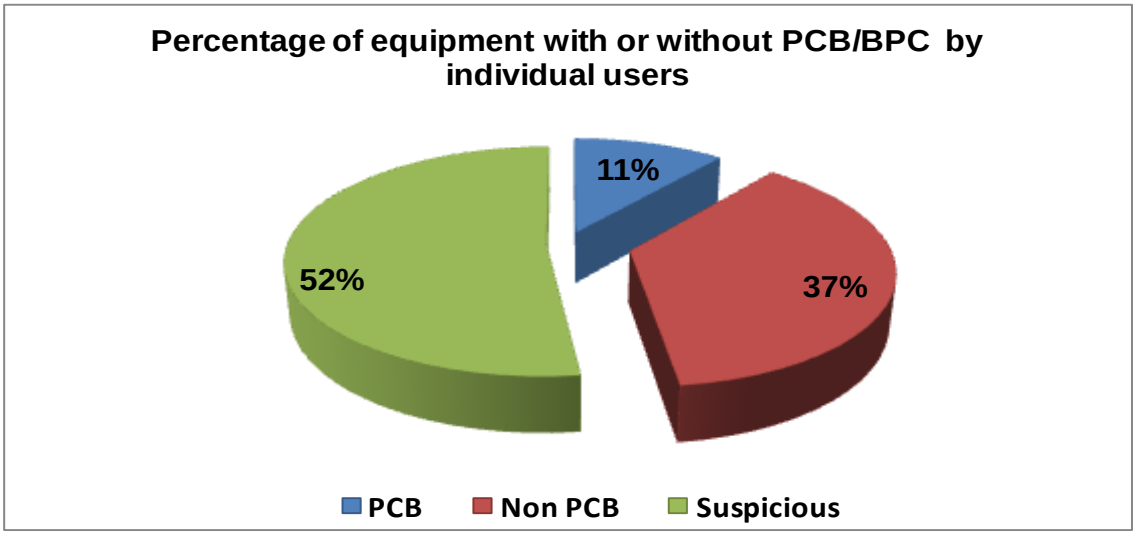
Figure No 11. Distribution of oil volume with PCB/BPC in each indivual business sector.



Source: Preliminary PCB/BPC inventory

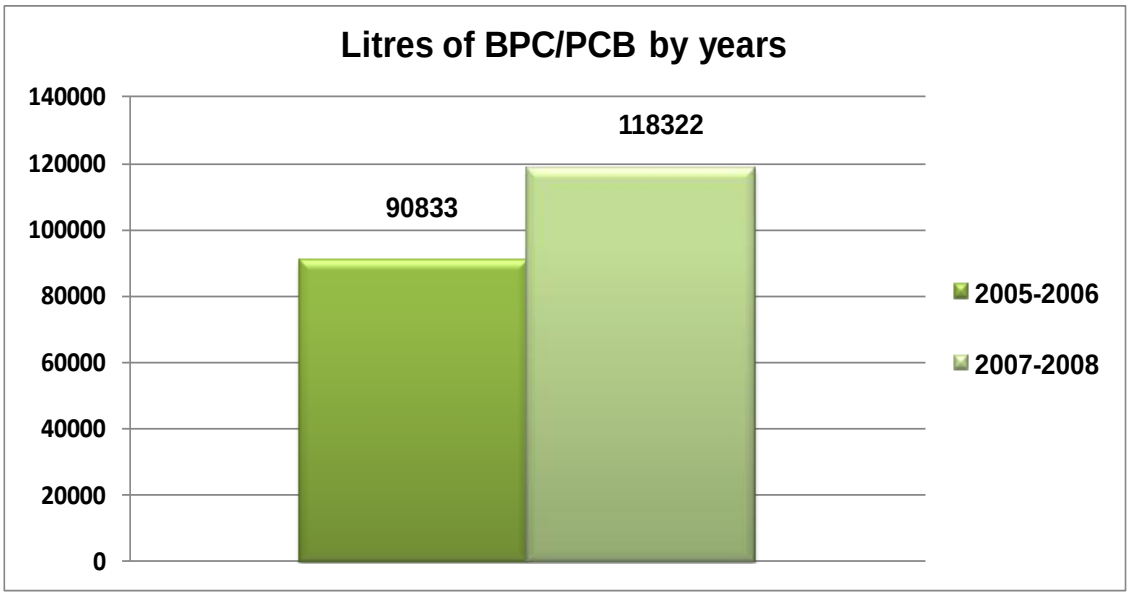
Despite the results obtained so far, and that the inventory tried to cover as many activities as possible, there are many companies still to be verified, in addition to rule out any equipment that until now has been classified as suspcious since it couldn't be verified during the inventory phase, which exceed 50% of the identified equipment. Such results are shown in the following charts:

Figure No 12. Percentage of equipment with or without PCB/BPC.



Source: Preliminary PCB/BPC inventory

Figure No 13. Total amount of liters of oil with PCB/BPC reported in the inventories carried out during 2005 and 2008.



Source: Preliminary PCB/BPC inventory

Figura No 14. Transformers in the open air.

Source: Preliminary PCB/BPC inventory

2.3.3 Assessment of DDT (annex B, chemicals (DDT)).

--Background of DDT use in Guatemala.

The compound 1,1,1-trichloro-2,2-bis (4-chlorophenyl) ethane -DDT- dichlorodiphenyltrichloroethane was used in the agriculture and health sector in 1950. Following the recommendations of the XIV Pan American Sanitary Conference held in Santiago de Chile in 1954, and of the VIII World Health Assembly in Mexico the following year, most countries of the region passed on laws to eradicate malaria and created national Specific organizations for such purpose, which had the monitoring of the organochlorine insecticide use as main strategy.

The application of DDT, mainly in agriculture, was intense due to the size of the cotton crops; the southern and southeastern coast region were largely dedicated to cotton production in order to meet international demand, domestic farms such as Cuyuta were extensively cultivated.

The application of DDT every six months started in 1959, and by 1963 the mosquitoes showed a nascent resistance to the compound, which widespread in 1965 and successively increased; this situation was a consequence of the unlimited use of organochlorine pesticides in cotton cultivation.

As well as the use of DDT in agricultural production, some pesticides in arthropod control programs were used in Guatemala, such pesticides are vectors of certain diseases that affect humans; the domestic application was used to control malaria, directing such application to walls and floor using several kinds of insecticides, including DDT, dieldrin, chlorphoxim, fenitrothion, proporxur, ficam, and recently deltamethrin. [21]

It is estimated that the country used during the 1958-79 period, and specifically for the health sector, a total of 302 tons of DDT at 100% and 4,488 tons of DDT at 75%; such was applied in 7.5 million households with an average of 0.63kg product per household.

In a research conducted in the country in 1971[22], the maximum level 12.2 mg/L of DDT in human milk was identified, nearly 250 times higher than the limit of 0.05 mg/kg established by FAO/WHO for cow's milk. This level of contamination was found in a mother from the La Gomera municipality, in the department of Escuintla. This woman had work cutting cotton for 25 years, and has the highest level ever reported in scientific literature worldwide. In addition to DDT, high levels of other organochlorines were also found. This finding led to a series of investigations of residues, as in human milk and human adipose tissue obtaining different results.

Since 1970 Guatemala, through the Unified Laboratory of Food and Drugs Control (LUCAM), current National Health Laboratory, the Central Institute of Industrial Research and Technology (ICAITI), and the Research Laboratories of the Del Valle and Mariano Galvez Universities, has carried out studies regarding contaminants in food, humans, water and other sources; each one of them in different periods according to its priorities and availability.

Similarly, since 1981 the Ministry of Health and Social Assistance (MSPA) has carried out screenings of pesticide residues in products for local consumption, and has regularly monitored aflatoxin residues, toxic metals, organochlorine pesticides and organophosphorus pesticides in the common Guatemalan food intake. As methodology for such control, MSPA has purchase different foods typical of the Guatemalan diet of lower-middle class, and cooked them for subsequent sampling and analysis, and thus determining existing concentrations. The average analysis was 10 analyses per year.

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[21] Aguilar Murillo, C. SNEM 1993

[22] Current situation of the use and management of pesticides in Guatemala. Marit de Campos & Jacobo Finkelman

The different findings regarding DDT used in agriculture led to restrictions on its imports. In 1976 by the Governmental Agreement No. 27-76, limitations for the importing companies were stipulated, establishing 1974 as the basis year for the reduction of imports, which limited its import gradually, virtually eliminating it by 1980.

According to information provided by the Standards and Regulations Unit of the Ministry of Agriculture, Livestock and Food (MAGA) there were 25 companies that imported the formulated product and raw materials for Diclodo–Diphenyl-Trichloroethane (DDT) production. A total of 12,337.88 tons of imported pesticide were registered during the period from 1974 to 1980.

Table 8 presents some DDT imports by companies and health agencies in 1974 and 1975; as well as, an estimate of imports in kilograms under the restriction set forth in the Governmental Agreement No. 27-76.

Following this restriction, the concentration levels of DDT in the body decreased, for example there was a 36% reduction in human milk according to the levels found in 1974 in the departmental capital of Escuintla, which reported a maximum of 3.37 mg/L for 1982. Regarding the 1982 studies of human adipose tissue, LUCAM analyzed 44 samples from autopsies of newborns, children and adults in rural areas and the capital city. The concentrations found were higher in rural areas than in the capital city. There are records of a 72 year-old farmer who had a level 13 times higher than the level of 15 mg/kg considered the standard for human adipose tissue in developed countries.

Table No 8. DDT imports in Guatemala from 1974 to 1980.

	Imports in kg		**Maximum permissible imports (kg) pursuant to Governmental Agreement No. 27-76 (estimated amounts)**					
Company	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**	**1980**	***1974 – 1980***
Bayer	1,093,750	656,250	525,000	393,750	262,500	131,250	-	*3,062,500*
Agroquímicas	1,093,750	656,250	525,000	393,750	262,500	131,250	-	*3,062,500*
Shell	666,667	400,000	320,000	240,000	160,000	80,000	-	*1,866,667*
Monsanto	449,469	269,681	215,745	161,809	107,873	53,936	-	*1,258,513*
INASA	626,552	375,931	300,745	225,559	150,373	75,186	-	*1,754,346*
Fertica	354,167	212,500	170,000	127,500	85,000	42,500	-	*991,667*
OMS	18,908	11,345	9,076	6,807	4,538	2,269	-	*52,943*
Malaria	95,833	57,500	46,000	34,500	23,000	11,500	-	*268,333*
Superb	417	250	200	150	100	50	-	*1,167*
Bustamante	2,500	1,500	1,200	900	600	300	-	*7,000*
Bandegua	3,958	2,375	1,900	1,425	950	475	-	*11,083*
Valenzuela	417	250	200	150	100	50	-	*1,167*
Total	**4,406,388**	**2,643,833**	**2,115,066**	**1,586,300**	**1,057,533**	**528,767**	**-**	***12,337,885***
Reduction	**100%**	**60%(1974)**	**80%(1975)**	**60%(1975)**	**40%(1975)**	**20%(1975)**	**0%**	**-**

By the early nineties, organochlorine pesticide use declined significantly; because, in addition to the import restriction for DDT, in 1988 it has prohibited the import, production and use of other POP pesticides. It was only in the health sector that DDT was used for malaria control.

However, due to international requirements of WHO on the prevention and eradication of malaria in its different components, and the "Regional Project of Action and Demonstration of Sustainable Alternatives for Control of Malaria Vector without Using DDT in Mexico and Central America" that the Guatemalan health sector began to carry out inventories for their stocks and to implement demonstration alternatives to control the malaria vector without DDT. As an alternative to the use of DDT for pest control, the health sector is promoting biological control in crops, or the use of synthetic pesticides such as pyrethroids.

The efforts of the health sector identified a total of 14.5544 tons of DDT at 100%, which to date remain stored in facilities of the Ministry of Public Health and Social Assistance, located in Zone 7 of Guatemala City (La Verbena); and 171.34kg., are located in the health centers in different departments, which are pending of final disposal.

-- Methodology for inventory's development.
The methodology used is the same as the POP pesticides inventory; document review, interviews, surveys and technical visits to different sites using the survey which incorporated data from different POP pesticides as DDT; besides, the literature of the work and results in health sector research was additionally reviewed.

-- Results.
According to information gathered through the surveys carried out to several entities, to date there are DDT stockpiles that were used in agriculture; however, a number of farms and warehouses where it is known that DDT had been used or stored were identified, which will serve as reference of sites contaminated by this compound and for subsequent actions.

Moreover, there is data collected by the health sector in 2004 that revealed a total of 15,057.70 kg of DDT, which were found in different store centers throughout the country.[23]

Table No 9. DDT found in national territory.

Department (county)	Municipality	Amount (kg)	Concentration
JUTIAPA	EL PROGRESO	59.54	100%
JALAPA	JALAPA	20-90	100%
GUATEMALA	GUATEMALA	14,886.36	100%
SUCHITEPEQUEZ	MAZATENANGO	90.90	100%

Source: Final regional report, inventory updating of DDT and other persistent pesticide stockpiles in Mexico and Central America, health sector.

2.3.4 Assessment of releases from non-intentional production (annex C, chemicals (PCDD/PCDF, HCB and PCB/BPC).

-- Background on unintentional POP emissions.
In the beginning of the inventory of unintentional releases, Guatemala determined that its scope would be aimed to develop a preliminary inventory for Polychlorinated dibenzo-para-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), due to the lack of information and methodology to estimate the HCB and PCB/BPC releases.

Guatemala, in that moment did not have previous experience in the research of this field. However, there is the case of private companies that had carried out specific sampling due to governmental authority requests (in one case) or by the request of their main offices based outside of Guatemala. Also private companies have researched this issue because of market requirements.

[23] Situational Diagnosis of DDT Use and Malaria Control. Ministry of Public Health and Social Assistance, 2004

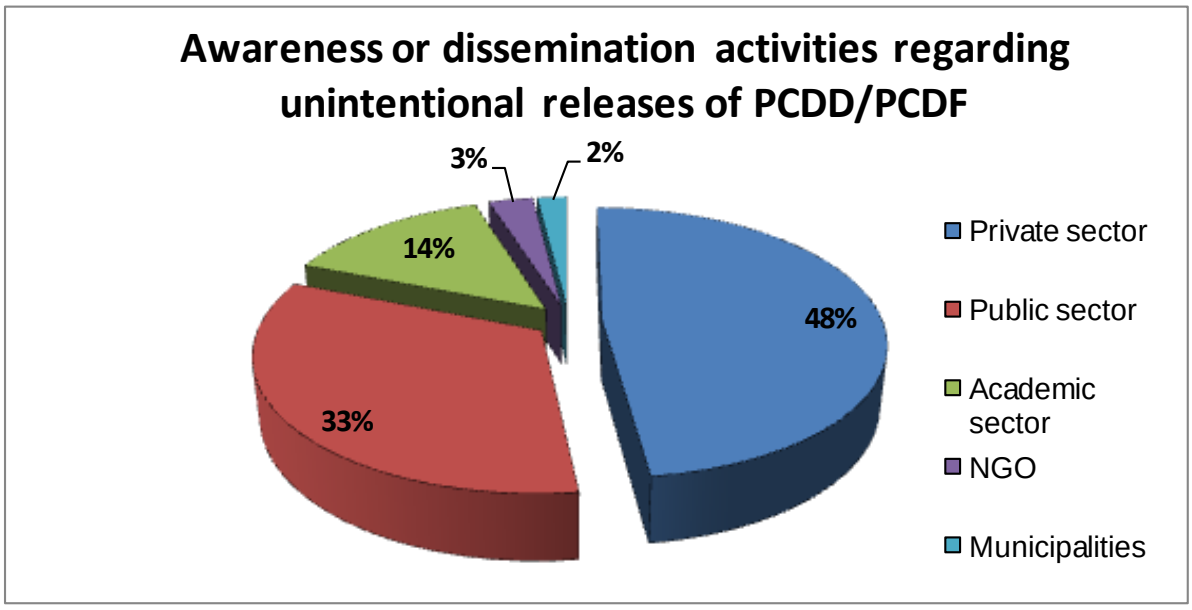
Regarding regulation, there are a few norms that tacitly refer to the prevention of pollution by chemical or toxic substances, the only regulation that specifically mentions it, is the Governmental Agreement Number 509-2001 - Regulation for Hospital Solid Waste Management, which establishes a dioxin and furan emission parameter, specific for medical waste incinerators, establishing maximum permissible levels of less than 0.5ng/m^3 for critical zones and the rest of the country. However, a process to verify its compliance wasn't determined, due in part to the fact that the country does not have the analytical and the monetary capacity to do such verification abroad.

The background reviewing stage of polychlorinated dibenzo-para-dioxins and polychlorinated dibenzofurans produced important information since the issue is relatively new and in most of the cases are still unknown. It was also evident that more dissemination and raise awareness across the country is needed.

-- Inventory methodology.
The methodology from the Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases that is proposed by UNEP, was used to carry out the first dioxin and furans inventory, because calculations on such emissions can be obtained by means of this methodology. Also, the source categories proposed by the Toolkit were prioritized due to their wide scope; considering the most important categories for the country. The activities carried out were: adaptation of the ballot proposed by UNEP, establishing of contact with various public and private institutions, ballots were sent or field visits scheduled, review and analysis of information and final calculation.

-- Results.
As a starting point to the inventory, a process to raise awareness was implemented, for populations and institutions related or involved in the matter. The awareness process took place in two different parts: 1) directly to the visited industrial facilities; and, 2) in training activities, workshops and/or meetings, in which representatives from the public and academic sector, NGOs and municipalities participated. The following graphic shows the participation, of the previously mentioned sectors, in the dissemination process.

Figure No 15. Awareness or dissemination activities regarding unintentional releases of PCDD/PCDF.



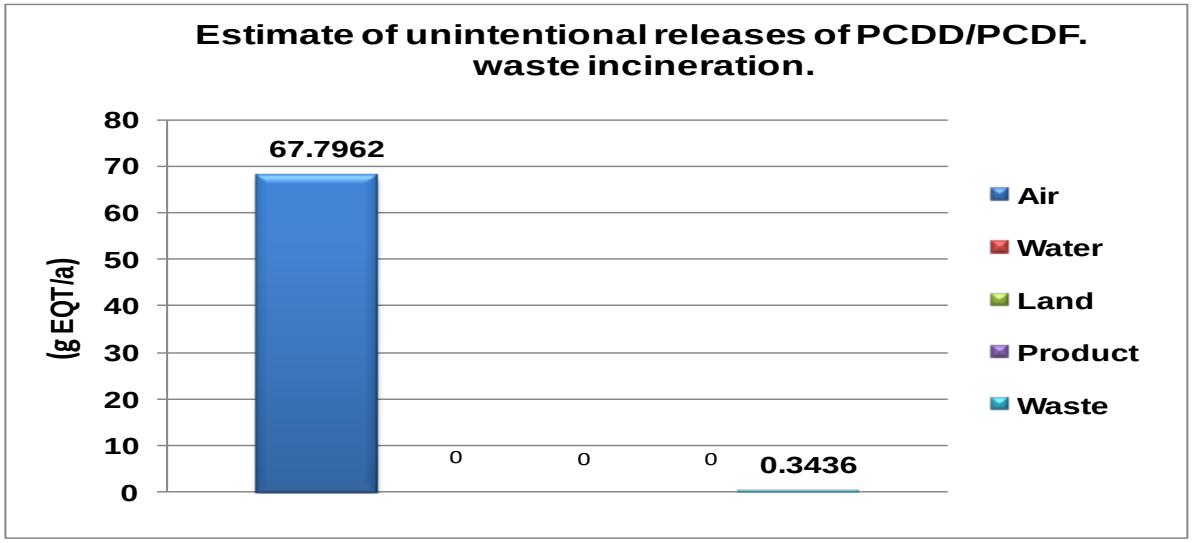
Source: Preliminary dioxin and furan inventory

The baseline year for the development of the first dioxin and furan inventory was 2007. The main experience in conducting the national dioxin and furans inventory was the openness of medium and large companies, which as transnational enterprises and/or of foreign funding, I already have environmental guidelines, some with environment management systems already implemented and/or in the process of being certified. This participation was positive since production volumes are fairly representative of the industrial activity in Guatemala; however, these companies represent only 15% of the national industry. According to information from the Ministry of Economy, 85% of the national industry is represented by the SMEs (small and medium industries), many of which lack adequate operating conditions, especially in the production of ferrous and nonferrous metals; as well as, in the production of mineral products. The data obtained is expressed in "grams of toxic equivalents per year" (g TEQ / a).

-- Category 1. Waste incineration. Year 2007.

Several industrial and service activities dedicated to the incineration of industrial and dangerous wastes were contacted; as well as, companies dedicated to incinerate hospital wastes. This is the most important sub category in which the reduction of releases by the implementation of pollution controlling systems is highly expected. This reduction should be implemented in one of the incinerating companies for hospital wastes since it manages a large amount of wastes.

Figure No 16. Estimate of unintentional releases of PCDD/PCDF.

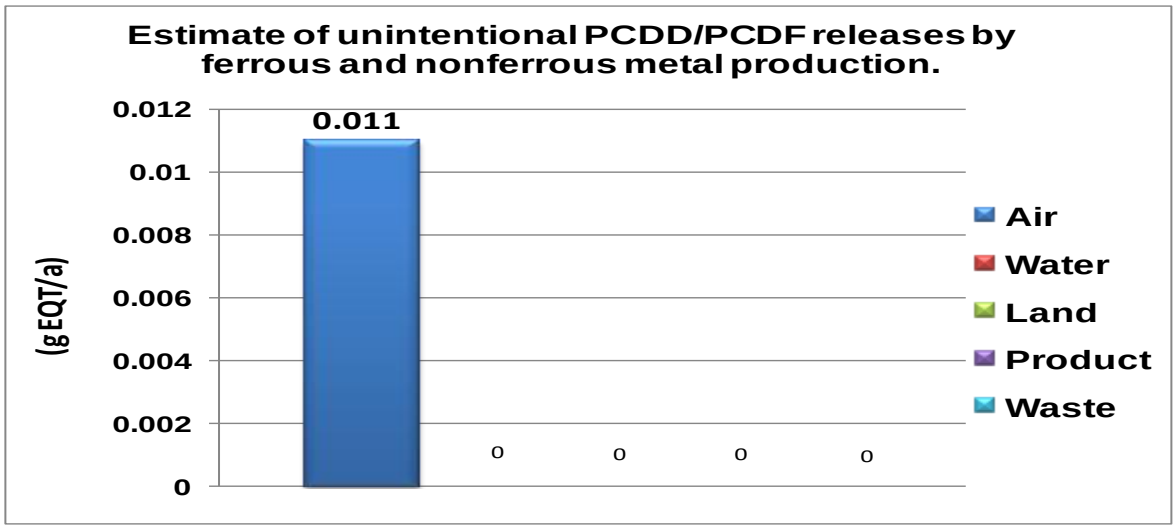


Source: Preliminary dioxin and furan inventory

-- Category 2. Ferrous and nonferrous metal production.

Includes several types of companies, from which different companies dedicated to iron, steel and foundries processes activities were contacted. It also includes other locations of hot-dip galvanization and lead processing.

Figure No 17. Estimate of unintentional releases of PCDD/PCDF by ferrous and nonferrous metal production, year 2007.

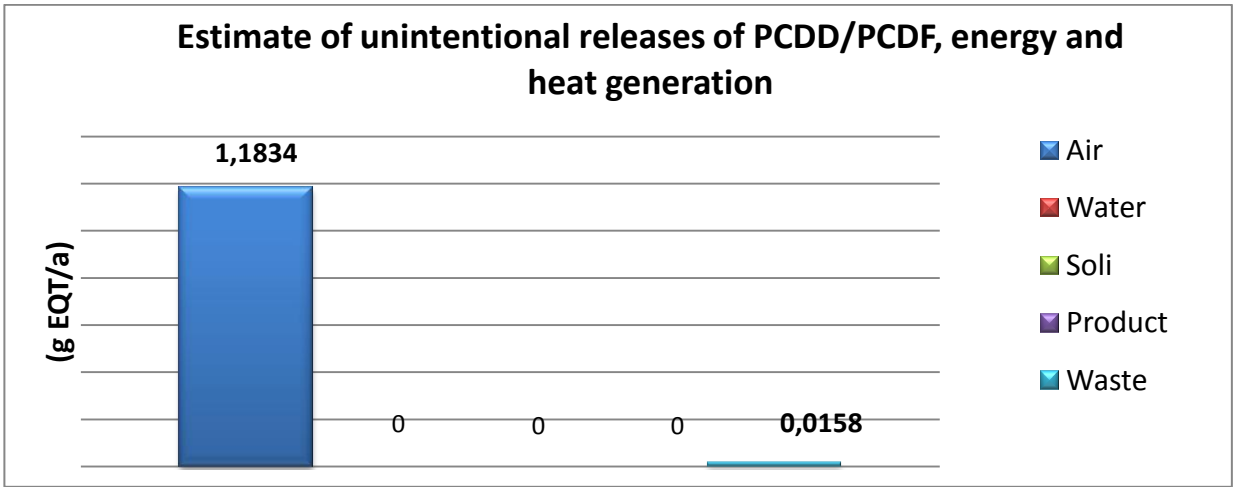


Source: Preliminary dioxin and furan inventory

-- Category 3. Energy and heat generation.

The activities included were: energy generation activities, thermal power plants, powered by fossil fuels or coal, and electrical power plants that use biomass. The information used for this category was obtained by direct consultation to the companies that generate energy, as well as from information gathered by institutions related to the issue[24]; however, there was no access to the quantity of ashes generated in this activity. Nevertheless, for category 3, an increase on the unintentional PCDD/PCDF releases is expected, because the use of coal for electricity generation has been encouraged by the Government, up to date, there are approximately 5 projects in planning and/or authorization process.

Figure No 18. Estimate of unintentional releases of PCDD/PCDF. Energy and heat generation, year 2007.

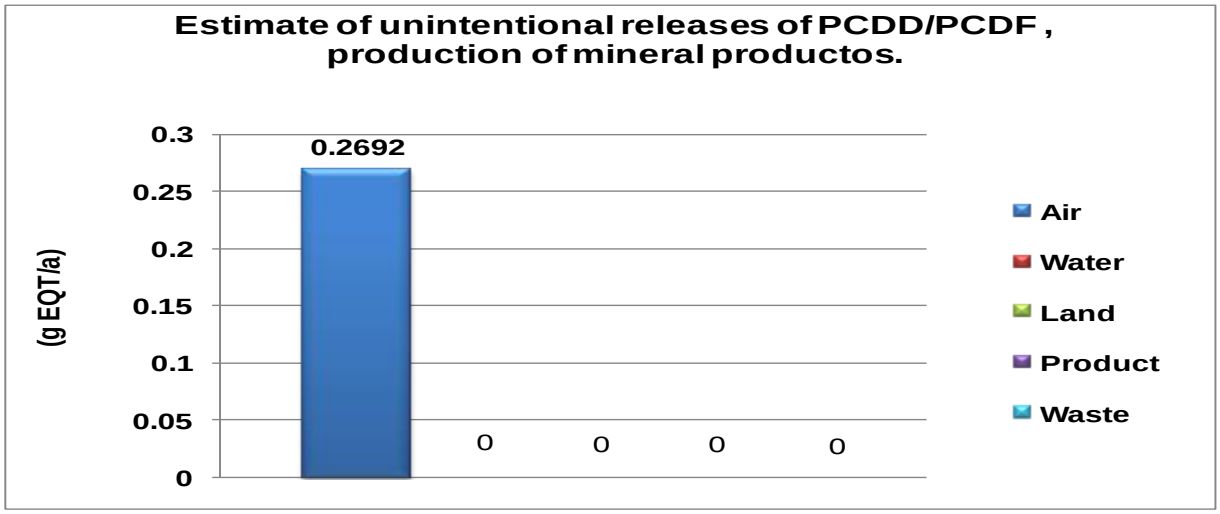


Source: Preliminary dioxin and furan inventory

[24] Energy Office, Ministry of Energy and Mines.

-- Category 4. Production of mineral products.
Includes production of cement, lime, bricks, glass, ceramic and asphalt mixture. In this regard, there is representation on each one of the indicated subcategories, since it was possible to obtain information from all of them, which although do not represent 100%, are fairly representative of their sector

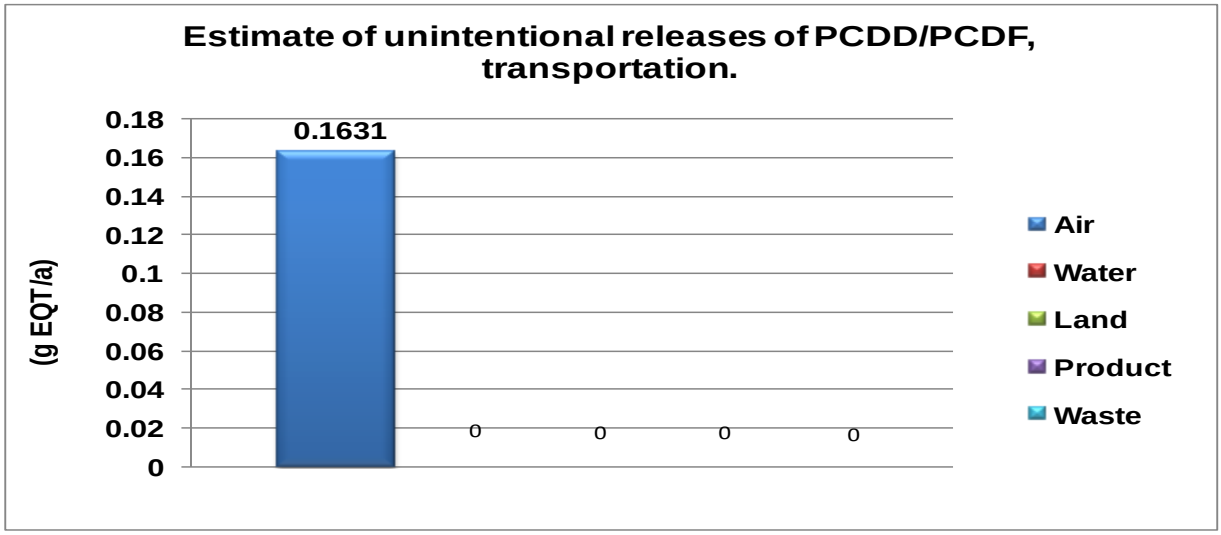
**Figure No 19. Estimate of unintentional releases of PCDD/PCDF.
Production of mineral products, year 2007.**



Source: Preliminary dioxin and furan Inventory

-- Category 5. Transportation. This estimation was produced with statistic information regarding the vehicle fleet, import and fuel use.[25]

**Figure No 20. Estimate of unintentional releases of PCDD/PCDF.
Transportation, Year 2007.**



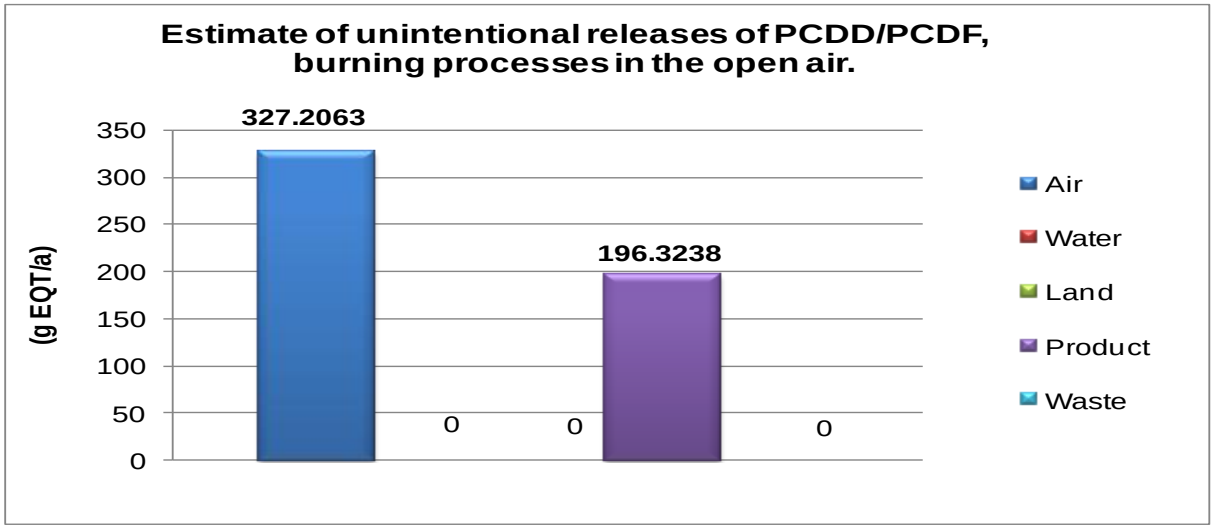
Source: Preliminary dioxin and furan inventory

[25] Tax Administration Superintendency –SAT-; Ministry of Energy and Mines –MEME-.

-- Category 6. Burning processes in the open air.

Includes uncontrolled combustion processes, burning in the open air, mainly related to the burning of wastes. There is very little systematic information on this regard; therefore, official documents were used as reference[26], especially regarding the burning of house wastes, common activity carried out in the rural area of the country. The consulted documents present estimations of waste generation for the year 2007 for all departments in the country, except for the department of Guatemala. Previous data was linked to information generated by INE in order to estimate releases in this category. Information about the burning of agricultural residues, landfill, industrial, household and factory fires is not included at this time.

**Figure No 21. Estimate of unintentional releases of PCDD/PCDF.
Burning processes in the open air, year 2007.**



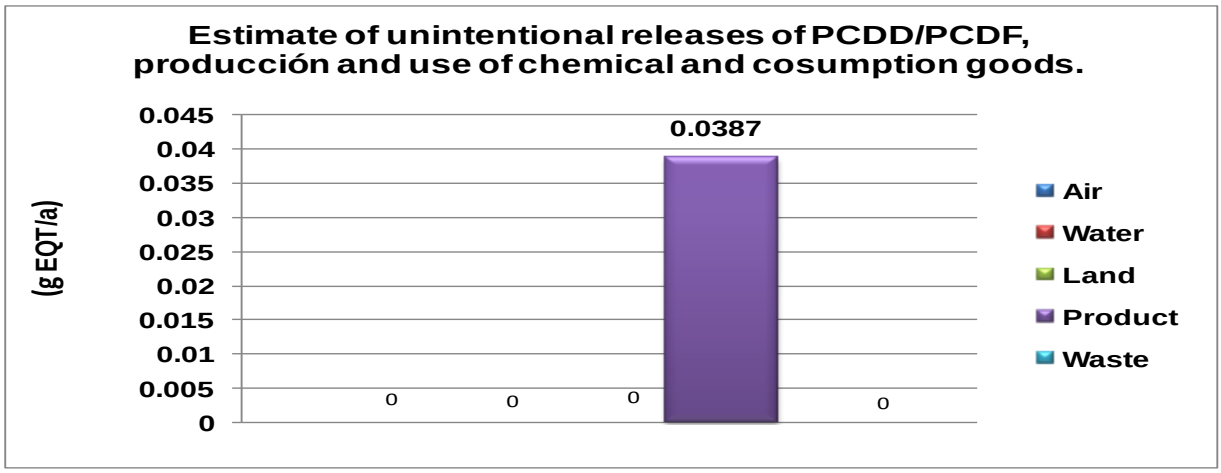
Source: Preliminary dioxin and furan inventory

-- Category 7. Production and use of chemicals.

There are no registries in Guatemala for the production activities of chemical substances such as pentachlorophenol (PCP), polychlorinated biphenyls or chlorinated pesticides, only for elaboration processes of recycled pulp of disposed paper that, although, no bleach is used in the whitening process, the raw material might contain it. Estimations on this category are mainly focused on these types of processes since it was not possible to address the subcategories related to textile, leather and oil refinery plants.

[26] First Report on Household Solid Wastes. Ministry of Environment and Natural Resources/ Rafael Landívar University. Ingeniero Jorge Enrique Vargas Mantilla phD, version 1. 2007

**Figure No 22. Estimate of unintentional releases of PCDD/PCDF.
Production and use of chemical and consumption goods, year 2007.**

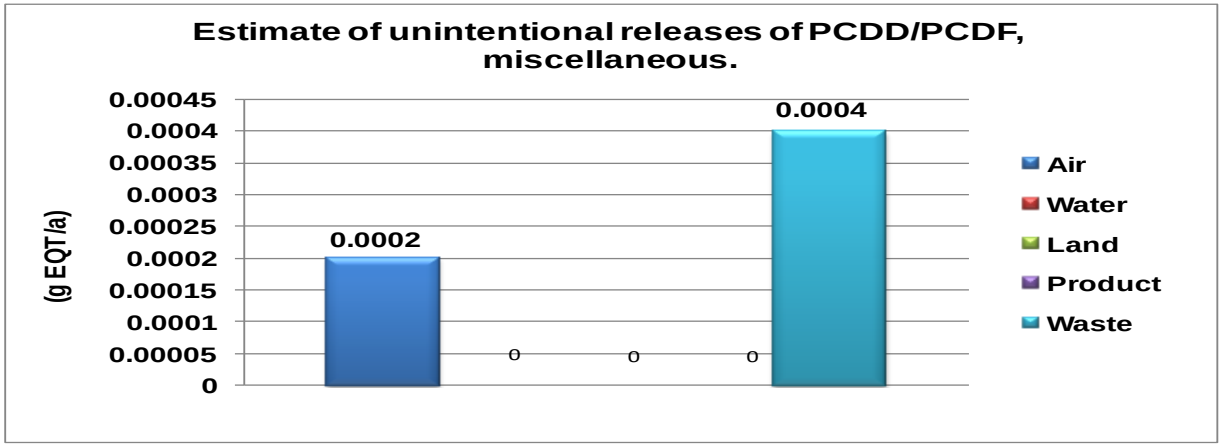


Source: Preliminary Dioxin and Furan Inventory

-- Category 8. Miscellaneous.

The miscellaneous category combines several types of activities, including the drying of biomass, crematories or cremation services, smoke chambers, dry cleaning residues and tobacco consumption. For this inventory, activities such as crematory, smoke and tobacco consumption were considered when elaborating the estimations. Companies that process meat, especially smoked sausages and crematories, were contacted. Regarding cigarette consumption, this information was estimated based on statistical data, according to official usage numbers.

Figure No 23. Estimate of unintentional releases of PCDD/PCDF, miscellaneous 2007.

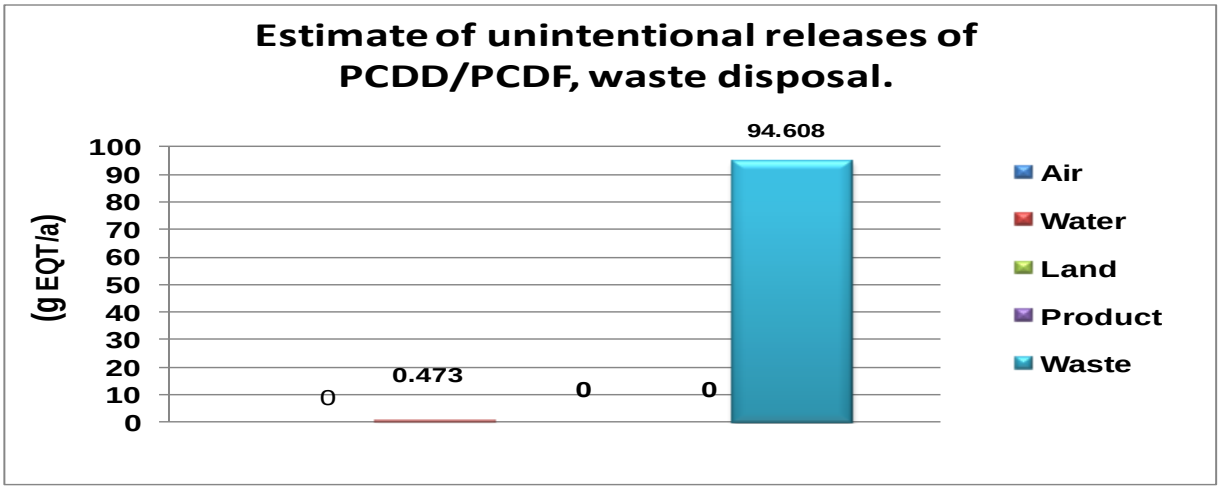


Source: Preliminary Dioxin and Furan Inventory

--Category 9. Waste disposal.

This category accounts for activities as leachate in landfills, discharges in water and compost activities. For this, information regarding landfill leachate is presented, information that needs to be completed as the rest of the country's information is systematized [sic].

**Figure No 24. Estimate of unintentional releases of PCDD/PCDF.
Category 9, waste disposal, year 2007.**



Source: Preliminary Dioxin and Furan Inventory

-- Category 10. Hot spots.
At this time, this category was not considered.

-- Final results for the dioxins and furans (PCDD/PCDF) national inventory.
All results gathered per category were unified to establish the complete data on the quantification of total estimations for the country, specifying at the same time, estimated release quantities per year onto the different sources (air, water, soil, products and residues). Results show main release categories according to current results. The following categories are presented in order of importance: open sky burning, final disposition and waste incineration. Total results from the national PCDD/PCDF Inventory show that for the year 2007, based addressed categories and sub categories, the total were of 688.g EQT/a [sic].

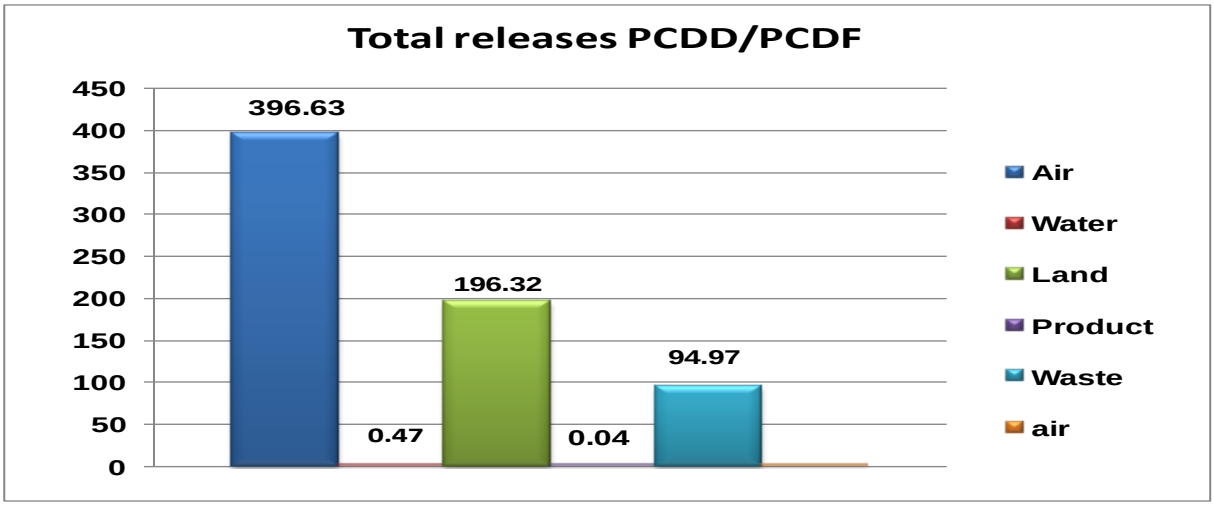
Table 10. Final results of the first national inventory of Dioxins and Furans.

	Selection Matrix	Annual Releases (g EQT/a)				
No.	**Categories**	**Air**	**Water**	**Soil/land**	**Product**	**Waste**
1	Waste Incineration	67.7962	0.0000	0.0000	0.0000	0.3436
2	Ferrous and nonferrous metal production	0.0110	0.0000	0.0000	0.0000	0.0000
3	Heat and Energy Generation	1.1834	0.0000	0.0000	0.0000	0.0158
4	Production of Mineral products	0.2692	0.0000	0.0000	0.0000	0.0000
5	Transportation	0.1631	0.0000	0.0000	0.0000	0.0000
6	Open Sky burning processes	327.2063	0.0000	196.3238	0.0000	0.0000
7	Production and use of Chemical and consumption goods	0.0000	0.0000	0.0000	0.0387	0.0000
8	Various	0.0002	0.0000	0.0000	0.0000	0.0004
9	Final disposition	0.0000	0.4730	0.0000	0.0000	94.6080
10	Identification of possible hot spots.				0.0000	0.0000
1-9	**Total (different sources)**	**396.6293**	**0.4730**	**196.3238**	**0.0387**	**94.9678**
	Grand Total					**688.43**

Source: Preliminary Dioxin and Furan Inventory

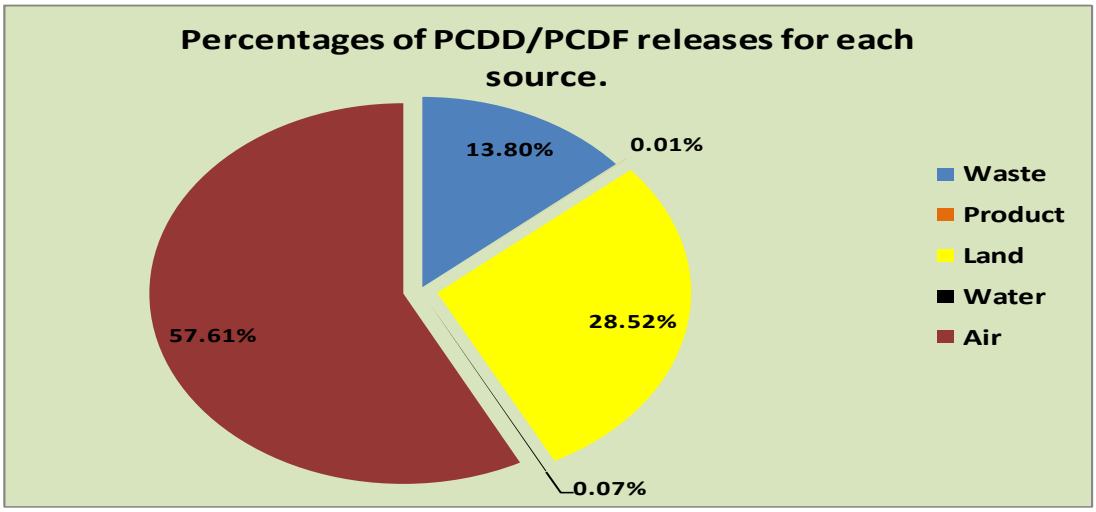
According to the estimations, the main mean of PCDD/PCDF releases are: air, with a total of 396.63g EQT/a, which represents 57.61% of the total estimated releases; soil/land with a total of 196.32g EQT/a, which represents 28.52%; 94.97g EQT/a for waste, accounting for 13.80% of the releases; water a total of 0.47g EQT/a was estimated, equivalent to 0.07%; and estimations for products were of 0.04 g EQT/a, which corresponds to 0.01%.

Figure No 25. Total releases of PCDD/PCDF - base year 2007.



Source: Preliminary Dioxin and Furan Inventory

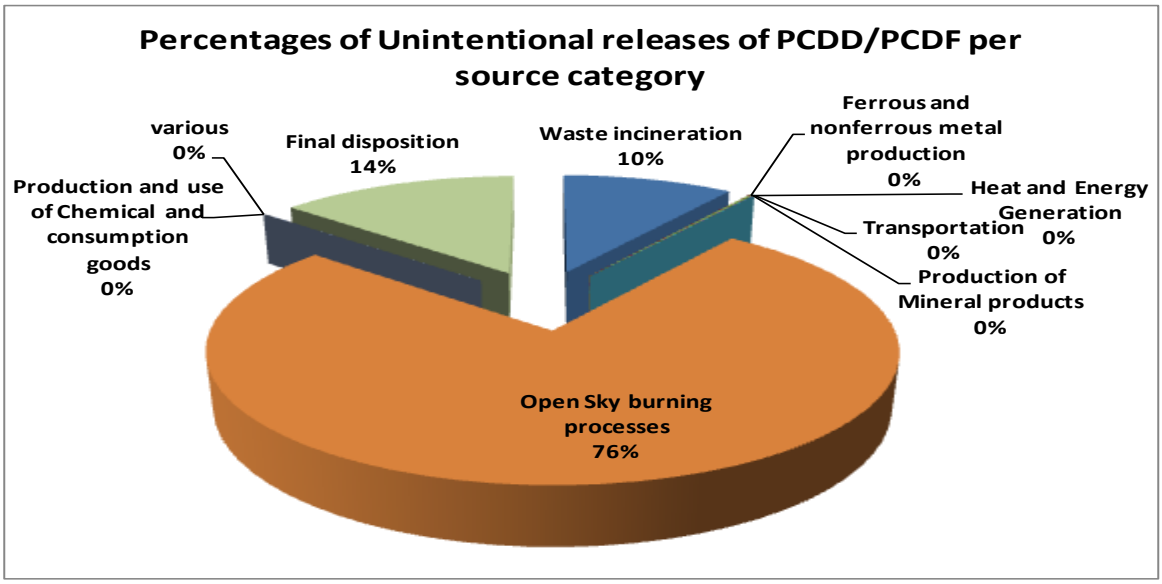
Figure No 26. Percentages of PCDD/PCDF releases for each mean.



Source: Preliminary Dioxin and Furan Inventory

Also, in terms of unintentional releases by industry or source category, in accordance with the results, the main category for PCDD/PCDF releases is burning processes in the open air, with 76.05%, followed by the final disposition category with 13.81%; and, in third place is waste incineration with 9.9%. According to the estimations, the rest of categories in the country account only for 0.24% of the total releases.

Figure. 27. Percentages of unintentional releases of PCDD/PCDF per source category.



Source: Preliminary Dioxin and Furan Inventory

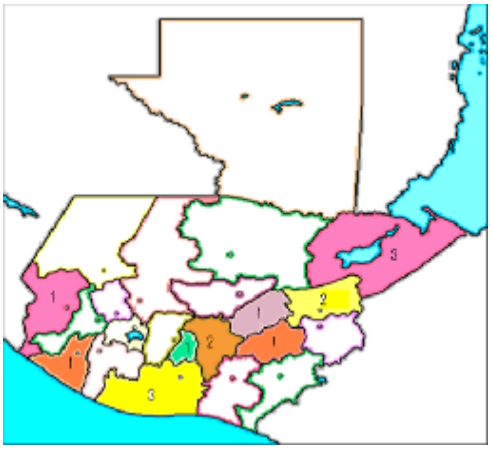
2.3.5 Information on the state of knowledge on stockpiles, contaminated sites and wastes.

When addressing to a contaminated site, it is referred to the place or location that due to its historical use and/or current conditions may be or have been potentially contaminated with POP. This inventory addresses the sites that should be checked subsequently, as the necessary means are available, and manage the remediation for those cases that were proven as contaminated.

For these reasons, the methodology used to identify contaminated sites consisted in a preliminary assessment, which should be strengthened and updated.

Concerning this subject, it is important to mention that there are no regulations in the country that stipulates specific actions for the remediation of contaminated sites; however, such sites do exist and should be object of an environmentally sound management, taking into account the health and environment impact that such could be generating.

Figure No 28. Distribution of sites contaminated with PCB/BPC in the national territory



For these sites, the classification was made based on the three main groups of POP: pesticides, polychlorinated biphenyls (PCB/BPC) and dioxins and furans (PCDD/PCDF).

-- Sites contaminated with POP pesticides and obsolete pesticides.
Regarding the POP pesticides and obsolete pesticides, 9 sites were identified in the capital and in the rural areas (Jutiapa, Jalapa, Guatemala City, Mazatenango and Suchitepéquez), 6 of which are warehouses where the Ministry of Public Health stored DDT. Additionally, 3 other sites potentially contaminated with POP pesticides and obsolete pesticides were also identified, such sites belong to the following institutions or companies: pesticide warehouse of the Central National School for Agriculture, located in Bárcenas town of Villa Nueva, Guatemala; INDECA warehouse located in Amatitlán, Guatemala; FORAGRO located in Tiquisate, Escuintla.

-- Sites contaminated with PCB/BPC.
A contaminated site is any site that affects, in an immediately manner or not, the environment or the human health. Due to the large amount of old electrical equipment throughout the country, the number of sites contaminated with PCB/BPC is relatively large. Several contaminated sites were found and the type of necessary intervention was identified according on the extent of the contamination and to the Convention.

Several contaminated sites were found throughout different parts of the country. It is noteworthy that the founded sites are only a preliminary inventory, which will be expanded as new sites are known over time.

Contaminated sites have an impact on companies, industries and institutions whose buildings were built long ago. Therefore their electrical installations are also old and that is the main reason why there is equipment contaminated with PCB/BPC. The following table shows a list of potential contaminated sites identified in the country.

Table No. 11. Types of intervention for contaminated sites.

Types of Intervention	
1	Requires immediate intervention
2	Apparently requires intervention
3	Probably requires intervention
N	Apparently does NOT requires immediate intervention
i	Insufficient information

There is a detailed description of most contaminated sites, which was gathered through inspections, review of documents (created in the preliminary inventory of PCB/BPC and developed under the Basel Convention), interviews with managers from the private and electric sector; as well as, ballots, etc.

The following table is a summary of the sites contaminated with PCB/BPC.

Table No. 12. Sites contaminated with PCB/BPC.

Place	Description	Type of Intervention
Municipal Electric Company Gualán, Zacapa	4 equipments with PCB/BPC > 50ppm was found located in a small warehouse in the open. There could be contamination to air, soil and water.	2
INDE's Hydroelectric power in Aguacapa, Escuintla	250 barrels (55 gal / barrel) were found, in average filled to 3/4 and there is presence of PCB/BPC. These barrels came from the transformer's oil of the Units No. 1, 2, and 3 of the power plant in Aguacapa, which were subject to major maintenance. The barrels are in the open air, close to the houses of the workers of the Aguacapa plant camp.	1
INDE's Hydroelectric power in Palín I	On October 2nd, 1998 the cask of a transformer broke and there was excess spill.	2
INDE's Thermal power plant, Escuintla	6 barrels with 55 gallons contaminated with PCB/BPC were found which were buried in a pit located in an area of wasteland within the plant's facilities over 10 year ago.	N
Municipal Electric Company of Retalhuleu	The equipment is stored in the open and in a small warehouse at EEM offices, 12 transformers contaminated with PCB/BPC were found. There is air, soil and water contamination.	1
Municipal Electric Company of Zacapa	4 transformers contaminated with PCB/BPC > 50ppm and 4 empty transformers with PCB/BPC plaque were found, there could be air contamination.	3
Municipal Electric Company of Puerto Barrios	2 equipments with PCB/BPC > 50ppm was found, such are located in the Municipal Company offices, and there could be air contamination.	3
Municipal Electric Company of Guastatoya, El Progreso	2 equipments with PCB/BPC > 50ppm were found. There could be contamination to people.	I
Municipal Electric Company of San Marcos	By means of the kit clor-in oil analysis, PCB/BPC higher than 50ppm was found in 13 of the 17 transformers which are in disused and stored in a warehouse in a municipal property. The transformers were in the open air and with leakages, which indicates contamination of the surroundings, air, soil, and nearby water sources.	1
Municipal Electric Company of San Pedro, Sacatepéquez	There is a warehouse, without access restriction, which contains equipment with PCB/BPC, there is air contamination.	I
Municipal Electric Company of Jalapa	5 transformers containing PCB/BPC were found, there are 6 suspicious which were not analyzed since there were inaccessible. There could be air contamination. There are two storage sites located in the center of Jalapa, increasing the possibility of contamination to people if there were presence of PCB/BPC. off limits	I
Guatemalan Company of Nickel (*Compañía Guatemalteca de Níquel S.A.*)	There are several transformers contaminated with PCB/BPC, many have leakages that cannot be contained and filter into the soil. Such transformers cause contamination in several areas.	2
FEGUA, Guatemalan Railway	Several transformers with PCB/BPC were found in the open air, it may be air contamination. It is potentially pollutant to the personnel that work in the facilities.	3

Source: Preliminary PCB/BPC Inventory

-- Sites contaminated with Dioxins and Furans.

Addressing the issue of sites contaminated by dioxins and furans (PCDD / PCDF) is a little complicated, due to the diversity of the sources of generation, which range from domiciliary burning, industrial production and forest fires, to the use of transportation, use and production of chemicals such as chlorinated pesticides and chlorine bleaching of paper, among others. However, taking as a refence the information obtained in the first national inventory of polychlorinated dibenzo-para-dioxins and polychlorinated dibenzofurans, there main sources of generation identified are the processes of open burning and disposal of waste, and the main releases are to air, soil and wastes.

For this reason the sites contaminated with PCDD/PCDF, which were preliminarily identified, are those sites of waste disposal, mostly open dumps, where the uncontrolled combustion processes usually take place; some are result of the formation of methane gas and others are caused by anthropogenic activity.

In this account of the main landfill site identified is the capital city, commonly called Zone 3 landfill, "*Vertedero de la zona 3",* since it is located in that area. In that landfill, approximately 1.536 tons of waste are daily discharged, such wastes come from the Municipality of Guatemala and 8 neighboring municipalities, all of which belong to the department of Guatemala[27].

Since the landfill is located within the municipality of Guatemala, surrounded by a myriad of housing, the releases of PCDD/PCDF is a concerned, without considering general aspects of sanitation.

Despite there are municipal efforts to improve these conditions and search for alternatives for a sound management of wastes generated in the municipality of Guatemala, such place is considered as a contaminated site. During times of summer it burns, causing combustion of most of all debris deposited in there and thus generating emissions into the air, including PCDD/PCDF. Similarly, it is known that the leachate may also contain significant amounts of PCDD/PCDF, which under the current conditions can be transported by the surface, runoff into nearby water sources or can get infiltrated into the area. It is worth mentioning that the soil, in its present conditions, is presumably affected and contaminated with dioxins and furans. The location coordinates are 14°37'36.92 " North, 90°31'56.49 West, elevation of 1477metros and alt.7 eye 2.71km.

Figure No. 29. Landfill in zone 3 / landfill of the capital.

Source: Preliminary dioxin and furan inventory.

[27] Data from the Municipality of Guatemala.

All the landfills throughout the country are in the same conditions than the landfill in Zone 3. The landfills must be geo-referenced and be addressed with the related authorities in order to search for a solution to avoid contamination to human health with dioxins and furans and other hazardous substances.

2.3.6 Summary of future production, use and releases of POP – requirements for exemptions.

Guatemala, pursuant to Decree No. 27-76, regulated the import of DDT for agricultural use during years 1976-1980. Additionally, the Ministerial Agreement No. 3-88 cancels the registration of the following pesticides: chlorinated camphene, ethyl parathion, endrin, dieldrin, chlordimefor chlordane, heptachlor, BHC, and lindane (several POP pesticides and other pesticides non chlorinated) in all its formulations, prohibiting the import, manufacture, storage, transport, sale and use in the agricultural sector. However, the use of DDT in the health sector was not banned; therefore, it continued to be used in the country during some time to combat malaria. Still, Guatemala has committed to seek alternatives to the use of DDT to fight malaria, and thus there are no plans to apply for DDT exemptions. Moreover, the health sector has collected stockpiles and is working on its management abroad for an environmentally and sound destruction.

Furthermore, in accordance with the new products included in the Annexes of the Convention, there is the possibility that any product may require an exemption. Currently, in Guatemala there is no body responsible to address the issue of exemptions, nor there is a procedure to receive applications for exemptions. For this reason, some concrete actions to enable the country to meet the commitments arising from the Convention regarding the exemptions are presented.

2.3.7 Existing programs for monitoring releases, environmental and human health impacts, including findings.

In Guatemala, the monitoring stage started in the past decades through thesis research conducted by some students and professional scholars with the desire to understand the levels of these pollutants in certain animal species, water, sediment, milk and adipose tissue.

The information found showed monitoring actions conducted from 1970 to 1998 by several government institutions, which in that time took the role of monitoring through different laboratories or instances. The monitoring was conducted regarding the country's interests to control meat, vegetables and food marketing, and primarily to maintain the standards that other countries required for consumption. The main institutions that have carried out research related to POP are:

- ICAITI, from 1970 to 1998: Control of organochlorine pollutants and other pesticides in meat, vegetables and other foods.
- LUCAM, from 1970 to 1998: Control of organochlorine pollutants and other pesticides in plants for export and record.
- LNS, 1998 to date: it continues with the analysis of pesticides in general.

The persistent organic compounds included in the Stockholm Convention were used in Guatemala since the 50s, with the application of insecticides, mainly chlorinated insecticides[28] in malaria control programs and cotton crops. The findings of organochlorine pesticides in different sampling in Guatemala are summarized in Table No 13:

[28] Inga. Marit de Campos: Presentation – First National Workshop on POP.

Table No. 13. POP findings in different matrixes 1970 -1997

Location	Sample	Finding	Year
Costa Sur, cotton zone	Fish and seafood	DDT in samples; aldrin, lindane, toxaphene in almost every sample.	1970
Atitlán, coffee zone	Fish	DDT and heptachlor in all samples HCH (BCH), dieldrin and toxaphene in some samples.	1971
Tiquisate, cotton zone; Puerto Barrios, banana zone	Sediment Sediment	Residues in all samples. Not detected Mg.	1971
Cerro Colorado, La Gomera, Escuintla, Zona algodonera	Breast milk (FAO/WHO) maximum of 0.05 mg/kg	DDT 12.21 Mg/kg	1971
Guatemala	Adipose tissue 80 year 40 year	DDT mg/kg 60 80	1982 and 1987
Guatemala	Total food intake	DDT Kg/person/day	1981-1997
Guatemala	Total food intake	1981 – 45 1997 – not detected Residues of aldrin, dieldrin, heptachlor, HCB and DDT decreased until they were not detected at the end of the study.	1981 - 1997

Source: Information provided by Ing. Marit de Campo during a conference.

The results show a decrease of organochlorine pesticide residues, due to the 1998 banning of toxaphene, endrin, aldrin, dieldrin, chlordane, heptachlor, BHC and lindane.

Engineer Marit de Campos carried out studies from 1970 to 1997, with the support from LUCAM, monitoring chlorinated pesticides in fish, shellfish, breast milk, and human adipose tissue, based on the parameter of total diet. These tests showed the presence of high levels of chlorinated pesticides in the early years of the study. However, as the measurements continued the residues decreased until no detectable residues were detected at the end of the study.

In 1971, a research on DDT was conducted in marine fauna of the Guatemalan South Coast estuaries. It showed the presence of DDT, lindane, aldrin, and toxaphene in different marine organisms. This research was conducted in collaboration with the ICAITI, and was developed by professional Licda. Julia Alicia Amado de Zeissig.

Furthermore, the National Health Laboratory of the Ministry of Public Health and Social Welfare - MSPAS[29], through the Section of Environmental Contaminants and Health, has been participating in the study "Health Risk Assessment for Exposure to DDT", as part of the Regional Program of Action and Demonstration of Sustainable Alternatives for Vector Control of Malaria in Mexico and Central America, implemented in coordination with the Ministry of Environment and Natural Resources, under the guidance of the Pan American Health Organization (PAHO). The study is being conducted in the region of Chisec, Alta Verapaz, assessing the presence of DDT in soil, fish and blood.

There is a diagnosis[30] that points to additional research regarding the presence of POP, specifically residues of organochlorine pesticides in the water resources of Guatemala, which has been carried out during three different periods.

[29] Inga. Mónica Méndez, Presentation of LNS/MSPAS, First Workshop on POP
[30] Ing. Willy Knedell. Mariano Gálvez University. Presentation – First Workshop on POP

Table No. 14. Presence of pesticides in water resources.

Financing	Sample	Frequency
O I E A	80 SOURCES	4 SAMPLES PER YEAR
C ON C Y T	60 SOURCES	7 SAMPLES PER YEAR
PAHO	16 SOURCES	SINGLE

Source: Work presented by Lic. Willy Knedel from the Mariano Gálvez University during the first workshop of the Stockholm Project.

The results of these studies show historical information about the presence of POP pesticides in the water resources of Guatemala. Moreover, these studies show that the country has the technical capability to carry out monitoring on POP in the environment, especially regarding pesticides. It is necessary to extend these studies to soil and sediment.

On the academic sector, there is also the Center of Information and Toxicology Consultancy (CIAT in Spanish) within the Department of Toxicology from the Faculty of Chemical Sciences and Pharmacy of USAC, which provides information on poisoning or risk of poisoning with chemicals, pesticides, drugs abuse, household products, etc. It provides toxicological information and advice for diagnosis, treatment and prevention of poisoning. One of its main functions is the implementation of joint programs of education and training on prevention and treatment of poisoning and the various areas of toxicology. CIAT is a member of the Latin America and Caribbean Network of Health and Environment Laboratories, Toxicology Network REDTOX, and Latin America and the Caribbean Toxicology Network RETOXLAC.

Concerning the research on POP in the country, Guatemala has more information and experience on organochlorine pesticides; nonetheless, there are records that LUCAN and the NHL have analyzed BPC/BPC as pollutants in food and total diets. Additionally, ICAITI has conducted research of BPC/BPC in different sources. Currently, such analysis is not performed since they are highly expensive.

Guatemala has no analytical capacity for monitoring the unintentional releases of dioxins and furans. During the project's work, it was identified that there are isolated monitoring experiences carried out by 5 industries; one of which held a specific measurement at the request of the environmental authorities, while the others carried out specific sampling for their headquarters' requirement or for implementation processes of environmental management systems, and some of them have been performed consistently for several years.

In regard to the monitoring research of poisoning in humans, the epidemiological services monitored organochlorine poisoning at the time of increased usage. The National Epidemiology Center maintains information on the regions of the country where most poisonings occur with different pesticides and the measures taken. The majority of reported morbidity and mortality is due to acute pesticide poisoning.

There are other studies regarding the assessment of residual impacts of chlorinated pesticides in cattle in different areas of the Republic of Guatemala. This research was developed in different regions of Guatemala, in the south of Guatemala 506 samples, out of 1,111 nationwide, were analyzed and a 6.72% exceeded the maximum permitted levels of 5ppm according to the Department of Agriculture of the United States and 7ppm established by FAO / WHO for that year. In the southern region the departments of Escuintla, Retalhuleu and Suchitepéquez are located, and residues of DDT were found in bovine fat in a range from 0.05ppm to 17.33ppm. The method of "liquid gas chromatography" was used for the analysis of DDT residues in cattle fat.

Another important report is the recognition study on the levels of chlorinated pesticide residues in soils under cotton cultivation carried out in Tiquisate, Escuintla. This study was conducted at Finca La Libertad, located in the Municipality of Tiquisate, department of Escuintla, obtaining 15 samples at 300 Mz of land (2,100,000m^2); about five sub-samples in different strata were taken at each sampling site. This study analyzed pesticide residues (DDD dichloro-diphenyl-dichloroethane), (DDT dichloro-diphenyl trichloroethane), (DDE diclodifenil-dichloro-ethylene), dieldrin and endrin in soils under cotton cultivation in Tiquisate, Escuintla. The DDT and DDE and DDD metabolites were detected in all analyzed soils and such had high levels. The samples were analyzed at ICAITI and gas and liquid chromatography was used to detect the presence of organochlorine pesticide residues[31].

Overall, it is evident that there is prior research, particularly concerning organochlorine pesticides; nevertheless, it is not possible to require periodic measurements to the entities that cause such releases due to the undemanding features of the current legislation and thus causing a lack of systematic information.

2.3.8 Current level of information, awareness and education among target groups.

In accordance with the background assessment and the information available, the issue of POP is not included in the public agenda as a matter of disclosure, since the main emphasis is on awareness, preservation, legal action and, recently, global warming.

The direction of the NGOs sector differs from the chemicals matter and do not reflect information activities related to POP. The academic sector addresses the subject within the academic curricula without elaborating on it; such is reviewed in careers related to chemistry, engineering and biology, especially at the University of San Carlos de Guatemala and University of del Valle de Guatemala. As for the environmental authority, before 2005, it did not have any information programs on chemicals and hazardous substances; therefore, neither on POP.

The majority of awareness investment is made through print campaigns, which could not be mass disseminated due to high rates of illiteracy, ethnic and language diversity that prevails in the country.

Regarding the environmental assessment as a public priority, the "Report on the Situation of Access to Information, Public Participation and Justice in Environmental Matters in the Republic of Guatemala," July 2008, indicates that there is access to environmental information through electronic media or means, newspaper reports, and newsletters, which do not pose costs to the user. Moreover, it reports that the information is provided by different environmental bodies and by subject matters, it is common to find information concerning water, mining, environmental impact and forest fires, among others. However, there is no systematized information on POP in any institution. For the moment, MARN through the Stockholm Convention project shows the first advances in this field.

The relevant aspects of POP in the last eight years (2000-2008) are recorded within the National Plan of Action for the Environmentally Sound Management of Polychlorinated Biphenyls (PCB/BPC), developed by the Project "Preparation of National Inventories and National Plans for the Environmentally Sound Management of PCB/BPC and Equipment containing PCB/BPC in Central America" developed by MARN from 2005 to 2007; it shows the communication activities in trainings, workshops and conferences, with emphasis on electric companies. Furthermore, there were other dissemination activities such as: publication of articles in magazines, brochures sent with light bills, and posters.

[31] Mejicanos

On the other hand, there are individual actions conducted by entities such as: Guatemalan Center of Cleaner Production on PCB/BPC, MARN especially on PCB/BPC during the first inventory, the Water Resources Unit that provided spaces to disseminate the subject, DDT program at Central American level, Ministry of Health with support from PAHO, the MAGA on obsolete pesticides, and Universities on monitoring studies in specific careers.

A communication strategy was designed due to lack of information and communication programs on POP in which its actions were executed along the Project. This strategy is highly important due the magnitude of the issue and for the urgent need to disseminate it nationwide, and thus establishing an allied, informed, and trained network to work in this country's commitment.

The women were included within the target groups, among others, based on the constitutional basis of the country and the Stockholm Convention's requirements; based on these principles, the project has created contacts with women's organizations to disseminate the matter and receive feedback on it. The main groups contacted are:

- Mayan Women's Political Organization (Organización de Mujeres Políticas Mayas) MOLOJ
- Presidential Secretariat for Women (Secretaría Presidencial de la Mujer)
- Commission for Woman of the Congress (Comisión de la Mujer del Congreso)
- CLADEM, Guatemala

Concerning the industry, contacts were made with trade associations that bind different industries, associations like the Industry Chamber of Guatemala and the Association of Exporters Guild, additionally to the contacts made by each POP Commissions (pesticides, PCB/BPC and dioxins and furans). Regarding the agriculture, direct relationship was built with entities such as CENGICAÑA, FASAGUA, AGREQUIMA, AGRECOPIA and pesticide distributers.

The Convention and the Project were also presented to the National Laboratories Network, NGOs, and research organizations, inter-ministerial and intergovernmental. Workshops, conferences and bilateral meetings were held at inter-ministerial and inter-governmental levels.

-- Phase of awareness and information regarding the POP project.

Several target sectors were reached during the awareness and information phase. These phases only last a couple of months before the beginning of the inventory. Paralleled to the following phases of inventory and development of National Plans, awareness and training activities were also carried out.

Table 15 summarizes the target group, methods and material used for each one, during the mentioned period.

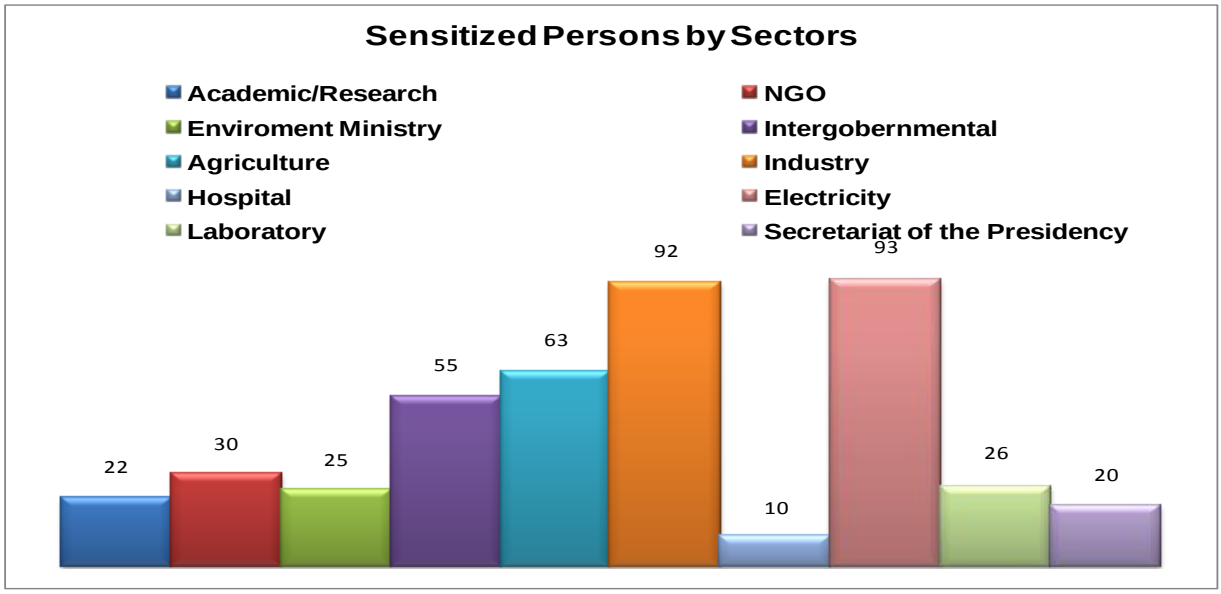
Table No. 15. Summary of contacted groups.

Target group	Methodology and materials
University professionals	Forum, workshops, visits, presentation, brochures, posters and CD.
Laboratory professionals	Forum, workshops, visits, presentation, brochures, posters and CD.
Professional sector of research	Forum, workshops, visits, presentation, brochures, posters and CD.
Agricultural sector	Forum, workshops, visits, presentation, brochures, posters and CD.
Agricultural Guild sector	Forum, workshops, visits, presentation, brochures, posters and CD.
Inter-governmental	Forum, workshops, visits, presentation, brochures, posters and CD.
Municipalities	Visits and delivery of materials
Cleaner Production Centers	Visits and delivery of materials
Industry sector	Coordination of event
Firefighters	Coordination and participation of training (Convention's personnel)
Education sector	Contact for event and delivery of materials
Mayors Association ANAM	Contact for awareness on POP
Universities	Visits of coordination and information exchange
Women	Visits for information and data exchange

Source: Preliminary Dioxin and Furan , PCB/BPC, and pesticides Inventories

Figure 30 shows a statistic of sensitized people in different sectors in the period previous to make national inventories.

Figure No 30. Sensitized persons from different sectors.



Source: Stockholm Project, [sensitized entities: academic/research, NGOs, inter-governmental, agricultural, industry, hospital, electric, laboratories, women. Total entities: 436]

2.3.9 Relevant activities of non-governmental stakeholders.

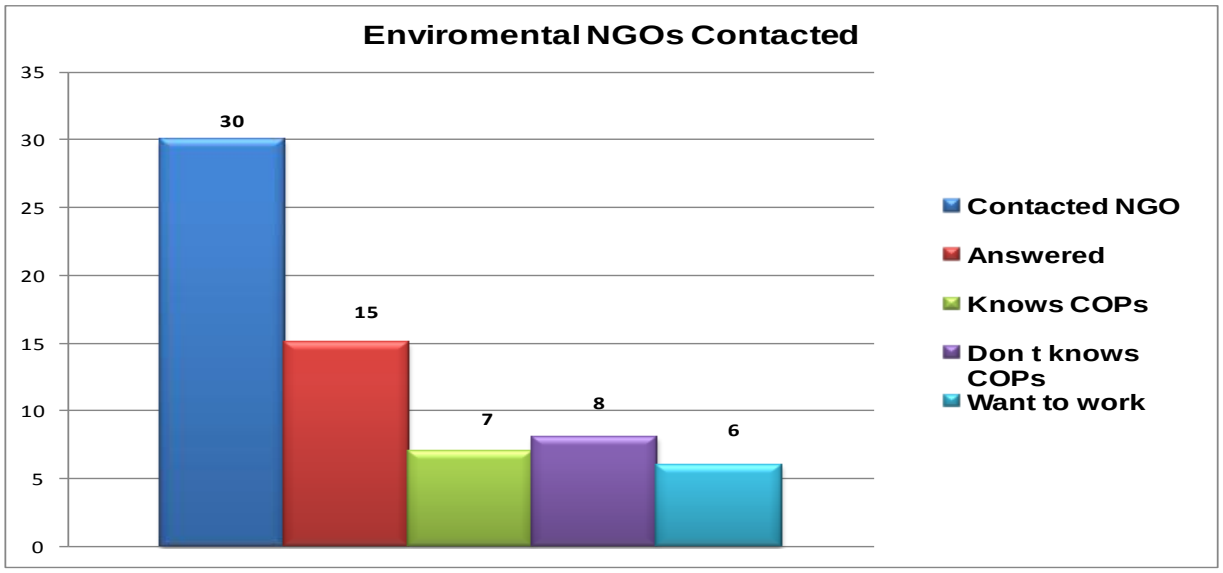
The NGOs in the country range from services, training in diverse topics, through productive projects and pro-environmental activities. Their movement had a strong impulse since 1993.

The environmental NGOs in Guatemala gained strength in the late eighties and early nineties, beginning actions to create guilds and associations that promote actions in favor that the government plans prioritize and focus on specific public policy actions in defense of the environment.

In order to find the relevant activities of NGOs regarding POP, the project proceeded to establish contacts with the associations that bind the environmental NGOs such as The National Association of Nongovernmental Organizations of Natural Resources and the Environment –ASOREMA- that comprises about 20 organizations, and the Association of Development, Environmental Defense and Natural Resources –Ecologic Action-.

Contacts were made and a workshop was held with ASOREMA; also, several individual visits were made to certain NGOs, a roundtable was summoned to inform the issue, and several electronic consultations were carried out, all of which allowed to obtained the following results:

Figure No. 31. Contacted NGOs



Source: Stockholm Project , [Contacted Environmental NGOs: light blue – contacted NGOs, purple – answered the survey, yellow- know the issue, green – do not know the issue, orange – want to work on the issue.]

Table No. 16. Summary of gathered information form NGOs that collaborated in the process:

Name	Main Activity	POP Experience
International Conservation Foundation (Fundación Conservación Internacional).	Conservation of the biodiversity and human dimension.	No.
	Obs. It has worked on climate change, protected areas, indigenous people and biodiversity.	
Mario Dary Rivera Foundation for the Conservation of the Environment and the Natural Resources– Fundary-	Conservation and improvement of the environment and natural resources.	JADE Project, update of baseline regarding bio-indicators, test of eco toxicity in sediment samples (including POP)
APRODEMA	Environment and natural resources.	Assistance to several conferences.
Foundation Nature for Life (Fundación Naturaleza para la Vida)	Environment and natural resources.	No.
FUNDAECO	Effects in politics and environment networks.	No.
	Foster process for territorial planning to empower local communities, economic income and environmental recovery.	
Solar Foundation (Fundación Solar)	Rural development, renewable energies, water, services and environmental recovery.	No
Center of Legal, Environmental and Social Action (Centro de Acción Legal, Ambiental y Social de Guatemala -CALAS)	Legal and political defense of the environment and natural resources by political means. Indigenous and environment studies.	Members of RAPAL, PAN, RAPAC
	Note: It has specialized unites for environmental education, training, and monitoring.	Management of legislative audiences concerning pesticides.
Organization for the Auto-Sustainable Development (Organización para el Desarrollo Auto sostenible Odas/Ong)	Strengthening of environmental education regarding conservation, protection and recovery areas, with emphasis in the new generations. .	Yes, knowledge only, however it has carried out action regarding the issue.
Foundation for the Conservation in Guatemala (Fundación para la conservación en Guatemala –FCG-)	Management and execution of projects in protected areas and environmental matters.	No. However, it has managed resources for a research on Chagas disease (vectors).
Rescue and Conservation of Wildlife Association (Asociación Rescate y Conservación de Vida Silvestre -ARCAS).	Conservation of wildlife, management of protected areas, communitarian development, environmental education, reforestation and research.	None.
Mesoamerican Center for Studies on Appropriate Technology (Centro Mesoamericano de Estudios sobre Tecnología Apropiada – CEMAT-)	Promotion and development of appropriate and clean technologies	Yes. International and national conferences.
Nature Defenders Foundation (Fundación Defensores de la Naturaleza)	Conservation and sustainable management of Guatemala's natural heritage.	Yes, research in Motagüa river sponsored by WWF
Tropical Forest Foundation (Fundación Bosque Tropical) -FBT-	Conservation of the environment, emphasizing in climate change.	Yes, due to literature research, it has not performed actions regarding the issue, (only for climate change).
Foundation for the Integral Development of Men in its Environment	Training, education and consultancies in environmental areas.	No. It is interested in taking actions regarding information.

Name	Main Activity	POP Experience
(Fundación para el Desarrollo Integral del hombre en su entorno – CALMECAC-)		
BAL'AM NGO	Support work in favor of the development and execution of projects for the population, emphasizing the management of sustainable resources.	No.

Source: Stockholm Project.

2.3.10 Overview of technical infrastructure for POP assessment.

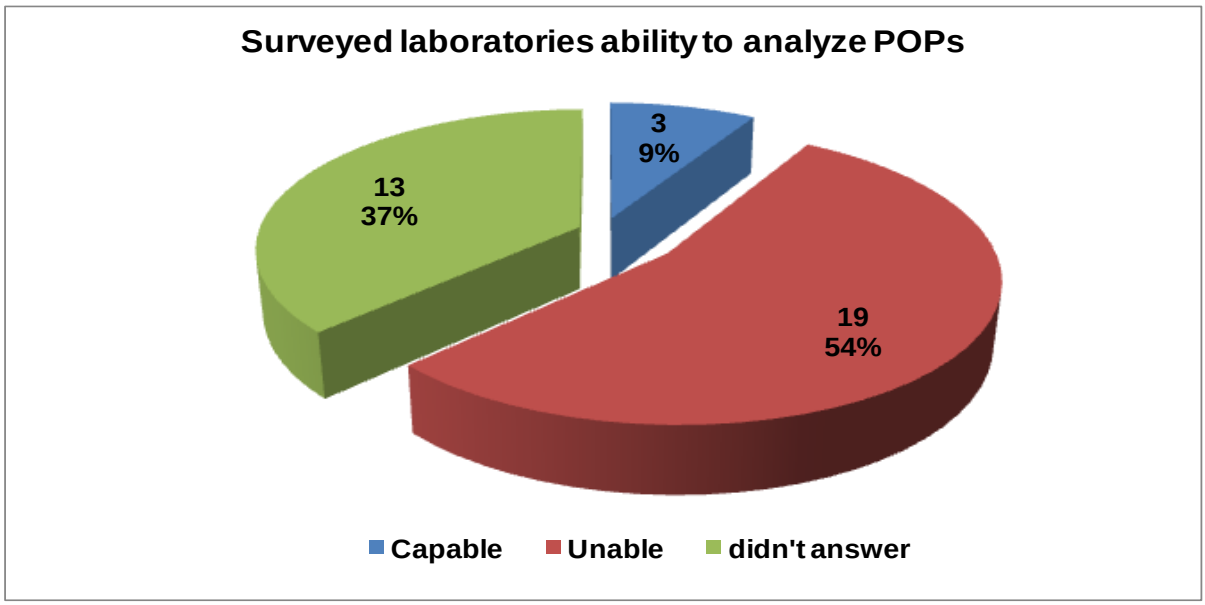
The first steps to strengthen the technical infrastructure and national capacity are taken by the Ministry of Environment and Natural Resources, since this ministry has begun implementing the Environmentally Sound Management of Chemical Products and Hazardous Wastes Coordination Unit. Additionally, the Coordination System for Chemicals Management and the National Coordinating Commissions on SAICM (Strategic Approach to International Chemicals Management at international level) and the National POP Coordination Commission were formed, which are expected to address the issue of POP.

Likewise, all the "coordination" activities can be facilitated with the creation of PCB/BPC, POP pesticides, and dioxins and furans sub-commissions. Such "coordination" activities may be awareness, information and/or training, or actions that can be taken with stakeholders. On the other hand, the work of independent commissions with similar work should also be highlighted, such is the case of the commission on pesticides of the Ministry of Public Health and Social Assistance, which addresses the pesticides matter and has competence in the health area; this commission can be of great support to achieve certain objectives of the NIP.

Regarding the analytical capacity, the country conducted a survey in different laboratories of the country to identify those laboratories that have the adequate characteristics to analyze POP. These characteristic are critical for the following processes: a) have the correct procedures for extraction and clean up of samples; b) have gas chromatography of high resolution equipment; and, c) have electron capture detector or mass spectrometry in order to ensure the identity of the analyzed pollutant. It is also important that the laboratory has some technical aspects, such as potent voltage regulators to ensure stability in the samples and not expose them to temperature changes or currents, in addition to other common features to the operation of laboratories.

A total of 35 laboratories were contacted through a survey, whose results show that the country only has three (3) laboratories that fulfill the features mentioned above necessary for the analysis of Persistent Organic Pollutants. The three laboratories that comply with these features are: INLASA, Laboratory for Microbiological Analysis of Water from Mariano Galvez University and the National Health Laboratory from the Ministry of Health and Social Assistance.

Figure No. 32: Laboratories with POP analytical capacity.



Source: Stockholm Project, [results of surveyed laboratories (capacity to analyze POP). Blue – with capacity to analyze POP, red – without capacity to analyze POP, green – did not answer.]

Overall, Guatemala has a limited capacity regarding the assessment of POP (particularly for unintentional releases) and moderate in the case of PCB/BPC; however, it has previous experience in the assessment and analysis of pesticides. The country's capacity is also limited in aspects of remediation of sites contaminated with organochlorine substances, treatment and/or eliminating POP.

2.3.11 Identification of impacted populations or environments, estimated scale and magnitude of threats to public health and environmental quality, and social implications for workers and local communities.

First, it is said that the burden of problems caused by environmental factors largely falls on the poor and extremely poor, since they are who suffer most intensely the damages made against nature. The poverty itself is also a cause and effect of environmental degradation in both rural and urban areas.

Latin America is the most unequal region worldwide, and Guatemala is one of the most unequal countries in the region. 20% of the richest population accounts for 59.5% of revenue and the 20% of the poorest accounts only 2.9% of wealth. [32]

The country's rural areas, especially in the north and north-western, are the areas with highest rates of extreme poverty.[33] These rural areas depend heavily on agriculture for their livelihood and their population is exposed to risks associated with use of POP and other chemicals, this issue is worsened due to the limitations to access education and training processes, the limited access to efficient health services, lack of employment, health problems, unemployment and general deprivation to cover their minimum needs, which leads to an overall deterioration in their quality of life.

[32] Bernardo Klisberg, advisor in Public Politics of UNDP
[33] ENCOVI. 2006

Some unsystematic studies on pesticides in the country show a high number of poisonings; as well as evidence of high levels of residues in food and water in recent studies.

Regarding DDT, there are studies of organochlorine pesticide residues in human milk from 1971 to 1982. In addition to DDT, high levels of other organochlorines were also found; fortunately their importation has been regulated. [34] On regard to research on poisoning monitoring in humans, epidemiological services monitored the poisoning by organochlorine at the time of their highest usage. Similarly, there are isolated investigations on PCB/BPC as contaminants in food conducted by LUCAM and NHL; however, they do not have continuity due to economic reasons, therefore there is no complete record. In addition, there is no record of investigations concerning PCDD/PCDF. (See paragraph 2.3.7).

The diseases most frequently reported in Guatemala by environmental concerns are: diarrhea, cholera, hepatitis, typhoid, malaria, dengue, pesticide poisoning and acute respiratory infections.

It was identified that both private and government health institutions, do not have accurate records on morbidity and mortality caused by banned chemicals, particularly POP.

Despite there are almost no accessible records of diseases and leading causes of deaths due to these chemicals, some data from national hospitals, epidemiology center, and specific studies of PLAGSALUD Project reveal an increase of deaths due to pesticide poisoning. During the weeks 1-36 of 2008 a total of 561 cases of illness and 132 deaths were reported; although it is an isolated data, it implies that there is significant damage to the human health of Guatemalans and these issues occur in a social and economic context that impacts the government expenditure (through the health services) and imbalances in families. Such impacts affect directly the economy and family stability, generate emotional problems, affect family rupture due to the death of one or more members, and create some orphans cases, among others.

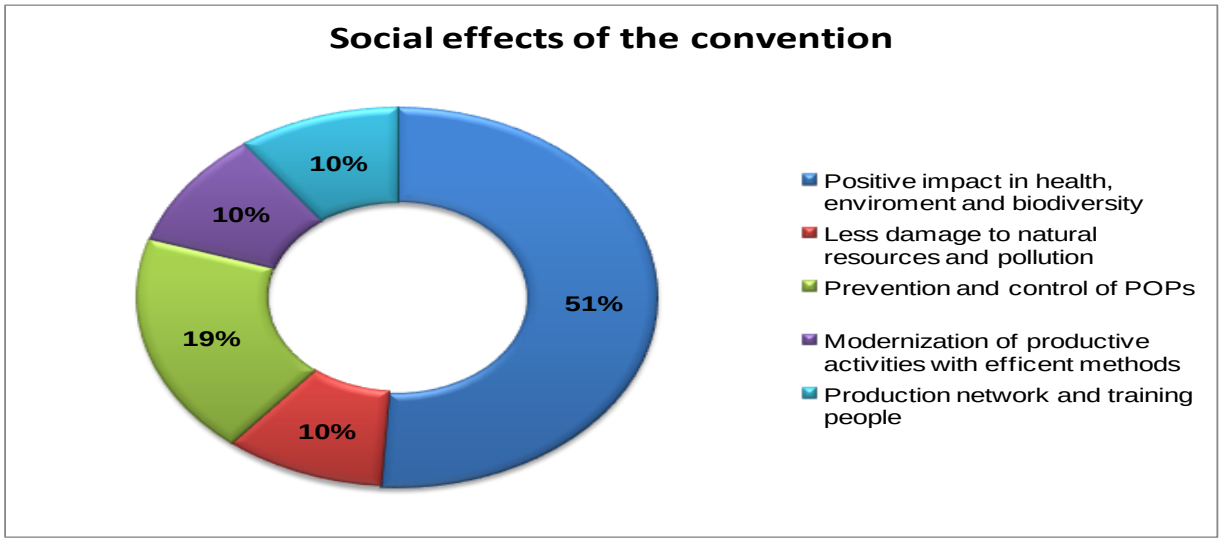
Another major impact is the decline in biodiversity due to the pollution of water sources, soil and air caused by the generation or improper use and handling of POP. Different groups and individuals contacted during the study identified significant benefits of the Stockholm Convention in the conservation and restoration of flora and fauna, water, soil, improvement of animal health and environmental protection in general.

The different stakeholders represented by government institutions, NGOs, research institutions and academia, recognized that there are significant benefits derived from the Convention, and which are displayed primarily in the country's sustainable development and consequently on the health of the population.

According to the survey carried out by the sub-Commission of the Stockholm Convention, the social effects of implementing the Convention in Guatemala have positive impacts, mainly regarding the environment, health and biodiversity resulting from POP control measures and phasing out, which must be accompanied by modernization in the production processes and capacity building.

[34] Inventory of DDT. Stockholm Project. MARN. 2008

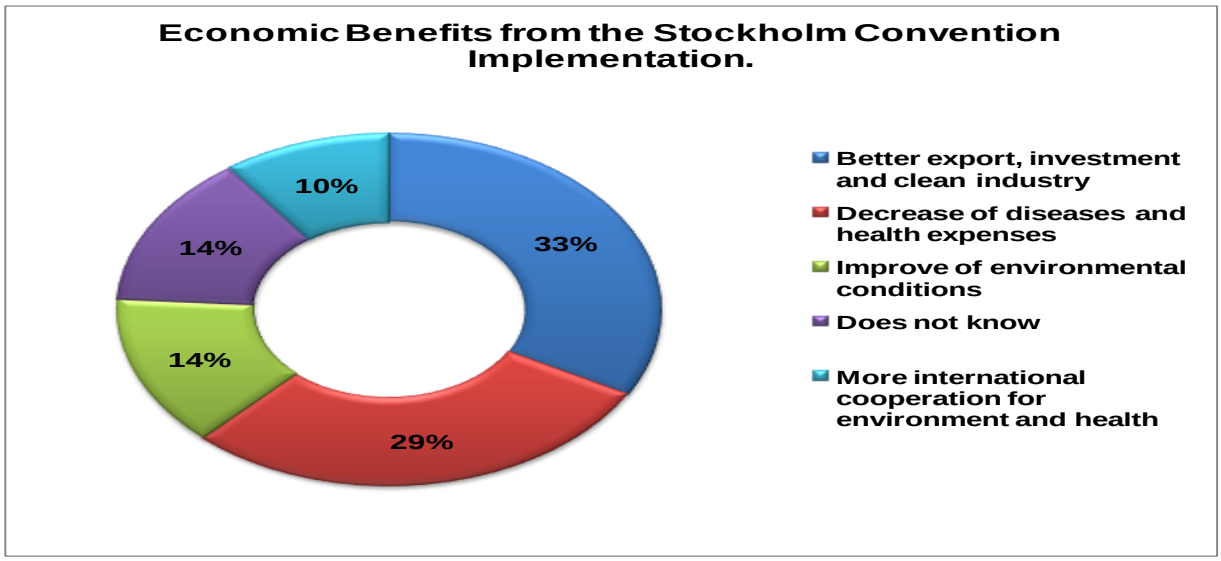
Figure No 33. Social effects of the convention.



Source: Sub-Commissions Surveys. September 2008

On the other hand, regarding economic matters, these benefits are foreseeing by the implementation of the Stockholm Convention: when analyzing the economic problems that the Stockholm Convention may arise in the country, those interviewed suggested the possibility of loss of competitiveness; for example in agriculture, and the costs that the business sector would have to assume for the products replacement; however, when assessing the cost-benefit, the analysis of professionals including economists, sociologists and doctors, is that the implementation of measures to reduce chemicals banned in the country constitutes a gain for the quality of life of people, which should be the core of any development process.

Figure No 34. Economic benefits from the Stockholm Convention implementation.



Source: Sub-Commissions Survey. September 2008

2.3.12. Details for any relevant system for the assessment and listing of new chemicals and those already in the market.

It is competence of the Ministry of Agriculture, Livestock and Food -MAGA- to conduct the registration, endorsement, transfer and renewal of raw materials used in agriculture; the requirements for this purpose are set forth in the Ministerial Agreement No. 127-2009, which specifies that any individual or legal person wishing to register, manufacture, develop, import, export, re-package, package and market agricultural inputs (pesticides, chemicals, biological -microbial and biochemical-, similar formulated substances, active ingredients, fertilizers and amendments) must be registered at MAGA, through the Standards and Regulations Unit.

The information contained in each file submitted for registration purposes of active ingredients, technical grade, formulated pesticides, biochemical, microbial and related substances for agricultural use, new in the country, must be evaluated under the terms of the Ministerial Agreement 127-2009, noting the opinions of the Ministry of Public Health and Social Assistance as appropriate, depending on type of registration (Art. 10).

The validity of the records of raw material or inputs for agricultural use is for 10 years, from the date on which registration is granted.

MAGA has a control program and inspections to verify compliance with the provisions of this Agreement.

Additionally, the Constitution of the Republic (Articles 94, 95 and 96) establishes that is a State obligation to develop necessary actions in regard to preserve the quality of food, pharmaceuticals, chemicals and all those that may affect the health and welfare of the inhabitants; thus, the Government Agreement No. 712-99 regulates the sanitary control for the following products: drugs, narcotics, psychotropic substances, precursors, phytotherapeutic and zoo therapeutic products and similar, cosmetic, home and personal hygiene products, household pesticides, healing materials, laboratory reagents for diagnostic use, dental products and equipment.

This agreement establishes that the Ministry of Health and Social Assistance is responsible for the regulation of referral sanitary registry, health registration, manufacture, fractionation, quality control, distribution, commercialization, import, storage, prescription, dispensation and evaluation, their rational use and their involvement in issues related to narcotics, psychotropic substances and precursors; and guide the actions of individuals or legal persons involved in industrial or commercial processes of regulated products.

The Department of Regulation and Control of Pharmaceutical and Alike, from the General Department for Regulation and Control of the Ministry of Health and Social Assistance, is the entity responsible for compliance with the Agreement's statutes.

3RD CHAPTER

STRATEGY AND ACTION PLAN ELEMENTS OF THE NATIONAL IMPLEMENTATION PLAN

3. III PART. STRATEGY AND ELEMENTS OF THE NATIONAL IMPLEMENTATION PLAN.

3.1 Policy statement.

The government of Guatemala decided to sign the Stockholm Convention on Persistent Organic Pollutants on January 20, 2002, later ratifying it on July 30, 2008. The Convention entered into force on October 28 of the same year; such is the reason why the preparation of the National Implementation Plan (NIP) is required to comply with the commitments derived from the article 7 of the Convention.

In order to comply with the Convention, Guatemala's Government appointed the Ministry of Environment and Natural Resources, through the Environmentally Sound Management of Chemical Products and Dangerous Wastes Coordination Unit, as technical focal point. This Unit is also in charge of executing in conjunction with UNIDO, the UNIDO Project No. GF/GUA/02/015 "TRAINING ACTIVITIES TO FACILITATE THE STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS IMPLEMENTATION", through which the National Implementation Plan (NIP) was prepared, containing all necessary activities to comply with the Convention.

This project prepared the country to include the Persistent Organic Pollutants into the Environmental and Chemical Safety Agenda and to reduce or eliminate the first twelve POP (aldrin, dieldrin, endrin, heptachlor, chlordane, mirex, hexachlorobenzene, DDT, toxaphene, PCB/BPC, dioxins and furans) and all those to be included in the future lists of the Convention. Due to the impact that these compounds have on world health and environment, Guatemala's Government expressed its desire to work on their reduction and elimination.

Based on the previous statement, the Government of Guatemala declares:

That the National Implementation Plan, to comply with the Stockholm Convention, was elaborated in the time span of two years, in which 9 national inventories were carried out for the most important POP groups, 2 diagnosis on POP related subjects, as well as 17 National Plans, which have been validated by the National POP Coordination Commission and integrate important activities to be carried out by the year 2025.

3.2 Implementation strategy.

3.2.1 General overview.

Because of their particular properties, such as persistency in the environment, bioaccumulation, high toxicity and the ability to travel long distances from their emission source, Persistent Organic Pollutants have caused great harm to the ecosystems and to the health of the inhabitants of the country and worldwide, especially over the years that such compounds were used in high amounts (example: POP pesticides, specific industrial products). The POP generated by anthropogenic activities and some industrial products still present in our country are of high risk to the environment and human health.

Through NIP, it is expected for a period no longer than year 2025, to educate and raise awareness among most vulnerable population, implement a regulatory framework for the management and reduction of all POP that are being produced (dioxins and furans) or used now; as well as, foster the proper handle and disposal of stockpiles still found in warehouses.

The implementation of the NIP requires the coordination within several sectors of the civil society, government and its institutions. All of these sectors must work in an integrated manner to achieve the proposed objectives on each one of the plans, strategies or activities stated in the specific periods in order to achieve reduction and elimination of such compounds from national territory. The NIP for POP must also be executed within the Environment and Natural Resources Conservation, Protection and Improvement Policy, which its main objective is to define and provide guidelines to the different sectors to improve the environment and the life quality for the country's inhabitants, maintaining the ecological balance and sustainable use of the natural resources. The NIP also must be executed in accordance with the countries sustainable development strategies, seeking to include within the previous [sic], each one of the activities proposed in this document.

The NIP should have a periodical inter-institutional reviewing mechanism that allows evaluating all progress resulting from its implementation and the achievement of proposed objectives for each period. This will allow obtaining the desired results and enable a properly report to the Conference of the Parties.

3.2.2 Political baseline of the NIP and implementation objectives.

The NIP has been elaborated in compliance with Article 7 of the Stockholm Convention, which refers to the obligation that countries have to develop a National Implementation Plan for the management and safe elimination of the POP, and its presentation to the Conference of the Parties for its review and approval. Countries Parties have the obligation to review and update the NIP periodically and seek its correct implementation.

The general objective of the NIP policy implementation is to execute all actions presented on each one of the plans, strategies and activities proposed in the NIP, which have been previously identified; and, to ensure its proper implementation in the proposed period.

3.2.3 Government decision to approve the NIP.

The Government of Guatemala, by means of the Ministry of Environment and Natural Resources, will develop a legal instrument in order to integrate elements that allow the implementation and execution of the NIP, indicating its beginning period in 2010 and its conclusion by year 2025.

To achieve the NIP implementation, it is necessary to assign resources and responsible to execute each one of the planned activities, so that in coordination with MARN, the units that will participate in the achievement of the activities be created.

-- NIP implementation principles.

The National Implementation Plan must take into account some fundamental principles in order to execute the actions proposed in the different activities, strategies or action plans. Some, in a general way, are already included in the proposal of a chemical substances policy, by the Ministry of Environment and Natural Resources, which is still in the evaluation and review phase.

a. **Easy access to information regarding chemical substances**. For this principle, it will also be required the proper two way information exchange regarding the POP substances. Such exchange should be made with transparency from all institutions and civil society involved in the implementation of this POP National Plan.

b. **Role of the state and private Sector**: It is imperative that the Governmental institutions and the private sector show an active participation, each one with respect for their field of competence, in order to comply with the obligations derived from this NIP.

c. **Prioritize sustainable development:** All actions and efforts taken for this plan must be under the sustainable development principle.

d. **Responsibility, compensation and reparation:** aimed to those that due to the poor management of chemical substances, such as POP, caused degradation damages to the environment; therefore, must compensate or repair all damages caused.

Other important principles to be taken into consideration for the development of this activity are:

e. **Management levels:** through which each action is intended to be implemented in a progressive manner, in such a way that the proposed objectives are reached, considering priorities, degree of environment damage, and physical and human resources availability.

f. **Citizen participation principle:** that involves selected and identified sectors for a continuous participation.

3.2.4 Priorities and conditions.

The priority stage, programmed to be executed during the third phase of the Project, enabled the recognition of the existing POP problematic and the proposal of strategic objectives which helped to elaborate logic frameworks and design activities, strategies and action plans, necessary to carry out the NIP. The first workshop regarding this subject was carried out on September 2008, having the participation of all delegates from the National POP Coordination Commission.

In the beginning, the methodology required the identification of initial proposals, determining the lines of action under which the problematic defined the current state of the POP situation in Guatemala.

Table No 17. Problems regarding different critical issues or areas.

	Problems regarding different critical issues or areas	
	Critical areas	**Problems**
1	**Legislation**	**(Poor legal frame for pop)**
2	**Technical infrastructure and analytical capacity**	**(Poor or limited national technical infrastructure and analytical capacity for pop)**
3	**Environmental management of each pop**	**(Inappropriate general management for pop)**
4	**Contaminated sites**	**(Existence of sites contaminated with pop)**
5	**Communication, sensitization**	**(Lack of education, training and sensitization of pop)**

Source: delegates from the National Coordination Commission.

After carrying out a deep analysis of the problematic, critical areas were defined (current POP situation in Guatemala according to each one of the carried out national inventories) to which a priority analysis was applied. The priority areas for each of the inventories were used as a base for future discussion.

Table No. 18. Priority areas (action lines) for each of the POP national inventories.

Inventories	Priority areas (action plan)
Pop pesticides and obsolete pesticides	**Absence of specific legislation for adequate management.** **Weakness in technical infrastructure.** **Inadequate management of pop pesticides and obsolete pesticides in the life cycle of the product.** **Presence of contaminated sites with pesticides and obsolete pesticides, without supervision or control.**
Polychlorinated biphenyls	**Absence of specific legislation for the proper management of PCB/BPC.** **Weakness of technical infrastructure and analytical capacity.** **Inadequate management of equipment and PCB/BPC contaminated oil.** **Contaminated sites without supervision.**
Dioxin and furans inventory	**Difficult access to dioxins and furans information.** **Absence of dioxins and furans analytical capacity nationwide.** **Uncontrolled releases of dioxins and furans by anthropogenic sources.** **Lack of a regulatory framework for dioxins and furans.** **Difficulty in identifying contaminated sites.**
Communication inventory.	**Lack of dissemination regarding persistent organic pollutants.** **Absence of education and training regarding pop.** **Inefficient inter and intra-institutional communication regarding pop.** **Lack of funding for mass campaigns.**

Source: Delegates from the National Coordination Commission

Based on the priority areas from each of the inventories, common subjects were selected, as a result five main topics were obtained: deficient POP legal framework; technical national infrastructure and deficient or limited POP analytical capacity; inadequate POP general management; sites contaminated with POP; and, lack of education, training and promotion of POP.

The next step in the methodology was to elaborate global strategic objectives, based on the common issues that allow facing the problematic found.

Table No. 19. Summary of strategic objective.

Count with a proper legislation for the whole POP life cycle.
Strengthening of the technical infrastructure and analytical capacity available for the groups (PCB/BPC and POP pesticides) and build it for the dioxins and furans group.
Appropriate management of the activities for POP pesticides and obsolete pesticides life cycle; as well as, polychlorinated biphenyl and equipment that contains it; minimize the generation and releases of dioxins and furans by anthropogenic sources.
Adequate management of the identification, verification and rehabilitation of contaminated sites.
Implement a mechanism of dissemination, information and foster training spaces regarding POP.
Strengthening of inter and intra-institutional relations.
Count with a proper legislation for the whole POP life cycle.

Source: Delegates from the National POP Coordination Commission

The POP NCC and the project's coordination develop a general prioritizing of the topics in order to identify the most important issues. The result of the prioritization was: 1) The most important topic, establishment of a Legal POP Framework in Guatemala; 2) The topic, propose dissemination, information and training mechanisms for POP, which the majority agreed on the importance of this subject and no negative feedback was received, placing it second in order; 3) The remaining subjects: environmentally sound management on POP and identification and remediation of contaminated sites, didn't have a significant difference one from the other; therefore, they were all placed in third position. The rest were considered with the same level of importance and must be developed in parallel.

Table No. 20. Table of priorities.

Order of priorities				
1		**Establish a legal framework for POP in Guatemala**		
2	**Achieve an adequate analytical capacity for POP**	**Education, training and dissemination regarding POP**	**Strengthening of the institutional infrastructure**	
3	**Environmentally sound management of POP pesticides (Annex A, part I, annex B).**	**Environmentally sound management of PCB/BPC (Annex A, part II).**	**Environmentally sound management of dioxins and furans (Annex C).**	**Identification of contaminated sites**
4				**Promoting the remediation of contaminated sites**

Source: Delegates from the National Coordination Commission

3.2.5 Main implementation aspects.

-- Proposed period for the implementation of the NIP.

The activities, strategies and national plans developed to establish the ideal activities to achieve the Convention's objectives, include the period for its fulfillment, considering as a beginning date year 2010 and ending year 2025. However, it must be taken into consideration that for some of the planned activities, such as education, awareness and communication on POP, it will exceed the proposed period due to the importance of the territorial extension issue and since the Convention will have new products listed which will be addressed independently. In this time period, the report presentation dates have been added, as indicated by the Convention and the NIP update.

-- Institutional/organizational arrangements and appointment of responsibility.

It is needed that an operative structure be institutionalized within MARN for the POP implementation coordination, to have a political, administrative and financial support and make more feasible the achievement of the objectives for each activity, strategy and plan in the indicated time period. An organizational chart for the function of the operative structure is proposed and its main functions will be to coordinate National Implementation Plan activities; to enable the creation of regulatory measures that strengthen and contribute to comply with these activities; to work as a central information point in national and international levels; and, to be in charge of monitoring the NIP's progress. It is desirable that a special yearly budget for the operative structure for the NIP implementation coordination be included in order that such works properly over the years established in the NIP and in which the POP reduction and elimination is intended.

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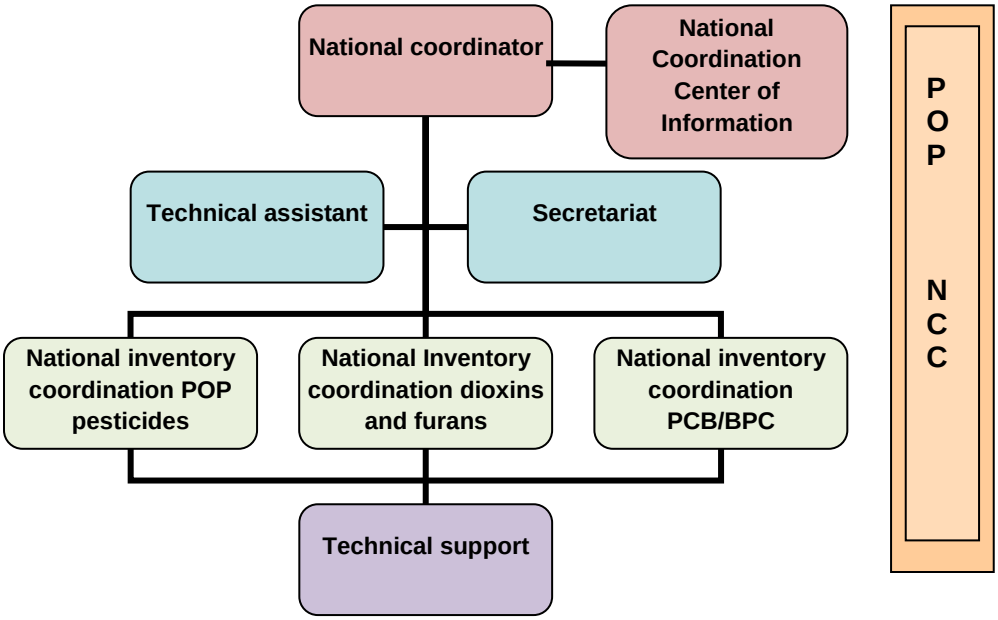
Figure No. 35. Flowchart of the operative structure for the NIP coordination.



In order to ensure the success of the National Implementation Plan, it is necessary that many public and private institutions decentralized and/or from the civil sector, assume their role and absorb many costs that otherwise couldn't be included in this proposal and that depend on their own field of competence. Within the identified institutions, related to this issue, and responsible for its execution are: Ministry of Environment and Natural Resources; Ministry of Public Health and Social Assistance; Ministry of Energy and Mines; Ministry of Agriculture, Food and Livestock; Ministry of Education; Ministry of Labour and Social Assistance; Ministry of Economy; Ministry of Communications, Infrastructure and Housing; Ministry of Public Finances; Ministry of National Defense; Ministry of Foreign Affairs; General Department of Customs; NGOs; public and private electric sector; state and private academy; Agriculture Guilds; and, social society.

Another most important organization to carry out the implementation is the POP National Coordination Commission (POP NCC), which is already established and has accompanied the development of the training activities project for the Stockholm Convention implementation and has reviewed the most relevant and important national plans. The POP NCC must continue working alongside with all structures created to make the NIP effective in MARN; as well as, inside other institutions to provide follow up to certain activities included in the NIP.

International funding should be negotiated in order to comply with some of the activities, objectives and goals that the government could not subsidize on its own. Consequently, a number of projects were created intended for those issues that were identified as a priority and to be presented to international cooperation for funding.

3.2.6 Follow up mechanisms and implementation monitoring.

Guatemala's National Implementation Plan –NIP- must be yearly reviewed by the National Coordination Commission for POP, coordinated by the Ministry of Environment and Natural Resources, in order to evaluate the level of compliance, strengthen weak areas and integrate new elements that can help reinforce measures to reduce or eliminate POP releases, from intentional or unintentional production.

During the first implementation year, MARN will create, along with the POP NCC, an organization chart to evaluate the implementation progress, through the review of the achievement of goals planned for each activity, strategy or plan. This follow up will be based on the monitoring of the NIP's performance, and will be in charge of carrying out the adjustments and changes needed in light of the progress or special circumstances under which an objective couldn't have been reached. These two instances will also ensure that the reports requested by the Convention be elaborated with everyone's participation and delivered in the established dates. It will also be in charge of updating the NIP with the generated information and the goals that are reached.

3.3. ACTIVITIES, STRATEGIES AND ACTION PLANS.

In this section, all activities, strategies and action plans are presented, created during the fourth phase of the project and that will be executed in a time period that doesn't exceed the year 2025. It is intended to eliminate or reduce POP in the country through such activities. These activities have been planned to be carried out in a short, medium and large term. For the NIP, the activities to be executed in short term will be completed in a period of 1 to 3 years, medium term activities can take from 4 to 10 years, and long term activities are those that can be considered to be executed in a period longer than 11 years.

Measures proposed on each one of the activities, strategies or plans will help to set a baseline and a national work platform to carry out the Implementation phase of the National Plan.

The statements must be considered as the work baseline to start the search and management for the funds that allow improve the country's institutionalism regarding POP.

Actions established for each one of the activities, strategies and action plans to comply with the acquired commitments of this Convention are presented in several sections, including summary tables.

In the first section there is a summary of current situation on each POP topic in Guatemala and the general objective.

Second section includes, in matrix, the Specific and strategic objectives, products, activities, verification methods and responsible for each planned action and through which greater objectives are intended to be reached in the Convention's implementation strategy.

Third section also presents matrixes of the suggested time for each action, its cost and responsible for its execution, as well as the fund provider. The last table presents the total cost per activity, strategy or national plan, in US Dollars and the source of funding.

Section number four presents a summary on the mechanisms of the implementation for each activity, strategy or national plan to be carried out.

The activities, strategies and national plans developed within this document are related with studies carried out separately which are called National Plans.

Figure No. 32. List of activities, strategies and national plans.

3.3.1 Activity: institutional and regulatory strengthening measures.

3.3.1.1 Current situation.

In general terms, the Country's institutionalism to address commitments product of the signing and ratification of a Multilateral Convention, represents big challenges since national institutions have multiple responsibilities and obligations, commonly facing the lack of economical resources and insufficient qualified personnel to face new commitments. For this reason, generally institution structures are modified to include new commitments and ensure the country's compliance, having as a challenge and vision, the benefits for all its inhabitants. This is the case of the commitments acquired by the Stockholm Convention on Persistent Organic Pollutants.

There are Specific laws that support constitutional mandates; such is the case of the Health Code, which objective is to preserve the inhabitant's health; Environment Protection and Improvement Law that "*ensures the maintenance of ecological balance and environment quality to improve life quality of the country's inhabitants*". On the other hand, there are regulations to control pesticides, having as a starting point the Regulation Law, No. 43-74 for the importing, elaboration, storage, transportation, sale and use of pesticide, from which several regulations derive, including those of DDT restriction, Government Agreement 27-76, as well as the prohibition of some POP Pesticides since the year 1988 (MAGA's Ministerial Agreement No. 03-88). For PCB/BPC and unintentional releases, general regulation allows incorporating both subjects, however, in Specific regulation matter, there are some ministerial agreements and regulations that refer to them but still in an emerging way.

Taking into consideration that the country has signed and ratified International Conventions, such as: Stockholm and Basel Conventions, Protocol of Montreal, etc., such have turned into a General Enforcement Law and of obligatory compliance, therefore, the country is obligated to comply with such [sic].

3.3.1.2 General objective.

Review National Legal and Institutional framework regarding the persistent organic pollutant's issue –POP-, to propone new legal and institutional measures that can support the integral management throughout their lifecycle.

3.3.1.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No 21. Objectives, activities, monitoring channels, responsibilities.

Institutional strengthening					
Specific objective 1: To have an institutional framework in the country that allows addressing the issue of POP effectively.					
Strategic objectives	**Products**	**Activities**	**Indicators**	**Monitoring channels**	**Responsible**
1.1 Strengthening of the institutional framework in the country to tackle the issue of POP effectively.	Strengthened Regulatory framework that supports plans to meet the Stockholm Convention agreements.	1. Develop an integrated public policy regarding the general management of chemical substances. 2. Creation of a general regulation for the sound management of chemical substances including POP.	a. Number of issued regulations regarding chemical substances that include POP, directly or indirectly.	* Diario de Centroamérica (Official Gazette) * Ministerial agreements * COGUANOR norms.	MARN, National Coordination Commission.

Institutional strengthening					
Specific objective 1: To have an institutional framework in the country that allows addressing the issue of POP effectively.					
Strategic objectives	**Products**	**Activities**	**Indicators**	**Monitoring channels**	**Responsible**
		3. Create norms for the technical aspects regarding POP life cycles.			
	Political support.	4. Awareness workshops from national and institutional authorities to disseminate the benefits of the Convention and acquired agreements of the country.	a. Number of awareness workshops carried out by the authorities.	* Institutional commitments. *Ministerial plans. *Institutional budget.	Each corresponding institution. MARN coordinates.
		5. Include the POP issue in different ministerial plans depending on what the institution's function is.	b. Number of national plans that include the issue of POP.		
		6. Management of resources allocation for POP.	c. Designated amounts for each institution.		
	Institutionalization of NCC.	7. Meetings to involve different agencies with expertise in the subject.	a. Number of identified institutions called upon and actively participating.	* Summon letters. * List of attendance. * Reports or memory aids. * Agreement of creation and Operation of NCC.	MARN, National Coordination Commission.
		8. Issue of agreement that allows the institutionalization of NCC and the appointment of the representatives for each institution.	b. Issued regulation that backs up NCC operation.		
	Stockholm Convention Implementation Coordination Unit.	9. Create the Operative Unit regarding POP with an operating budget, within the general structure of MARN.	a. Unit created within the institution (MARN) b. Designation of operating budget.	*Organic Structure of MARN. *Designated operational amount. * Profile of the members of the Unit.	MARN.
		10. Hiring and training of personnel in the issue of POP.			
	Development of national capacity.	11. Training workshops regarding the effective management of POP.	a. Number of workshops, training workshops and/or technical training regarding POP.	* List of institutions or companies * Developed topics * Photographs	MARN, Toxicology Department of USAC, MT, MEM, MSPAS, MAGA, INAB, others.
	Strengthened Institutions.	12. Create a strategic proposal for the support and development of the institutional capacity.	a. Amount of created strategies b. Number of projects involved within in the	a. Developed projects b. Projects approved by the financing	MARN, NCC.

Institutional strengthening					
Specific objective 1: To have an institutional framework in the country that allows addressing the issue of POP effectively.					
Strategic objectives	**Products**	**Activities**	**Indicators**	**Monitoring channels**	**Responsible**
		13. Create strategies, mechanisms and ways of financing for institutional strengthening.	strengthening strategies c. Amounts with financial aid.	sources.	
	Intra and inter-institutional coordination.	14. Coordinate the activities of the different conventions and/or issues regarding chemical substances that are responsibility of different state agencies.	a. Operative coordinating body b. Frequent meetings.	a. Members b. Meeting reports.	MARN, NCC.
		15. Establish an effective communication network.			

3.3.1.4 Timetable of activities per strategic objective, execution period and costs of activities.

Strategic objective 1: Have a legal and institutional framework that allows to effectively addressing the issue of POP in the country.

Table No 22. Timetable of activities for strategic objective 1.

Strategic objectives	Years								Cost Q	Costs US$	Source of donation
	2010	2011	2012	2013	2014	2015	2016	2017 2025			
1.1 Strengthening of the institutional framework to effectively address POP in the country.											
Activities 1,2,3											Costs are included in activity 3.3.3
Activities 4,5,6									443,000.03	55,031.06	Ministries, cooperative institutions
Activities 7,8,9,10,12,13,14, 15								Until 2019	7,844,000.00	974,409.94	Costs include installed capacity of MARN".
Activity 11								Until 2017	72,000.00	8,944.10	Ministries, INAB academy, others.
Total of 3.3.1 Activity: institutional and regulatory strengthening measures.									**Q8,359,000.06**	**US$1,038,385.10**	

3.3.1.5 Implementation of activity.

The statements made for this activity are, in general terms, the most important and such can unchain a series of particular actions that will enhance POP regulation and institutions in Guatemala. All actions identify appropriate spaces to work in conjunction and it is estimated to carry out several of them in a time period of 10 years, beginning in 2010; and, they are subject to political will and to the active participation of indicated institutions. First activities (1, 2 and 3) are aimed to strengthen legal and institutional framework for POP and can have duration up to 6 years; remaining activities are permanent and are oriented towards sensitizing national authorities; as well as, the general population on the health and environment benefits of complying with the Stockholm Convention. These activities are also oriented towards raising the knowledge on new legal and institutional proposals and allowing inter-institutional coordination, in order to make effective the development of national institutional capacity and establish mechanisms and funding sources for this subject.

To achieve proposed activities, it is recommended the institutionalization of the POP National Coordination Commission; as well as, creating an operational structure responsible for POP implementation in MARN, and the active participation of POP National Coordination Commission, which accompanied the project for two years, in the development of the Project to comply with the Stockholm Convention.

3.3.1.6 Global cost and funding for the plan.

Table No. 23. Global Cost and Funding for the activity: Regulatory and Institutional Strengthening.

Total cost of the activity	Total cost US$	Local funding (country)		External funding
		MARN	Other institutions	
3.3.1 Activity: Measures for regulatory and institutional strengthening.	1,038,385.10	974,409.94	63,975.16	
		93.84%	6.16%	

3.3.2 Activity: measures to reduce or eliminate releases from intentional production and use.

This activity is not presented in this document since contains activities that are included in the presented plans in sections: 3.3.3, 3.3.4.; 3.3.5 and 3.3.6.

3.3.3 Activity: production, import and export, use, stockpiles and wastes of annex A POP pesticides (annex A, part 1, chemicals).

3.3.3.1 Current situation.

To fulfill with the obligations of the Stockholm Convention on Persistent Organic Pollutants and achieve the reduction or elimination of releases derived from production and intentional use of the 8 pesticides listed in the studies of annex A of the Convention, a preliminary inventory for this group of POP compounds was carried out in 2008, which its objective was to: a) Gather information related to import, export, formulation, storage, commerce and usage of the POP pesticides of annex A and B of the Convention'.

This inventory identified storage sites and quantified weight and volume for the obsolete pesticides found, considering only location, amount and description of the conditions in which they were stored. Since the current legislation regarding POP pesticides in Guatemala cancels the registry of most POP, only 0.0133 tons of aldrín and 21.93 tons of obsolete pesticides were found. A preliminary inventory carried out by the Ministry of Public Health and Social Assistance had already identified 15.05 tons of DDT.

3.3.3.2 General objective.

Establish measures to reduce or eliminate the production, import, export, usage, existence stockpiles and wastes, resulting from POP and obsolete pesticides (annex A, part 1); pesticides in Guatemala by year 2015; and, contribute to the reduction of health and environmental risks.

3.3.3.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 24. Specific objective 1: Have an adequate legislation for the activities regarding the complete life cycle of POP and obsolete pesticides.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Identify and disseminate laws, agreements, decrees and norms that exist in Guatemala implemented on POP and obsolete pesticides.	1. Stakeholders know the laws, agreements, decrees, norms, rules regarding POP and obsolete pesticides.	1. Carry out a compilation of laws, agreements, norms and regulations regarding the activities of the life cycle of POP and obsolete pesticides.	1. Compilation of the 100% of national legislation regarding pesticides from annex A, part I.	Data base of compilation of legislation.	MARN, MAGA, MSPAS, COGUANOR. In cooperation with AGREQUIMA.
		2. Identify target audience.	2. The 100 % of identified companies and institutions must have an information brochure.	1. List of identified companies.	MARN.
		3. Make publications on the website of MARN and POP central information offices and distribution of brochures.		Publications and brochures.	
1.2 Reform and strengthen existing regulations covering the whole life cycle of POP pesticides.	1 .New initiatives of legislation related to the life cycle of POP pesticides.	1. Develop new initiatives of legislation related to the activities of the life cycle of POP pesticides.	Developed and presented initiatives to the corresponding institutions.	Publication of the Official gazette.	Sub-commission of POP pesticides, MARN, MAGA, COGUANOR, MSPAS, MINEDUC, MINTRAB.
	2. Specific legislation to cancel POP products registration not included in current legislation.	2. To develop jointly with MAGA a law cancelation proposal for the registration of POP Pesticides.	Presented consensus proposal.	Publication of the cancelation of registration of POP Pesticides on the Official gazette.	MAGA, MARN, COGUANOR.
		3. Identify target audience and dissemination coordinating entities.	3. 100% of target audience and dissemination coordinating entities identified.	List of target audience and dissemination coordinating entities.	MARN, MAGA, MSPAS, AGREQUIMA.
		4. Dissemination of cancelations regulation on POP Pesticide to interested parties through meetings and information material.	4. Carry out one training meeting by region to disseminate the cancelation of POP Pesticides registration.	List of participants of the meetings that took place.	

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
	3 The existence of a permanent program to verify the norms of POP pesticides.	5. Develop a supervision (sheet) form.	1. Instrument is available for supervision.	1. Supervision ballot.	MARN
		6. Training of MARN, MAGA, MSPAS and MINTRAB supervisors.	2. Train the 100% of supervisors.	2. List of trained supervisors.	2.MARN, MAGA, MSPAS, MINTRAB
		7. Supervision by the compliance commission of environmental legislation of MARN and inspection and supervision program of MAGA, MSPAS, MINTRAB.	3. 90% of the entities comply with the legislation.	3. Inspection Reports Registration of responsible entities.	3. MAGA's supervision program, public health inspectors, compliance commission of environmental legislation of MARN and MINTRAB.

Specific Objective 2: Strengthen the technical infrastructure and analytical capacity of POP and obsolete pesticides. This objective is included in the activity of research development and monitoring of POP.

Table No. 25. Specific objective 3: Proper management of the activities of the life cycle of POP and obsolete pesticides.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
3.1 Establish a monitoring and control system in customs and stores for the illicit trade of POP and Obsoletes Pesticides.	1. Strengthen procedures to monitor illegal trade of POP and Obsoletes pesticides in customs.	1. Investigate SAT website for the validated procedure regarding the monitoring system and customs control.	Know the100% of elaborated procedures by SAT.	Approved procedures.	MARN, SAT, MAGA.
	2. Training of customs personnel on the Pesticides procedure manual.	2. Training of customs personnel on procedures and responsible management of agrochemicals.	50 people from customs trained on the use of the procedure for the manual of monitoring POP Pesticides manual.	List of trained personnel.	SAT MARN MAGA.
	3. Periodic supervisions to stores and marketing companies with the purpose of detecting POP and Obsoletes Pesticides.	3 Supervisions to stores and marketing companies of pesticides.	The non existence of Stockpiles of POP and Obsoletes Pesticides on by 2015.	Number of carried out supervisions.	MARN, MAGA, MSPAS.
3.2 Suitable identification of POP and Obsoletes pesticides.	1. Updated inventories of POP and Obsoletes pesticides.	1. Continue carrying out the POP and Obsoletes pesticides inventories.	Updated inventories every two years before the year 2015.	POP pesticides and Obsolete findings Database.	MARN,
	Identified samples with the assistance of laboratories with the analytical technical capacity for POP pesticides.	2 Carry out sample analysis in laboratory.	Identified samples with standardized methodology.	POP and Obsoletes pesticides stockpiles Database.	MARN, MAGA, MSPAS, AGREQUIMA.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
3.3 Correct management of POP pesticide and Obsolete stockpiles in a safe manner for people and the environment.	1. Technical Commission formed.	1. Formation of a technical Commission to analyze the Specifications of warehouse storage of POP and Obsoletes pesticides.	Commission operating within the stipulated time.	Minutes of Commission meetings and reunions.	MARN, MAGA, MSPAS, AGREQUIMA.
	2. Warehouse storage with the capacity to store existing POP and obsoletes pesticides.	2 Identification of warehouses within the agrochemical industry.	Number of identified warehouses.	List of warehouses locations in the country.	MARN, MAGA, AGREQUIMA.
	3. Transportation of identified and certified pesticides.	3 Carry out a list of Guatemalan pesticide Transportation companies.	The100% of identified transportation companies comply the established regulations.	Pesticides transportation Database.	MARN, MAGA, AGREQUIMA.
	4. Responsible management of POP.	4. Application of the existing manuals (AGREQUIMA).	The 80% of the warehouses have a suitable management for POP pesticides.	Registration of warehouses supervision regarding the monitoring of the fulfillment of the manuals.	MARN, MAGA, AGREQUIMA.
	5. Trained personnel on the correct storage of POP pesticides and Obsoletes.	5. Training on the correct storage of pesticides for permanent personnel in warehouses with stockpiles of POP and Obsoletes pesticides.	Warehouse workers apply rules of correct management, packaging, transportation and storage of existing POP and Obsoletes pesticides.	Registration of trained personnel.	MARN, MAGA, AGREQUIMA.
3.4 To know the mechanism of elimination and transportation of POP pesticides and Obsoletes in an environmentally sound manner inside the country and abroad.	1. Identified companies for elimination management and transportation services of POP pesticides and Obsoletes.	1. Identification national and foreign companies for elimination management and transportation of POP pesticides and Obsoletes.	Identify the 100 % of companies inside the country and abroad that provide the service of elimination and transportation.	Registration of companies inside the country and abroad.	MARN.
	2. Know the different disposal methods of POP pesticides and Obsolete.	2. Carry out 1 training workshop on a method of elimination of POP and obsoletes pesticides given by national and international experts.	80% of the companies know the different methods of elimination of POP pesticides and Obsoletes.	List of participants on this topic.	MARN,
	3. Necessary funding from local and international entities for the elimination of stockpiles abroad.	3. Apply for international aid for funding to eliminate the existence of stockpiles abroad.	The 100% of funds for the elimination of stockpiles abroad up to the year 2015.	Files of requests to countries or companies.	MARN.

3.3.3.4 Timetable of activities per specific objective and cost.

Table No. 26. Specific objective 1: Have an adequate legislation for the complete life cycle of POP and obsolete pesticides.

Strategic objetives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 Identify and disseminate existing laws, agreements, decrees and norms in Guatemala regarding POP and Obsoletes pesticides.								9,712.20	1206.48	
ACTIVIDAD 1	2							3,506.10	435.54	MARN, other cooperating ministries.
ACTIVIDAD 2,3	6							6,206.10	770.94	MARN, includes installed capacity
1.2. Reform and strengthen the existing laws that address the whole life cycle of POP pesticides.								74,839.66	9,296.85	
ACTIVIDAD 1,2								23,870.60	2,965.29	MAGA, MARN, MSPAS, MINEDUC, MINTRAB, includes installed capacity
ACTIVIDAD 3,4								30,877.78	3,835.74	MAGA, MARN, MSPAS
ACTIVIDAD 5,6								1,624.72	201.82	MARN, MAGA, MSPAS, MINTRAB, includes installed capacity
ACTIVIDAD 7								18,466.56	2,293.98	MARN, MAGA, includes installed capacity
Total of strategic objectives and activities								**84,551.86**	**10,503.34**	

Table No. 27. Specific objective 3: Proper management of the activities for the life cycle of POP and obsolete pesticides.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016-2025			
3.1 Establish a system for monitoring and control customs and stores of illicit trade of POP and obsoletes pesticides.								**39,139.91**	**4,862.10**	
Activity 1								2,731.11	339.27	MARN, includes installed capacity
Activity 2								14,158.88	1,758.87	MARN-MAGA
Activity 3								22,249.92	2,763.96	MAGA-MSPAS-MAGA

Strategic objectives	Years	Cost Q	Cost US$	Funding sources
3.2 Appropriate identification of POP and obsoletes pesticides stockpiles.		**80,699.52**	**10,024.78**	
Activities 1,2		80,699.52	10,024.78	MARN (2 persons)
3.3 Proper management of POP and obsoletes pesticides stockpiles in a sound manner for people and environment.		**122,200.68**	**15,180.21**	
Activity 1		1,206.10	149.82	MARN, MAGA, AGREQUIMA
Activities 2,3		2,911.38	361..66	MARN
Activity 4		26,236.00	3,259.13	MARN
		14,000	1,739.13	AGREQUIMA
Activity 5		7,847.20	974.81	MARN-MAGA-
		70,000.00	8,695.65	AGREQUIMA
3.4 To know mechanisms of elimination and transportation of POP and obsoletes pesticides in an environmentally sound manner inside the country and abroad.		**25,886.08**	**3,215.66**	
Activity 1		769.44	95.58	MARN
Activity 2		20,500.00	2,546.58	**COOPERANTES**
Activity 3		4,616.64	573.49	MARN
Total of strategic objective and activities		**267,926.19**	**33,282.75**	
Total cost of activity 3.3.3: Production, import and export, use, stockpiles and wastes of annex A POP pesticides (annex A, part 1, chemicals).		**352,478.05**	**43,786.09**	

3.3.3.5 Implementation of the action plan.

This activity will be implemented by the ministries more related to POP pesticides, such as: MAGA, MSPAS, MARN and the Chemists Guild Association –AGREQUIMA-, with the support of private and public institutions. Its execution will take place in a time period beginning in 2010 and ending in 2015, with a total cost of US$43,786.09 equivalent to Q352,478.05. There should be added other sectors deeply related with the topic to strengthen actions taken by the ministries and the Agricultural Guild. These costs do not include the operation costs of the technical infra-structure that the NIP will implement; however, it is considered in the National Action Plan document, Activity 3.3.3 production, import and export, usage, stockpiles and pesticides POP wastes from annex A (annex A, part 1 chemical products).

This activity was built upon the basis of three strategic objectives; the first one is oriented to the dissemination of existing legislation to identify and draft new legislation in order to strengthen the already existing, and its dissemination and future monitoring for proper application.

The other important specific objective contains actions that will help to the proper manage of activities related to POP and obsolete pesticide's life cycles; such as the elimination mechanisms and transportation, monitoring systems and control of customs, distribution centers and trading companies. These activities require extraordinary funding; therefore, the request to identified international aid organisms is presented. The remaining activities will be funded by the different ministries and private entities related to the subject.

The proposals on operation measures included in this activity must be accompanied by a training program along the complete life cycle of the POP Pesticides and carry out national awareness campaigns through this program.

It is also important to continue identifying products by means of POP and obsolete pesticides inventories by year 2015, using the methodology established in phase II.

3.3.3.6 Global cost and funding for activity.

Table No. 28. Global cost of activity 3.3.3

Total cost of the activity	Total cost US$	Local funding (country)		Foreign funding	Source of external funding
		MARN	MARN and other institutions		
Activity 3.3.3: Production, import and export, use, stockpiles and wastes of annex A POP pesticides (annex A, part 1, chemicals).	**43,786.09**	**16,062.21**	**25,177.25**	**2,546.58**	It will depend on the access to international cooperation and commitment of the institutions.
		36.7%	**57.50 %**	**5.80%**	

3.3.4 Activity: Production, import and export, use, identification, labeling, removal, storage and disposal of PCB/BPC and equipment containing PCB/BPC (annex A, part II chemicals).

3.3.4.1 Current situation.

Bearing in mind the need of taking actions to avoid environmental, health and social implications regarding PCB/BPC, the country carried out a preliminary inventory in year 2006, through a project coordinated by the Basel Convention Secretariat; and, the current project carried out an update of such inventory in the year 2008. The information from these inventories was crucial to develop plans and strategies presented in this document.

It is greatly important to develop regulation and the adequate technical infrastructure to implement effectively this activity since this regulation is the baseline; so that, operational management measures can be applied in an efficient way.

Up to date, a total of 118,322 liters of PCB/BPC are accounted for and must be eliminated in an environmentally sound manner. MARN, as coordinator entity, must carry out efforts to comply with all stated objectives; however, the plan must be executed with the support of previously mentioned institutions, mainly on the electric sector and those possessing electrical equipment and PCB/BPC, with main support from the POP National Coordination Commission.

3.3.4.2 General objective.

Establish necessary actions for the adequate management of import and export, use, identification, labeling, transport, storage and disposal of PCB/BPC and equipment containing it.

3.3.4.3 Specific and strategic objective, results, activities, monitoring channels and responsibilities.

Table No. 29. Specific objective 1: Create or strengthen the regulatory measures to restrict the use of equipment and oil contaminated with PCB/BPC and for their environmentally sound disposal.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1. Minimal use only in intact and isolated equipments and for a short period of time and only in areas where the risk of releases into the environment can be reduced to a minimal and the release area can be quickly decontaminated. 1.2 Eliminate the use of equipment located in areas related with the production or elaboration of food in general. 1.3 Eliminate use of equipment when used in densely populated areas including hospitals, schools and the adoption of all the reasonable protection measures against electrical blackouts that could cause fire. 1.4 Create regulations in agreement to the suitable management of equipment out of use for its disposal in a sound environmental manner l. 1.5 Prohibit the recovery for the reuse in other equipment that	1. Identify companies of management on elimination services and transportation of POP and Obsoletes pesticides.	1. Identify laws and legislation initiatives for national and international integration of Specific norms and regulations in the use and elimination of oil and equipment with PCB/BPC.	90% of the laws and legislation initiatives regarding the identified topic.	List of Laws and initiatives of legislation identified.	MARN, MEM, CNEE, and COGUANOR.
	Suitable norms and regulations for the restriction of use of equipment and oil contaminated with PCB/BPC for an environmentally sound elimination.	2. Create a regulation proposal (technical regulation) for a) the restriction of use of contaminated equipment, Considering: b) The elimination of the use of equipment with contaminated oil in critical areas: production or elaboration of food and animal food. c) Use only in intact equipment and only in areas where the risk of release into the environment can be minimized and the area of release can be decontaminated quickly.	There is an existing regulatory proposal.	Proposal documents.	MARN, MEM, CNEE, COGUANOR, electric Sector, scrap dealers and collectors of oil. Cementos Progreso.
		3. Elaborate a regulation proposal related to the suitable management of all equipment out of use for its disposal in an environmentally sound manner.	There is an existing regulatory proposal.	Proposal documents.	MARN, MEM, CNEE, COGUANOR, Electric Sector, scrap dealers and collectors of oil. Cementos Progreso.
		4. Elaborate a regulation proposal related to maintenance and repair of equipment and oil contaminated with PCB/BPC.	There is an existing regulatory proposal.	Proposal documents.	MARN, MEM, CNEE, COGUANOR, Electric Sector, scrap dealers and collectors of oil. Maintenance companies.
	Interested parties informed about regulations	5. Monthly meetings for the dissemination of the proposal.	People socialized.	List of participants attending.	MARN, MEM, CNEE, and COGUANOR

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
contain polychlorinated biphenyls superior to 0,005% (50ppm). Except for the maintenance or repair operations, not allow the recuperation.		6. Carry out a dissemination program of the regulatory proposals for their effective implementation through electronic material sent to interested parties and Meetings.	Companies and equipment owners informed regarding actual regulations.	Number of informed companies and equipment owners.	MARN, MEM, CNEE, and COGUANOR.

Table No. 30. Specific objective 2: Identify, label, remove from use and eliminate all the equipment containing more than 0.05% (50ppm) of polychlorinated biphenyls and volumes over than 5 liters no later than 2025.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1. Verify that equipment and oil containing polychlorinated biphenyls (PCB/BPC) detailed on the literal paragraph a, part II of the Stockholm Convention, for example transformers, capacitors and other receptacles that contain residual wastes, are not exported or imported, except for their environmentally sound waste management.	Control of import and export of oil and equipment contaminated with PCB/BPC.	1. Implement managing procedures for exportation of oil and equipment under Basel Convention guidelines (import subject to existing national legislation).	Operating Procedures.	Procedure Documents.	MARN and SAT.
		2.Creation and implementation of management procedures for PCB/BPC import only for requested analytical standards by laboratories, investigation centers, etc.	Operating Procedures.	Procedure Documents.	RELABSA, Investigation Centers.
		3. Creation and implementation of control mechanisms in Customs to avoid the entrance of equipment or scrap and wastes with a high probability of PCB/BPC contamination.	Customs with implemented control mechanism.	Control mechanisms implemented in Customs.	MARN and SAT.
2.2 Proper identification and label of equipment with PCB/BPC in Guatemala.	Updated inventory by companies that own electrical equipment.	1. Annual update of inventory by companies owning electrical equipment.	The companies that together hold 90% of electrical equipment with the inventory updated annually.	Company Inventory.	Users of electrical equipment.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
		2. Creation of Database for the National PCB/BPC Inventory through an electronic system for its automatic update, managed through the focal point coordinator.	Operating electronic database.	Database.	MARN.
	Official material available to owners of equipment for labeling.	3. Create identification labels and material.	Creation of 10,000 labels to identify equipment with PCB/BPC.	Labels.	MARN.
	Trained Companies and personnel.	4. Training of companies and personnel through workshops, manuals and dissemination material.	80% of companies that own equipment trained.	List of trained companies and personnel.	MARN and Electrical equipment owners.
	Supporting of the development of analytical capacity and low cost methodologies in the country.	5. Promotion of reliable, low cost methodologies to companies for the detection of contaminated equipment Example: Chlor-in Oil, L2000.	3 Methodologies and/or low cost technologies available for PCB/BPC analysis.	List of methodologies and/or available.	MARN.
2.3 Have storage warehouses that comply with the requirements for temporary storage of equipment and oil contaminated with PCB/BPC.	Temporary suitable storage warehouses for equipment and oil contaminated with PCB/BPC.	1. Design the capacity of warehouses for the storage of equipment and oil contaminated with PCB/BPC.	Warehouse design.	Warehouse design.	MARN, Electric Companies and electric equipment owners.
		2. Conduct an economic feasibility analysis on the rental or construction of a warehouse for storage of PCB/BPC and equipment contaminated with PCB/BPC.	Economic analysis document.	Economic analysis document.	MARN, electric companies and electric equipment owners.
		3. Acquisition of Warehouses.	Constructed or rented warehouses.	Infrastructure of Warehouses.	MARN coordinates international cooperation enterprises.
		4. Development and implementation of good environmental practices on the proper storage.	The whole storage process is ruled by good environmental practices.	Warehouses procedure documents.	MARN, Electric Companies and electric equipment owners.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.4 To have a specific available transportation for equipment and oil contaminated with PCB/BPC that complies with environmentally sound procedures.	List of companies for electrical equipment transportation.	1. Identification of transportation companies for electric equipment like: capacitors, transformers, etc. (equipment likely to be contaminated with PCB/BPC).	The 90% of companies that transport equipment identified.	List of electrical equipment transportation companies.	MARN and General Office of Transportation.
	Capacity assessment on national transportation of contaminated equipment.	2. Evaluation of the companies in charge of transportation of transformers to determine their capability to transport contaminated equipment.	Five of the strongest Companies in the market evaluated to determine their capability to transport contaminated equipment.	Evaluation document.	General Office of Transportation and MARN.
	Procedures for proper transportation.	3. Elaboration of a manual for transportation of electrical equipment in an environmentally sound manner.	Manual created in the indicated time.	Manual documents.	MARN and General Office of Transportation.
	Interested companies trained for an environmentally sound transportation of contaminated equipment.	4. Training of interested companies in the transportation of equipment and oil with PCB/BPC, through 2 workshops.	The training of 100 % of interested companies in transportation of equipment and oil with PCB/BPC.	List of trained interested companies.	MARN.
2.5 Establish mechanisms to facilitate the disposal and decontamination of equipment and oil contaminated with PCB/BPC in an environmentally sound manner.	Evaluation of internal or external capacity of elimination.	1. Carry out an evaluation on the capability for internal and external disposal (national or international) for the environmentally sound elimination.	The evaluation that takes into account at least two options of environmentally sound elimination.	Evaluation documents.	MARN.
	Systems of management of aware companies.	2. Promoting a clean disposal of PCB/BPC in the in the system of environmental management of the companies that own contaminated equipment.	80% of the companies that own equipment contaminated with PCB/BPC have systems of environmental management that cover the environmentally sound elimination of PCB/BPC.	List of companies with systems of management that cover the environmentall y sound elimination of PCB/BPC.	MARN.
	Available resources.	3. Management of economical resources for elimination	Find a funding source.	Donation and/or financing.	

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
	Elimination of stockpiles in an environmentally sound manner.	4. Planning, implementation and support for the elimination of substances and contaminated equipment.	Inventory of eliminated stockpiles or decontamination in an environmentally sound manner.	Amount of managed equipment.	International cooperation, Owners of oil and equipment contaminated with PCB/BPC.

Table No. 31. Strategic objective 3: Carry out activities to identify other articles that have more than 0,005% (50ppm) of polychlorinated biphenyls (for example, cable coatings, sealing compounds and painted articles) and manage them according to was is established in paragraph 1, article 6 as soon as possible (point e, part II of the Stockholm Convention).

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
3.1 Identify, Store and dispose in an environmentally sound manner, articles that contain more than 0.005% Polychlorinated Biphenyls (like cable coatings, sealing compounds and painted items).	Released legislation.	1. Creating programs and regulations of elimination or decontamination of contaminated articles.	Functioning procedures and programs.	Functioning procedures and programs.	MARN.
	Inventory of contaminated articles.	2. Carry out a registration and inventory of the articles containing 0.005% of polychlorinated biphenyls.	Annually updated inventory.	Inventory.	MARN.
	Collected Products.	3. Storage of all the articles in the inventory in an environmentally sound manner in warehouses enabled, used for PCB/BPC.	Warehouse with enough capacity for temporary storage.	Enabled Infrastructure.	MARN (Enabled warehouses will be used for the storage of electrical equipment).
	Owners of articles trained in the topic.	4. Training of owners of contaminated items for its management through manuals and training workshops.	Created manuals and carried out trainings.	Manuals Document and list of workshop attendance.	MARN.
	Eliminated contaminated items in an environmentally sound manner	5. Creation of elimination programs in an environmentally sound manner through management with external funding.	Functioning Elimination Management programs.	Program reports.	MARN.

Table No. 32. Specific objective 4: Establish mechanisms to identify and collect information, quantification, removal and elimination of compounds (and contaminated equipment) that are included in annex A, part II.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
4.1 Identify, collect information and quantify stockpiles through an inventory.	A stockpiles inventory.	1. Establish mechanisms to obtain information through the demand of an inventory to producers, users, consumers, etc., that are related to the life cycle of the mentioned substance or contaminated equipment.	Inventory of the 90% of contaminated equipment and articles.	Database of Inventory.	Substance owners.
	Expansion and verification of inventory.	2. Carry out technical inspections to companies that own these substances and contaminated equipment to verify and expand inventory.	All the companies with contaminated equipment inspected.	Inspection reports.	MARN and related government entities.
	Increase of analytical capability.	3. Strengthening of the analytical capacity of equipment and contaminated articles through immediate identification kits and reliable low cost methods.	All the companies in the inventory have access to analysis of contaminated equipment.	Laboratories, analysis equipments and available analysis methods.	Pending of the substance.
4.2 Create regulatory measures to limit or eliminate the use of this substance on the set date by the parties.	Suitable rules and regulations for the restriction of use, as well as for the environmentally sound disposal.	1. Elaboration of a regulatory proposal.	Elaborated proposal in the stipulated time.	Proposal document.	MARN and related government entities.
		2. Adaptation and integration of the proposal to the current regulation.	Adapted proposal in the stipulated time.	Regulation issued by the authorities.	MARN and related government entities.
		3. Carry out a dissemination program.	Executed program.	Executed program.	MARN and related government entities.
4.3 Create management systems for the safe handling of the compounds and /or contaminated equipment with such substance, for its environmentally sound disposal.	Material and costs for making decisions.	1. Realization of an evaluation of internal or external disposal capacity (national or international) available for the environmentally sound disposal.	Evaluation that includes at least two options of environmentally sound disposal.	Evaluation document.	MARN and disposal companies.
	Available resources.	2. Management of economical resources for elimination.	Find a funding source.	Donation and/or financing.	MARN and disposal companies.
	Disposal of stockpiles in an environmentally sound manner.	3. Planning, execution and support of substances and contaminated equipment disposal.	The equipments in the inventory disposed or decontaminated in an environmentally sound manner.	Amount of managed equipment.	MARN and equipment owners.

Table No. 33. Specific objective 5: Prepare a report, every five years, regarding the progress on the elimination of polychlorinated biphenyls and submit it to the Conference of the Parties.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
5.1 Periodic development of a report according to Article 15 of the Convention.	Report on reached progress on elimination.	1. Recollection of available information regarding acquired regulations and norms, training programs, social communication programs, equipment and oil contaminated in the inventory, disposed equipment and oil, etc. to carry out the report.	Presentation of report every five years.	Report available to parties.	MARN and NCC.

3.3.4.4 Timetable of activities per strategic objective and costs.

Specific objective 1: Create or strengthen regulatory measures for the restriction of use of equipment and oil contaminated with PCB/BPC and their environmentally sound elimination.

Table No. 34. Timetable of activities and cost for specific objective 1.

Strategic objectives and activities	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016-2025			
1.1 Create and/or strengthen regulatory measures considering strategic objectives 2.1.1.1, 2.1.1.5, 1.1, 1.2, 1.3, 1.4, 1.5										
ACTIVTY 1								89,760.00	11,150.31	MARN, MEM, CNEE COGUANOR.
ACTIVITY 2,3,4								179,519.99	22,300.62	MARN, MEM, CNEE, COGUANOR, Cementos Progreso.
ACTIVITY 5								92,400	11,478.26	MARN, MEM, CNEE, COGUANOR.
ACTIVITY 6								24,640	3,060.87	MARN, MEM, CNEE, COGUANOR.
Total of strategic objective and activity								**386,319.99**	**47,990.06**	

Table No. 35. Timetable of activities and costs of specific objective 2: Identify, label, remove from use and remove all equipment containing more than 0.05% of polychlorinated biphenyls and volumes greater than 5 liters, no later than 2025.

Strategic objective and activities	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1 Ensure that the equipment and oil that contain polychlorinated biphenyls will not be exported or imported except for the purpose of environmentally sound waste management.								**304,292.01**	**37,800.25**	
Activity 1								66,000.00	8,198.75	MARN.
								69,250.00	8,602.00	SAT.
Activity 2								33,726.71	4,198.75	RELABSA, investigation centers.
Activity 3								66,000.00	8,198.75	MARN.
								69,250.00	8,602.00	SAT.
2.2 Properly identify the equipment with PCB/BPC in Guatemala.								**71,153.12**	**8,838.89**	
Activity 1								Depends on the quantity of equipment and type of company. Approximately identification cost.		
Activity 2								13,483.20	1,674.93	MARN, includes installed capacity and electric equipment owners.
Activity 3								21,500.00	2,670.81	
Activity 4								17,820.00	2,213.66	
Activity 5								18,349.92	2,279.49	MARN.
2.3 Have warehouses that satisfy the demands and recommendations of temporal storage of equipment and oil contaminated with PCB/BPC.								**156,407.97**	**19,429.56**	
Activity 1,2								149,600.00	18,583.85	MARN, electric companies and electric equipment owners.
Activity 3								----------	----------	
Activity 4								6,808.00	845.71	
2.4 Have Specific transportation for equipment and oil contaminated with PCB/BPC that complies with environmentally sound procedures.								**75,894.35**	**9,427.87**	
Activity 1,2, 3								68,855.49	8,667.70	General office of transportation, MARN.
Activities 4								6,038.88	750.17	MARN.
2.5 **Establish mechanisms that facilitate elimination of equipment and oil with PCB/BPC in an environmentally sound manner**								**161,016,041.50**	**20,001,992.73**	
Activity 1, 2,3								16,041.50	1,992.73	MARN.
Activity 4							TO 2019	161,000,00	20,000,000.0	Cooperative, equipment owners.
Total of strategic objectives and activities								**161,623,788.90**	**20,077,489.30**	

Table No. 36. Timetable of activities and costs of specific objective 3: Carry out activities to identify other articles that have more than 0,005% (50ppm) of polychlorinated biphenyls (for example, cable coverings, sealing compounds and painted articles) and manage them according to what is established in paragraph 1, article 6; as soon as possible, (subsection E, part II from the Stockholm Convention).

Strategic objectives and activities	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016-2025			
3. 1 Identify, store and dispose of, in an environmentally sound manner, articles that contain more than 0.005% of polychlorinated biphenyls (such as cable covering, sealing compounds and painted items).								**1,149,923.26**	**142,847.61**	
Activity 1								224,400.00	27,875.77	MARN, installed capacity included.
Activity 2										
Activity 3										
Activity 4								902,440.02	112,104.35	
Activity 5								23,083.32	2,867.49	
Total of strategic objectives and activities								**1,149,923.26**	**142,847.61**	

Specific objective 4: Establish mechanisms to identify, gather information, quantify, and remove and disposal compounds. As well as, equipment contaminated with those compounds included in part II of annex A, (1.5 year, in the compound acquisition within the Convention).

Table No. 37. Schedule of activities and cost of specific objective 4. Establish mechanisms to identify, gather information, quantify, and remove and disposal compounds. As well as, equipment contaminated with those compounds included in part II of annex A, (1.5 year, in the compound acquisition within the Convention).

Strategic objectives and activities	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016-2025			
4.1 Identify, gather information and quantify stocks of the compound included in the annex, through a preliminary inventory.								**786,800.00**	**97,739.13**	
Activity 1										Substances owners. MARN coordination with installed capacity included.
Activity 2										
Activity 3										
4.2 Create regulatory measurements to limit or eliminate the use of such substance on the date established by the parties.								**The costs of this strategic objective are included on Plan 3.3.3.**		

Strategic objectives and activities	Years	Cost Q	Cost US$	Funding sources
Activity 1				Substances owners. MARN coordination with installed capacity included.
Activity 2				
Activity 3				
4.3 Create management systems for the safe handling of the compound and/or equipment contaminated with such substance for its disposal in an environmentally sound manner.		**115,640.02**	**14,365.22**	
Activity 1				MARN coordination with installed capacity included. International Cooperation.
Activity 2				
Activity 3				
Total of strategic objectives and activities		**902,440.02**	**112,104.35**	

Costs for this specific objective, that contains 3 strategic objectives: starting with the PCB/BPC inventory follow up and the equipment containing them; creation of regulatory measures to limit or eliminate the use of this substance according to established date; and, create management systems for the safe handling of PCB/BPC and equipment containing it; will be absorbed by the Ministry of Environment and Natural Resources through the operational structure that will be working on the Stockholm Convention's compliance and the implementation of the National Plan. The estimated cost of installed capacity is around US$112,104.35, equivalent to Q902,440.02. The cost of equipments with PCB/BPC disposal will be financed through a project with international donation.

Table No. 38. Specific objective: Prepare a report every 5 years on progress toward elimination of polychlorinated biphenyls and submit it to the Conference of the Parties. The costs will be absorbed by the operative structure of MARN, which is responsible for compliance with Stockholm Convention National Implementation Plan.

Strategic objectives and activities	Years	Cost Q	Cost US$	Funding source
	2010 / 2011 / 2012 / 2013 / 2014 / 2015 / 2016-2025			
5. 1 Develop regular report according to Article 15 from the Convention.		**23,083.13**	**2,867.47**	
Activity 1		**23,083.32**	**2,867.47**	**MARN, including installed capacity.**
Total of the strategic objective and activity		**23,083.13**	**2,867.47**	
Total cost of activity 3.3.4: Production, import and export, use, identification, labeling, removal, storage and disposal of PCB/BPC and equipment containing PCB/BPC.		**164,085,555.30**	**20,383,298.79**	

3.3.4.5 Implementation of activity:

Five specific objectives have been proposed for the implementation of this: the first one is focused on the strengthening of regulation measures to restrain and eliminate PCB/BPC and equipment containing them, since such is the basis to achieve that all management actions are effectively carried out. To fulfill this objective it is needed that government institutions, such as MARN, MEM, MSPAS, MAGA, MINEDUC, MINECO, MICIVI, MDN, MINFIN, MINEX, CNEE, COGUANOR, CEMENTOS PROGRESO, electric sector, oil collectors, etc., participate actively by accompanying the POP National Coordination Commission. This objective can be reached approximately in a two years-period. The remaining objectives are aimed towards the adequate management of PCB/BPC and equipment containing it; awareness, education and training on the subject; mechanisms to succeed in identifying and managing other articles containing more than 0.005% of polychlorinated biphenyls. These actions have been planned to be carried out in a time period that will last by the year 2025 and with the collaboration of the electricity sector, previously indicated government institutions, all owners of equipment with PCB/BPC, and scrap metal gatherers. The cost for eliminating oil and equipment containing it, which is an activity included in the second specific objective, is considerably high; therefore, external funding will be required.

The need of technical infrastructure and the high cost of disposing equipment and oil contaminated with PCB/BPC make this activity highly expensive; it includes activities that can be carried out in a short term, while others are scheduled in medium term, and still some will require more time due to their characteristics. The cost of this activity is of US$20,383,298.79, equivalent to Q164,085,555.30, estimating that US$20,000,000.00 is the cost for the disposal of oil and equipment contaminated with PCB/BPC, this cost can be considerably reduced in the future with the creation of new low cost technologies. Remaining activities have an estimated cost of US$383,298.79 equivalent to Q3,085,555.30 for a period of 15 years, beginning in year 2010.

3.3.4.6 Total cost and financing of the activity:

Table No. 39. Total cost of the activity.

Total cost of the activity	Total cost US$	Local funding (country)		External funding	Source of the external funding
		Only MARN	MARN and other institutions		
Activity 3.3.4: Production, import and export, use, identification, labeling, elimination, storage and final disposal of BPC/BPC and equipment containing BPC/BPC (annex A, part II, chemicals).	**20,383,298.79**	285,798.07 1.40%	97,500.07 0.48%	20,000,000.00 98.12%	International Cooperation will look for funds through Projects.

3.3.5. Activity: Production, import and export, use, stockpiles and wastes of DDT (annex B, chemicals), if used in the country.

3.3.5.1 Current situation.

During the decade of the 60's and 70's, several regions of the country used large amounts of DDT and other POP pesticides, such as lindane, aldrin and toxaphene. These were used for the vector control, especially against malaria; and, they were also used to control pests in crops. Following this uncontrolled use of pesticides, the Ministry of Agriculture, Food and Livestock, by means of the Governmental Agreement No. 27-76, regulated DDT, establishing import percentages and assigning a specific import quota. In the 80's, MAGA emitted the Ministerial Agreement No. 3-88, by which most of the POP pesticides registries were cancelled.

Beginning with the preliminary DDT inventory and studies carried out in Guatemala for this issue, the national problematic was identified; these problems allowed developed strategies to execute this activity, comply with the Convention's obligations and achieve the reduction or elimination of releases resulting from production and intentional use of DDT according to annex B of the Convention. The preliminary inventory carried out by the MSPAS had already identified 15.05 tons of DDT, which as of today, remain stored to be correctly transported and eliminated in a safe way.

3.3.5.2 General objective.

Identify and plan all necessary measures to reduce or eliminate existing releases and wastes of DDT (annex B, chemical products) of the Stockholm Convention on Persistent Organic Pollutants, and contribute to the reduction of human health and environmental risks.

3.3.5.3 Specific and strategic objective, results, activities, monitoring channels and responsibilities.

Table No. 40. Specific objective 1. Propose legal and administrative measures necessary to restrict the production and use of DDT in Guatemala.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Strengthen the existing legislation regarding production, import and export of DDT (annex B part II).	1. New legislation initiatives regarding DDT.	1. Create proposals and new initiatives of legislation regarding DDT. With an emphasis on storage, handling and disposal.	Number of proposal and accepted and confirmed initiative.	Publication of new legislation regarding DDT on the Official gazette.	MSPAS, MARN, MAGA, COGUANOR.
	2. Specific legislation to cancel the registration of DDT.	2. Elaborate a competent legislation proposal for cancelation of DDT registration.	Accepted and confirmed proposals and initiatives.	Publication of new legislation regarding DDT on the Official gazette.	MARN, , MAGA, COGUANOR.
		3. Dissemination of the future norms for cancellation of the registration of DDT.	Number of the training meeting and dissemination of DDT cancellation by regions.	List of participants and place where the meetings were carried out.	MARN, AGREQUIMA, MAGA, MSPAS.

Table No. 41. Specific objective 2. Identify the strategies to foster research and development of alternatives to the use of DDT.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1 Gather information and research alternatives used for the vector control in Guatemala without the use of DDT.	1. Information regarding alternatives to DDT used in Guatemala for the vector control of Malaria without the use of DDT in national programs and projects.	1. Recollection of information of different alternatives used in national programs and projects for the vector control in Guatemala without DDT use.	Alternative methods used for the vector control without use of DDT.	Written documents with the main methods of Malaria control in carried out projects in Guatemala.	MARN, MSPAS, MAGA.
	2. Alternative use of DDT information and interested parties trained on the topic.	2. Dissemination of the used alternative for the vector control without DDT in Guatemala.	Population aware of the alternatives used for the vector control through different means of communication.	Written information: Posters, flyers, brochures, magazines, radio commercial breaks, radio programs.	MARN, MSPAS, MAGA.
	3. Have research projects regarding new vector control alternatives without DDT use.	3. Investigate new alternatives of vector control without the use of DDT.	Number of carried out investigations.	Investigation reports.	Universities, MSPAS, MARN; MAGA

Table No. 42. Specific objective 3: Identify and manage in an environmentally sound manner the DDT stockpiles.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
3.1. Continue the update of DDT stockpiles inventory.	1. Updated DDT stockpile inventory.	1 .Identify new DDT stockpiles.	Number of found DDT kilograms.	Written Inventory of found DDT stockpiles.	MARN, MSPAS, MAGA.
3.2 Manage DDT stockpiles in an environmental manner to reduce environment and health risks.	2. Management of DDT disposal plans.	1. Design and implement plans for DDT disposal.	Number of management designs and plans.	Reports on design and implementation plans of management of DDT disposal.	MARN, MAGA, MSPAS.
3.3Train personnel in charge of enforcing legislation, owners and DDT handlers.	3. Correct application of Crop Life rules, (AGREQUIMA) by owners, people that monitor the legal compliance and handlers in the activities of identification, storage and disposal of DDT.	1. Training of the legal compliance monitors and owners of DDT through the Crop Life rules (AGREQUIMA) regarding transportation, storage and disposal of pesticides in the activities of DDT identification, storage and disposal.	Number of people that know and apply the Crop Life rules regarding pesticides in DDT life cycle activities.	List of participants in the training workshops and carried out courses.	MARN, MAGA, MSPAS, AGREQUIMA.

3.3.5.4 Timetable of activities per specific objective and costs.

Table No. 43. Specific objective 1. Propose legal and administrative measures needed to restrict the production and use of DDT in Guatemala.

Strategic objective activities	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 Strengthen the existing legislation regarding production, use, import and export of DDT (annex B part II).										
ACTIVITY 1,2	■	■	■					18,494.88	2,297.50	MARN, MAGA, MSPAS.
ACTIVITY 3			■	■				29,342.20	3,642.20	MARN, MAGA, MSPAS.
								20,000.00	2,487.47	AGREQUIMA.
Total of strategic objective and activities								**67,842.08**	**8,427.59**	

Table No. 44. Specific objective 2. Identify the strategies to foster the research and development of alternatives for the use of DDT.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016-I 2025			
2. 1 Gather information and research used alternatives to control vectors in Guatemala without DDT.										
ACTIVITY 1,2	■							38,129.70	4,736.61	MSPAS, MARN, MAGA.
ACTIVITY 3	■							30,083.20	3,737.04	MSPAS, MARN, MAGA, UNIVERSITIES.
								15,000.00	1,863.34	AGREQUIMA.
Total of strategic objective and activities								**83,212.90**	**10,337.00**	

Table No. 45. Specific objective 3: Identify and manage in an environmentally sound manner the DDT stockpiles.

Strategic objective activities	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016-2025			
3.1. Continue update of DDT stockpile inventory.										
ACTIVITY 1								50,359.68	6,255.86	MARN.
3.2 Manage DDT stockpiles in an environmental manner to reduce the health and environment risks.										
ACTIVITY 1								6,796.60	844.29	MARN.
3.3 Train personnel in charge of monitoring the law, and owners and DDT handlers.										
ACTIVIDAD 1								31,541.60	3,918.21	MARN, MSPAS, AGREQUIMA.
Total of strategic objective and activities								**88,697.88**	**11,018.37**	
Total cost of activity 3.3.5: Production, import and export, use, stockpiles and wastes of DDT								**239,725.14**	**29,779.52**	

3.3.5.5 Implementation of activity:

Proposed activities will be carried out through an integrated approach, in which all indicated sectors, such as; MARN, MAGA, MSPAS, AGREQUIMA, MINEDUC, MINEX, MINFIN, MDF, MICIVI, MINECO, MEM and the academy, interact specifically and work is carried out in coordination establishing objectives, so they are reached in a time period of no more than 6 years.

The first objective is oriented towards the strengthening of DDT legislation and will integrate stakeholders such as MARN, MSPAS and MAGA, which must review existing regulation for DDT and elaborate proposals for its strengthening.

Specific objectives 2 and 3, proposed activities orientated to the research of DDT use alternatives; as well as, management of disposal and handling of found stockpiles. A parallel activity to the management of this substance is training and awareness on this subject.

The application of this plan will be under the guidance of the Ministry of Environment and Natural Resources with the support of public and private institutions; and, its execution will be performed with national resources, which need to be provided according to the planned activity and by the indicated sectors with an estimated cost of US$29,779.52, or its equivalent of Q Q239,725.14. This activity requires considering existing capacity on each one of the institutions to carry out the established actions.

3.3.5.6 Global cost and funding for activity.

Table No. 46. Global cost of activity.

Total cost of the activity	Total Cost US$	Local financing (country)		External funding
		MARN, MSPAS, MAGA	MARN, MSPAS, MAGA other institutions involved	
Activity 3.3.5: Production, import and export, use, identification, stockpiles and disposal DDT (annex B, chemicals) if they are used in the country.	**29,779.52**	**22,679.37**	**7,100.15**	
		76.16%	**23.84%**	

3.3.6 Activity: Register of specific exemptions and the continuing need for exemptions (article 4)

3.3.6.1 Current situation.

To comply with article 4 of the Stockholm Convention, it is needed to inform the Secretariat regarding the exemptions issue in order to know about the parties that have specific exemptions included in annex A or annex B. The Secretariat of the Convention will generate a register of the countries that have exemptions and will enable it for the general public knowledge.

To this day, there isn't any legal or administrative process in Guatemala to address the issue regarding the exemption of chemical products listed in the Stockholm Convention's annex A and B, neither government institutions that carry out any registry or evaluation process of such have been identified.

Currently Guatemala is using some products that soon will be included in the Stockholm Convention's annexes after being evaluated according to the requirements on article 8; therefore, it is expected that in the next following months, some sectors might be interested in beginning any action for exemptions, if the justification is adequate.

The exemption of products listed in the Stockholm Convention will allow the country to begin a procedure through which a specific exemption registry can be created, based on the Convention's annexes A and B; and, share this information with the Secretariat so it can be included in the specific exemption register.

3.3.6.2 General objective.

Establish needed mechanisms to legally and institutionally strengthen the country in regards of the exemption of products listed in the Stockholm Convention's annexes A and B, and address commitments derived from the Convention.

3.3.6.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 47. Specific objective 1: Strengthening of POP legislation regarding exemptions.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Create regulation on exemptions of products included in annex A, B, of the Stockholm Convention.	Developed, disseminated and published regulation related to exemptions of products included in Annex A, B. 300 People from different areas with knowledge of regulation regarding exemption.	1. Create a regulation proposal related to exemptions.	Have a regulation regarding exemptions in a period of one year.	Document of the regulation approved by consensus.	MARN, MSPAS, MINEX MAGA.
		2. Disseminate the proposal to interested parties through three workshops.	100% of the interested parties with knowledge on the regulation 150 People from different sectors with knowledge of the regulation in three months.	List of participants on the three workshops. Report of each event. Meetings report.	
		3. Take the proposal to Congress.	A proposal for exemption legislation.	Environmental and agricultural Commissions with knowledge on the issue.	
		4. Publish the rules.	Publication of 100 copies of the regulation.	Copies of the proposed regulation.	

Table No. 48. Specific objective 2: Strengthen the national technical infrastructure and analytical capacity for POP.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1. Identify the agency responsible for legal and administrative proceedings regarding the Specific exemptions included in Annex A, or Annex B of the Stockholm Convention, as required.	Substantial functions of each Ministry reviewed for the purpose of analysis of the designated Organization for the legal and administrative procedures.	1. Review of the substantial functions of the Ministries of Environment, Health, Agriculture and Foreign Affairs.	100% of substantial functions of each Ministry reviewed in a period of three months.	6 Meetings with different professionals (2) for each Ministry for the review and establishment of responsible organizations.	MARN, MSPAS, MINEX, MAGA. To be absorbed by each of the listed ministries.
	A designated organization for the issue of exemptions working the legal and/or administrative areas.	2. Designation of responsible organization.	Number of meetings to evaluate and designate the responsible exemption organization.	Meetings, list of participants, Meetings report.	Organization designated by a review commission of the issue.
	1 Function manual for the exemptions regarding POP products.	3. Development of the manual of functions for the designated organizations.	1 Functions manual for each designated organization.	Clear and Specific procedures for the request of exemptions.	To be absorbed by each of the listed ministries.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.2 Develop an acceptance procedure for the exemption requests, registration.	Manual of procedures for the acceptance of exemption requests and for its registration. 50 interested parties with knowledge on the manual of procedures for the POP exemptions.	1. Inter-institutional Meetings to develop a procedure for the acceptance of requests for exemptions and registration according to the guidelines of the Stockholm Convention.	1 Manual of procedures for exemption requests and registration in a period of three months.	Meetings reports of 8 Meetings with professionals of different interested areas in the exemptions issue.	MARN, MSPAS, MINEX, MAGA, AGREQUIMA The costs will be absorbed by the Ministries.
		2. Socialize the procedures to interested parties.	Training workshops for interested parties	List of interested parties that participated in the meetings.	MARN, MSPAS, MINEX, MAGA, AGREQUIMA. Each ministry and AGREQUIMA will organize meetings.
	1 Registration of exemptions and interested companies.	3. Develop a registration of shareholders that request exemptions.	Have a registration of stakeholders interested in exemptions in a period of a year.	Database.	Designated entity to carry out the registration.

3.3.6.4 Timetable of activities per strategic objective and costs.

Table No. 49. Specific objective 1: Strengthening of POP legislation in Guatemala.

Strategic objective	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 Develop Regulations regarding exemptions of products included in annex A, B, of the Stockholm Convention.								**67,174.16**	**8,344.61**	
Activity 1								40,000.00	4,968.94	MARN
Activity 2								2,174.16	270.40	MARN, MAGA MINEX, AGREQUIMA
Activity 3								Costs include installed capacity by MARN.		
Activity 4								25,000.00	3,105.59	MARN
Total of strategic objective and activities								**67,174.16**	**8,344.93**	

Table No. 50. Specific objective 2: Strengthen national technical infrastructure and analytical capacity for POP.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1 Identify the organization responsible of legal and administrative procedures in the issue of Specific exemptions included in annex A, or annex B from the Stockholm Convention as required.										
Activity 1,2,3								16,506.56	2,050.50	MARN, MSPAS, MINEX, MAGA, installed capacity included.
2.2 Develop a procedure for the acceptance of exemption requests, registrations, etc.										
Activity 1,2,3								11,846.08	1,471.56	MARN, MSPAS, MINEX, MAGA, installed capacity included.
Total of strategoc objective and activities								**28,352.64**	**3,522.06**	
Total cost of activity 3.3.6: Register of specific exemptions and the continuing need for exemptions.								**95,529.27**	**11,866.99**	

3.3.6.5 Implementation of activity.

This plan was created so its activities are carried out in a time period of one year, having the participation of four ministries related with the issue of exemptions such as MAGA, MSPAS, MINEX and the MARN, which is the Convention's focal point. It will have a minimum cost of US$11,866.99 equivalent to Q95,529.27, considering that in most cases ministries will provide their own existing capacity to cover proposed costs.

It is needed that all four identified ministries coordinate efforts so that in the estimated time frame, an administrative and legal procedure is created in order to address the issue of exemptions. To develop this activity, identified ministries must assign necessary funding to create an structure in charge of the NIP implementation, fully operational and capable of following up on the established actions, coordinate work needed for the reception of requests, creation of the register, evaluation, control and information transfer to the Focal Point and the Convention's Secretariat.

3.3.6.6 Global cost and funding for activity.

Table No. 51. Global cost of activity.

Total cost of the activity	Total cost US$	Local funding (country) MARN	Local funding (country) MSPAS-MAGA-MINEX-MARN	External funding
Activity 3.3.6: Register for specific exemptions and the continuing need for exemptions.	**11,866.99**	**8,074.53**	**3,792.46**	
		68.04%	**31.96%**	

3.3.7 Action Plan: Measures to reduce releases from non-intentional production (article 5).

3.3.7.1 Current situation.

POP resulting from the unintentional production, are formed and released from anthropogenic sources; therefore, the Convention requests to carry out an evaluation of current, future or projected releases by carrying out an inventory on sources and estimated releases, as of to establish the country's situation regarding such substances. In article 6, each country is instructed to establish measures to reduce or eliminate releases derived from stockpiles and this pollutant's wastes; however, for this end, substances included in annex A, B and C of the Convention need to be identified and quantified with the objective of knowing their real situation and obtain a "country's diagnose" for its further management.

Guatemala only has an inventory, executed specifically, to calculate the dioxin and furan's releases (PCDD/PCDF); however, inventory for polychlorinated biphenyls (PCB/BPC) and hexachlorobenzene (HCH) hasn't been carried out yet.

Throughout 2008, an identification and information gathering process was carried out, regarding main sources of dioxin and furan's generation; such were first cataloged as main sources and later their releases were estimated according to UNEP's standardized instrument for the identification and quantification of PCDD/PCDF releases.

The obtained results from the inventory are estimated data for year 2007 as the base year for its execution, obtaining a total of estimated releases of 688.43g EQT/a (grams of toxicity equivalent per year).

3.3.7.2 General objective.

Carry out a national action plan to reduce the unintentional releases of persistent organic pollutants included in article 5 of the Stockholm Convention.

3.3.7.3 Specific and strategic objective, results, activities, monitoring channels and responsibilities.

Table No. 52. Specific objective 1. Have a legal framework that regulates the unintentional releases stipulated in the Stockholm Convention.

Strategic objectives	Products	Activities	Indicators	Monitoring channels	Responsible
1) Support the strengthening of the related framework to achieve the minimization and/or elimination of unintentional releases.	1) Inclusion of the issue of unintentional releases, especially from dioxins and furans in the new regulatory proposal, or in existing regulations.	1) Identify law or regulations projects, which may be incorporated to unintentional releases related issues.	* Number of law and/or regulations projects to incorporate the issue of unintentional releases.	* Central American gazette. * Database.	MARN, National Sub-Commission of Dioxins and Furans, NCC. MINTRAB, MEM, ANAM (National Association of Municipalities).
		2) Participate in specific work Commissions to disseminate the regulations	*Number of meetings.	* List of participants.	MARN, National Sub-Commission of Dioxins and Furans, with legal advice.

Strategic objectives	Products	Activities	Indicators	Monitoring channels	Responsible
		3) Incorporate aspects related to minimization and/or elimination of dioxins and furans.	* Number of laws, regulations and/or norms that include the issue of unintentional releases, especially aspects regarding minimization and/or elimination of dioxins and furans.	* Editing of laws, regulations and rules in the Central American gazette. * Database.	MARN, National Sub Commission of Dioxins and Furans, NCC.
		4) Incorporate specific parameters developed into the national regulations.	* Regulations that include specific parameters regarding dioxins and furans.	* Editing of laws, regulations and rules in the Central American gazette. * Database.	MARN, National Sub Commission of Dioxins and Furans, NCC.
	2) Specific regulations to minimize unintentional releases, especially dioxins and furans.	5) Integrate the working team to develop the parameters under the procedures and leadership of COGUANOR.	* Integrated and functioning work team.	*List of participants.	COGUANOR.
		6) Issue parameters for every different environmental matrixes in which the presence of dioxins and furans can be found (air, water, soil, waste and products).	* Standards and national parameters developed for one or several environmental matrixes.	* COGUANOR Rules. *Developed drafts.	Sub-Commission of COGUANOR, pending to be established.
		7) Develop the draft of unintentional emissions of dioxins and furans regulation and disseminate it.	* Draft of developed regulation. * 3 carried out socialization workshops.	*Draft document of regulations. * List of participants. *Participant institutions. *Comments resulted from socialization.	MARN.
		8) Promulgation of regulation.	* Governmental agreement. *Dissemination workshop.	* Publication in the Central American Journal. *List of participants. *Snapshots.	NCC, National Sub Commission of Dioxins and Furans.
		9) Printing of regulation.	*Print of 1000 regulation documents.	* Printed documents.	MARN.

Strategic objectives	Products	Activities	Indicators	Monitoring channels	Responsible
2) Provide support elements to entities responsible of monitoring control to consider aspects regarding unintentional releases.	3) Creation of institutional capacity of those related to POP, specifically unintentional releases, those responsible of the activities of monitoring and follows up.	10) Develop training workshops for the building of capacities on monitoring measures for the minimization and/or elimination of unintentional releases.	* Carried out workshops. * Number of participants.	*List of attendance. *Snapshots.	MARN, MSPAS, MEM, MINTRAB, IGSS.
3) Monitoring the compliance of the parameters and/or issued standards.	4) Monitoring and follow up programs for the probable release sources by several institutions.	11) Monitoring of the parameter compliance.	* Monitoring programs for involved institutions.	* Methods, monitoring sheets, etc.	MARN, MSPAS, MEM, INAB, MINTRAB, IGSS.

Table No. 53. Specific objective 2: Have a national legislation, with defined parameters for different matrixes, which will foster the development of national analytical capacity.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1 Regulate parameters of unintentional releases of dioxins and furans in the national legislation, and promote the development of analytical capacity.	Technical regulation with unintentional dioxins and furans release parameters for the different matrixes. Multisectoral group formed.	1. Form an inter-institutional or multi-sectoral group for the development of regulations, integrated mainly by laboratories, academia, private institutions, MARN, MSPAS and other institutions related to the issue.	1 formed multi-sectoral group with a work timetable.	List of the members that form group.	Name a responsible of Sub-Commission.
		2. Meetings of the inter-institutional group responsible for the production of national legislation of dioxins and furans.	Number of meetings every fifteen days, for the definition of parameters.	* Meetings report. *List of participants.	
		3. Review of scientific international information to define the national regulations.	Number of consulted documents.	Checked documents.	National Dioxins and Furans Sub-Commission, expert panel and COGUANOR.
		4. Review existing international regulation, related with PCDD/PCDF.	Number of reviewed regulation.	International regulations reviewed.	COGUANOR, National Dioxins and Furans Sub-Commission.
		5. Review of country history and/or actual conditions as basis for the definitions of the regulation: a. statistical data, b. national capacity (personal capacity, equipment and laboratories with installed capacity, existing rules, etc.).	Number of information sources consulted.	Information reference	COGUANOR, National Dioxins and Furans Sub-Commission.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
		6. Development of regulations.	Number of proposed regulations.	Defined parameters.	COGUANOR, National Dioxins and Furans Sub-Commission.
		7. Arrange the development of national capacities with international organizations to promote the dioxins and furans analytical capacity in the country.	Incorporation of training in sampling and analysis of dioxins and furans in the universities.	* scientific career curriculum * Methods	Universities.
			Number of training workshops for the promotion of national capacities in sampling and analysis of dioxins and furans in the next five years.	* Carried out workshops. * List of participants. * Photographs. * Contents of training workshops.	Universities, CNC, National Dioxins and Furans Sub Commission, laboratories.
			Number of trained personnel for the sampling and analysis of dioxins and furans.	* Certifications or accreditations extended.	Experts from national and international universities.
			Number of people with scholarships or exchanges in the subject of sampling and analysis of dioxins and furans.	* Diplomas or certificates of participation.	SEGEPLAN, International Cooperation Organizations, MARN and CNC-COP.
		8. Replicate the acquired experiences by internationally trained professionals.	Number of carried out workshops.	* List of participants. *Snapshots. *Training contents.	MARN, National Dioxins and Furans Sub-Commission.
	National laboratories strengthened and with appropriate technologies for the analysis and investigations of dioxins and furans.	9. Encourage actions towards: a. Institutional strengthening. b. Search for technical cooperation from other countries. c. Identify funding options with soft loans.	Number of laboratories with the analytical capacity for dioxins and furans.	* Accredited laboratories for dioxins and furans analysis. * Approved methods.	OGA-Guatemalan Accreditation Office and MARN.
			Number of created projects with technologic international assistance.	* Name of projects and cooperative organizations.	National Sub Commission of Dioxins and Furans, International Organizations.
			Institutions with Strengthened in analytical capacity.	*Institution data.	National Dioxins and Furans Sub-Commission and MARN.

Table No. 54. Specific objective 3: Disseminate information regarding Dioxins and Furans to the general population, in order to generate, obtain feedback and access to information.

Strategic objectives	Products	Activities	Indicators	Monitoring channels	Responsible
3.1 Disseminate information about dioxins and furans.	1. Informed population.	1) Train trainers that promote awareness (promoters…): a. Institutional commitments. b. Individual commitments.	Number of trained promoters.	Socialization report.	MARN, National Dioxins and Furans Sub-Commission and MINEDUC.
		2) Carry out information workshops.	Carry out at least four information workshops per month, with a minimum of 10 participants per meeting	Number of carried out workshops per month including the number of participants and establish a register	MARN.
		3) Make use of audiovisual media: a. Radio, b. television. b. Print media (newspapers, magazines, posters, etc.). d. Internet.	* Television time or spots. * Publishing of magazines, newsletters, posters. *Website.	*Written publication clippings. *Visit counter on the Website.	NCC, National Dioxins and Furans Sub Commission and MARN.
		4) Distribute and disseminate educational material for different types of public: a. General public. b. Industries. c. Schools. d. Universities. e. Public sector.	Amount of distributed material for each target group.	* Notes of receipt of material. * Photographs of the events. * List of the participants.	MARN, Institutions.
2. Raise awareness on the population about unintentional releases of dioxins and furans.	2. Public and private participation.	5) Awareness workshops to representatives of unions and associations, regarding dioxins and furans.	At least four monthly information workshops, with a minimum of 10 participants.	Number of carried out workshops, per month including the number of participants.	MARN and MAGA.
		6) Awareness program through workshops for the main sources that generate dioxins and furans	Number of main sensitized sources up to December of 2009.	Percentage of workshops per sensitized source.	National Dioxins and Furans Sub-Commission.
		7) Introduce the subject in educational curricula a. create a curricular profile for the different academic levels.	Created curricular profile.	Implementation in educational curricula.	MINEDUC and National Dioxins and Furans Sub-Commission and MAGA.
		8) Make strategic alliances with other organizations: a. NGOs, SOSEP b. Municipalities c. Academia d. Training centers or technical labor like INTECAP and CGP+L.	Number of commitment letters, understanding memorandum and/or agreement.	* Inter-institutional cooperation conventions signed. * Understanding memorandum. *Exchanging of letters, officially	MARN.

Strategic objectives	Products	Activities	Indicators	Monitoring channels	Responsible
				or by electronic mail.	
3. Gather information.	3. Available information.	9) Create spaces for EPS work (supervised professional exercise) and graduation thesis.	Created agreements between MARN and universities.	*Developed thesis work. * Performed EPS.	Universities and MARN.
		10) Establish a commission to consolidate information through guild or associations.	Formed commissions.	*Carried out meetings. * Meetings report. * List of participants.	CIG, AGEXPORT.

Table No. 55. Specific objective 4. Identify the sources of unintentional release of dioxins and furans, as well as the measures to reduce the releases of such pollutants.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1) Identify all the sources of production of dioxins and furans by anthropogenic sources.	1) Releases of dioxins and furans, identified, characterized and quantified.	1) Identify and address the pending generation sources of PCDD/PCDF, and estimate the releases.	* Carried out visits to plant. * Estimate of releases. * Amount of identified companies.	* Complete surveys with companies' information. * Inventory.	MARN, Industries, service companies.
		2) Identify existing information sources that can enhance the information of the national inventory.	*New data and/or update of data.	*Results of inventories, graphics and tables.	Institutions.
		3) Apply new parameters to the methodology to obtain information from other matrixes, as they are unintentionally produced.	* New data and results of matrixes.	*Information brochures. *Visited companies. * Inventory results.	MARN.
		4) Include real data of the measures of PCDD/PCDF, as they are unintentionally produced.	* Substitute estimated data for real data.	* Results of the companies' analysis.	MARN – Industry – service companies.
		5) Update of the dioxins and furans national inventory.	* variation of the actual results of the inventory	*Comparative tables and graphics.	MARN.
	2) Sources of unintentional releases of prioritized dioxins and furans.	6) Identify the main production sources in the geographic areas of the country, for subsequent intervention.	Geographical reference of the main sources of production in the country.	*Digital or conventional mapping.	MARN.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
	3) Systematized information about unintentional releases of dioxins and furans, as basis for decision making.	7) Create an electronic database that can be updated and consulted.	* Database.	*Available information in database.	MARN.
2) Promote dioxins and furans investigation and analysis.	4) Trained professionals with the knowledge of prevention, minimization and elimination of unintentional releases of dioxins and furans (development of abilities).	8) National and international training regarding dioxins and furans, for professionals in this area of investigation.	*Number of benefited professionals. * Name and number of workshops and courses.	* Certificate of participation. * List of participants. * Photographs. * Scholarship programs.	Academy, SEGEPLAN, MARN, international cooperation.
		9) Procedures to include the subject of dioxins and furans in the professional syllabus of university careers, to train professionals on dioxins and furans sampling and analysis.	* University careers that include the subject of dioxins and furans sampling and analysis in the syllabus.	*Syllabus.	Universities.
	5) National research on unintentional releases related to human health, Pollution of water, soil, flora, fauna, products; contaminated sites, BAT, BEP and other.	10) Involve research entities to include new lines of research regarding POP, especially dioxins and furans.	*number of investigation projects that incorporate aspects of unintentional releases.	* Project basis.	National Sub Commission of Dioxins and Furans, NCC, Investigation Centers, CONCYT, Universities. DIGI (General Direction of Research) from USAC CII (engineering research Center).
		11) Develop a project investigation portfolio of dioxins and furans of Specific interest for the country.	*Number of carried out investigations with aspects related to unintentional releases.	* Documents derived from investigation.	National Sub Commission of Dioxins and Furans, NCC, Investigation Centers, CONCYT, Universities, DIGI and CII.
		12) Promote the inclusion of dioxins and furans in graduate and postgraduate thesis work of the universities.	* Number of graduation papers based on the investigation of the unintentional releases.	*Thesis.	Universities.
		13) Search of funding for the development of investigation work.	*Cooperative entities.	*Cooperation agreements. * Accounting records.	National Sub Dioxins and Furans Sub-Commission, CNC, investigation centers, CONCYT, academy.
3) Promote the minimization of unintentional releases of dioxins and	6) Coordinated activities with the national dioxins and furans sub-Commission	14) Meetings of the National sub Commission of dioxins and furans, held periodically to	*Number of meetings per year.	* List of participants. * Photographs.	National Dioxins and Furans Sub-Commission.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
furans.	related to the topic.	monitor progress and/or needs.		*Work report.	
	7) Productive sector trained on BAT/BEP application.	15) Training and education of the productive sector on BAT/BEP in agreement with different industrial sectors and guilds.	*Number of carried out workshops. * Number of approached sectors. * Number of participant companies.	* List of participants. * Photographs.	CGP+L.
	8) Other sources of PCDD/PCDF generation trained in the application of BAT/BEP.	16) Promote the environmentally sound management of liquid wastes and especially solid wastes in the country, spreading the information of BAT/BEP, with entities responsible of such issues (ANAM, CONADES, INFOM, and other related institutions).	* Support actions related to the management of liquid and solid wastes * Promote BAT/BEP.	*Meetings * Support in the dissemination of norms and agreements. * Support in technical management programs. * Workshops.	MARN, National Sub Commission of Dioxins and Furans.
		17) Support and promote education and information campaigns to prevent releases from unintentional sources.	*Promotion of BEP, to achieve the minimization of open sky burning in the country.	* Statistic data. * Environmental profile of the country. * Technical reports.	MARN, INE, INAB, fire brigade, DOAN, municipalities.
	9) Programs or actions that incorporate the applications of measures to prevent and/or reduce the unintentional dioxins and furans releases by anthropogenic sources.	18) Substitute the use of chlorine for bleaching (in possible sectors identified as sources of formation and releases of PCDD/PCDF.	*Productive or service processes that do not use chlorine.	*Name of substitute materials. * Purchase bills. * Laboratory analysis.	Industry, Service companies, institutions.
		19) establish combustion temperature control, process control, installation of environmental pollution control equipment, etc.	*Number of companies that have programs or actions to minimize the PCDD/PCDF.	*Registration of companies * Control, evaluation and environmental follow up instruments. * Follow up and control programs.	Industry, MARN.
	10) Available funds for the application of BAT/BEP.	20) Identify funding sources that can help with the application of BAT/BEP and other related activities; and facilitate the access to those funds.	* Identification of cooperation. * Soft loans.	*Names of cooperation entities. * Beneficiaries.	MARN, National Dioxins and Furans Sub-Commission, NCC.

Table No. 56. Specific objective 5: Identify and promote remediation of contaminated sites by unintentional releases of dioxins and furans.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
5.1. Define strategies to identify contaminated sites.	1. Developed procedures to identify contaminated sites.	1) Establishment of requirements for the determination and remediation of contaminated sites.	Issued requests.	*Document with requirements.	MARN.
		2) Develop of inspection methodology for sites contaminated by unintentional releases.	Developed methodology.	*Methodological guide for the inspection and identification of contaminated sites.	MARN.
	2. Inventory of PCDD/PCDF contaminated sites.	3) Identification of contaminated sites.	Contaminated sites inventory.	Contaminated sites database.	MARN, State institutions.
		4) Contaminated sites geographic references.	Contaminated sites geographically referenced.	*Geographic reference maps.	MARN, State institutions.
5.2. Train national professionals in identifying contaminated sites.	3. Trained professionals on the identification of contaminated sites.	5) Training workshops of different institutions for the identification of contaminated sites.	Training workshops for the quality identification of contaminated sites.	* List of participants. * Participating institutions.	MARN, NCC.
5.3. Have the national capacity for the contaminated sites remediation.	4. Register of remediation companies of contaminated sites.	6) Creation of a register of companies with remediation capacity of contaminated sites by dioxins and furans (on a national level and/or international level).	* Number of identified companies, with remediation capacity of contaminated sites.	* Database.	* MARN.
5.4. Propose projects and programs for contaminated sites remediation.	5. Remediation plans programs and projects for of contaminated sites.	7) Establishment of projects and/or programs for the contaminated sites remediation and evaluation of its feasibility.	* Number of proposed projects and/or programs. * Number of feasible projects.	* Developed documents. * Technical, economical and social studies.	MARN, National Sub Commission of Dioxins and Furans, NCC.
5.5. Identify funding sources for the remediation of PCDD/PCDF contaminated sites.	6. Identified funding sources.	8) Identify funding sources that can support the remediation process of PCDD/PCDF contaminated sites.	* Identification of cooperation entities. * Available amount. * Remediation projects.	* Name of cooperative entities. * Availability of funds.	MARN, National Sub Commission of Dioxins and Furans, NCC.
5.6. Seek better environmental conditions of the contaminated sites.	7. Reduction of PCDD/PCDF contamination in contaminated sites.	9) Promote the development of remediation projects of contaminated sites.	* Number of feasible projects. * Number of carried out projects.	*Approved projects by the National Dioxins and Furans Sub Commission. * Measures of environmental. matrixes	MARN, National Sub Commission of Dioxins and Furans, NCC.

3.3.7.4 Timetable of activities per strategic objective and costs.

Table No. 57. Timetable of activities and cots for specific objective 1: Have a legal Framework that regulates the unintentional releases stipulated in the Stockholm Convention.

Strategic objective	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
1. 1 Support the strengthening of the related legal framework, to achieve the minimization and/or elimination of unintentional releases.								**288,867.81**	**35,884.20**	
ACTIVITY 1,2,3,4								174,998.55	21,738.95	MARN, NCC of Dioxins &Furans
ACTIVITY 5								13,483.19	1,674.93	COOGUANOR
ACTIVITY 6								13,199.98	1,639.75	COGUANOR
ACTIVITY 7								70,899.97	8,807.45	MARN
ACTIVITY 8										Secretariat of the Presidency
								9,125.07	1,153.55	MARN
ACTIVITY 9								7,000.04	869.57	MARN
1. 2 Provide support elements to entities responsible for monitoring and control, in order to consider aspects related with unintentional releases.								**983,600.04**	**122,186.34**	
ACTIVITY 10								73,600.02	9,142.86	Each Institution of POP NCC
1.3 Monitor the compliance with issued parameters and/or standards.										
ACTIVITY 11								910,000.01	113,043.48	Each Institution of POP NCC
Total of strategic objective and activities								**1,272,467.85**	**158,070.54**	

Specific objective 2. Have a national legislation with defined parameters for different matrixes, which will foster the development of national analytical capacity. (The execution periods and costs of the activities for this specific objective will be included in the Research, Development and Monitoring Plan).

Specific objective 3. Inform the population regarding the dioxins and furans, in order to generate and obtain feedback and have access to such information. (The execution periods and costs of the activities for this specific objective will be included in the Information, Awareness and Education Plan).

Table No. 58. Timetable of activities and costs of specific objective 4: Identify and disseminate the sources of unintentional release of dioxins and furans, and the measures to reduce the releases of such compounds.

Strategic objective	Years							Cost Q	Cost US$	
	2010	2011	2012	2013	2014	2015	2016 2025			
4,1 Identify the total production sources of dioxins and furans, by anthropogenic sources.								**376,219.49**	**46,735.34**	
ACTIVITY 1,2,3,4,5,6,7	■	■						336,300.02	41,766.40	MARN and other institutions.
4.2 Promote dioxins and furans investigation and analysis.										
ACTIVITY 8	■	■	■	■	■			_____	_____	International Cooperation.
ACTIVITY 9	■	■						_____	_____	Universities.
ACTIVITY 10	■	■						_____	_____	Cooperative parts.
ACTIVITY 11	■	■						39,999.97	4,968.94	National Dioxins and Furans Sub-Commission, NCC, Research Centers, CONCYT, universities. DIGI, CII.
ACTIVITY 12	■	■	■	■	■	■	■	Universities, state, private sector.		
ACTIVITY 13	■	■	■	■	■			**Sub Commission of Dioxins and Furans, Universities, CONCYT, Research Centers, with cooperative parties**		
4.3 Promote the minimization of unintentional dioxin releases.								**711,875.18**	**88,431.70**	
ACTIVITY 14	■	■	■	■	■	■	■	189,799.52	23,577.58	MARN.
ACTIVITY 15	■	■						295,499.96	36,708.07	CGP+L.
ACTIVITY 16	■	■	■					39,300.02	4,881.99	MARN.
ACTIVITY 17	■	■	■					55,499.42	6,894.40	MARN, INE, INAB, Fire Department, DOAN, municipalities.
ACTIVITY 18	■	■						National industry, service companies, institutions.		
ACTIVITY 19	■	■	■	■	■			National industry, MARN.		
ACTIVITY 20	■	■	■	■	■	■		131,775.76	16,369.66	MARN, NCC of Dioxins and Furans.
Total of strategic objective and activities								**1,088,094.67**	**135,167.04**	

Table No. 59. Timetable of activities and costs of specific objective 5: Identify and disseminate the remediation of contaminated sites by unintentional releases of dioxins and furans.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
5.1 Define strategies to identify contaminated sites.								**277,800.03**	**34,509.32**	
ACTIVITIES 1,2								107,600.00	13,366.46	MARN.
ACTIVITIES 3,4								170,200.02	21,142.86	
5.2 Train national professionals in the identification of contaminated sites.										
ACTIVITY 5								45,501.18	5,652.32	MARN.
5.3 Have national capacity for the contaminated sites remediation.										
ACTIVITY 6							Up to 2017	131,775.76	16,369.66	MARN.
5.4 Propose and raise projects and programs for remediation of contaminated sites.										
ACTIVITY 7							Up to 2017	CNN, National Dioxins and Furans Sub-Commission. Costs include installed capacity of MARN".		
5.5 Identify funding sources for the remediation of PCDD/PCDF contaminated sites.										
ACTIVITY 8							Up to 2016	132,299.98	16,434.78	MARN, National Sub-Commission of Dioxins and Furans, CNN.
5.6 Enhance the environmental conditions of contaminated sites, as much as possible.										
ACTIVITY 9							Up to 2017	39,999.97	4,968.94	MARN". Sub-Commission of Dioxins and Furans, NCC.
Total of strategic objectives and activities								**627,376.91**	**77,935.02**	
Total of action plan 3.3.7: Measures to reduce releases from non-intentional production (article 5).								**2,987,939.43**	**371,172.60**	

3.3.7.5 Implementation of the plan.

According to the obtained results the cost of implementing the action plan for the minimization of dioxins and furans is US$371,172.60 equivalent to Q2,987,939.43, costs that include the actions, coordination and management action costs.

With the approach of the action plan, it is expected that the country meets most of the requirements set forth in article 5 of the Stockholm Convention, remaining pending the consideration of non-intentionally production of HCB and PCB/BPC.

Nevertheless, with actions taken for dioxins and furans is expected to contribute in some measure to minimize emissions of HCB and PCB/BPC since many of the sources of formation of these substances are the same for dioxins and furans.

The activities to strengthen this legal framework are expected to be carried out in conjunction with other activities to strengthen the national regulations presented in the NIP; therefore, no additional costs are included, excepting the costs assigned to COGUANOR, which can be absorbed within its operating activities.

The objective that aims to identify all sources of dioxins and furans is to be carried out entirely by MARN, which could be absorbed given its installed capacity [sic].

Regarding the areas of training, research, and dissemination, various sectors that can help achieve this goal, as research centers, were identified; such as CONACYT, universities, the indicated ministries, the POP NCC that can promote some activities and NGOs that have developed some activities in the issue, such as the CP+L.

For the transfer of best available technologies and best environmental practices (BAT/BEP) in production processes, the industry is the sector identified as responsible to implement them and such will on the specific program or action taken.

Finally, regarding the issue of identification and remediation of contaminated sites, external financing is required to undertake actions for the identification and quantification of these sites and training for its remediation.

3.3.7.6 Global cost and funding of activity.

Table No. 60. Global cost of the plan.

Total cost of activity	Total cost of plan (US$)	MARN	Other institutions	
Total of action plan 3.3.7: Measures to reduce the production of unintentional releases (article 5).	371,172.60	130,330.76	240,841.84	For remediation activities of contaminated sites with dioxins and furans, external funding will be needed.
		35.11%	64.89%	

3.3.8 Activity: Measures to reduce releases from non-intentional production (article 6).

3.3.8.1 Current situation.

The article 6 of the Convention, calls on Parties to adopt the necessary measures to ensure the reduction or elimination of releases from stockpiles and wastes. To this end, a series of activities are proposed to be implemented over a period of three years from 2010.

Following the development of national inventories, mainly those of the three groups of POP (pesticides, polychlorinated biphenyls and dioxins and furans), a significant amount of POP stockpiles and wastes were identified, which at present are held by the owners, some are inadequately stored, endangering the health of surrounding populations and the environment.

Several elimination activities are already implemented for some POP wastes, and thus complain with the requirements of the Basel Convention of transboundary movements of solid hazardous wastes. Therefore, it is suggested to continue the joint work based on the synergies with other conventions related to the issue of hazardous wastes.

The current legislation regarding the disposal of hazardous substances is weak; consequently, the actions of this plan are aimed at strengthening such a framework. Similarly, the management activities of these stockpiles and wastes are not regulated and lack of technical capacity to address the life cycle activities of these substances.

3.3.8.2 General objective.

Develop a national action plan regarding the measures to reduce the releases from POP stockpiles and wastes in Guatemala, establishing a strategy that allows their proper management until achieving their final elimination.

3.3.8.3 Specific and strategic objectives, results, activities, verification channels and responsibilities.

Table No. 61. Specific objective 1: Promote the strategy to identify that articles in use and wastes contain POP, annex A, B, and C.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Identify, characterize and quantify the stocks in use, articles in use and wastes that contain POP Annex A, B and C, to reduce and eliminate releases from POP stockpiles.	Stockpiles, articles in use and wastes that contain POP Annex A, B and C, which are identified, characterized and quantified.	1. Identify stockpiles, articles in use and wastes that contain POP.	Number of documents, reviewed investigations, number of stockpiles.	Increase in POP data reported in the preliminary inventory.	MARN, NCC.
	Methodology to identify stockpiles, articles in use and wastes that contain POP, validated.	2. Meetings to adopt suitable methods to continue with identification of stockpiles, articles in use and wastes that contain POP.	Number of validated methodologies. Number of meetings.	Increase in POP reported data in the preliminary inventory. Number of meetings. List of attendance.	MARN, NCC. MARN, CNC MAGA, producers and analysis laboratories.
	Updated inventory of stockpiles, articles in use and wastes that contain POP.	3. Publication of updated articles in use and wastes that contain POP inventory.	Database that can be consulted and updated.	Number of consultation. Number of queries to the database.	MARN, NCC.

Table No. 62. Specific objective 2: Regulate the management of articles in use and wastes that contain POP annex A, B, and C and reduce or eliminate the releases from POP stockpiles.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1 Regulate the management of stockpiles, articles in use and wastes that contain POP through new regulations for POP Annex A, B and C from the Convention.	Norms, laws, agreements created for the topic.	1. Meetings for the creation of a new regulation for environmentally sound management of stockpiles, articles in use and wastes that contain POP.	Number of meetings.	Meetings report, documents created from the laws, agreements and norms.	MARN, MAGA, MSPAS Chemicals Union, COGUANOR, Pesticides Sub-Commission, USAC.
		1. Introduction of new regulations for the management regulations of the new POP Pesticides of recent entry in the Convention. 2. Socialization of legislation through workshops.	Number of carried out workshops.	Trained persons, list of participants.	MARN, MAGA, MSPAS Chemicals Union, COGUANOR.
2.1.2 Create a register of stockpiles, articles in use and obsolete pesticides wastes.	Stockpiles register, articles in use and obsolete pesticides wastes.	1. Create a register of stockpiles, articles in use and obsolete pesticides wastes.	Meetings.	List of participants.	Sub-Commission of POP Pesticides, MAGA.
		2. Stockpiles verification, articles in use and wastes from industry.	Number of inspections.	List of stockpiles, articles in use and POP pesticides wastes, entered to the register. Number of inspections.	Sub-Commission of POP Pesticides, MAGA.

Table No. 63. Specific objective 3. Promote the safe, effective and environmentally sound elimination of products and wastes containing POP, annex A, B, and C.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
3.1 Promote safe management of collection activities: transport, storage and sound disposal of stockpiles, articles in use and POP wastes.	Operating procedures for collection, transport, stockpiles storage, articles in use and POP wastes.	1. Meeting for the elaboration of manual of procedures to collection, transport, storage and environmental sound disposal of stockpiles, articles in use and POP wastes.	Number of meetings.	Procedures manuals. List of attendance.	MARN, MSPAS, MAGA, AGREQUIMA.
3.2 Promote the cooperation with Focal Point of the Basel Convention for a sound disposal.	Sound disposal of products and wastes that contain POP.	1. Coordinate activities with the Regional Secretariat of the Basel Convention.	Training meetings.	List of participants.	MARN, NCC, BC REGIONAL SECRETARIAT.
		2. Identify environmentally sound disposal methods for POP.	Number of identified methodologies in the country.	Documents about new disposal elimination methodologies.	MARN, NCC, BC REGIONAL SECRETARIAT.
		3. Disseminate methods and elimination centers approved by the Basel Convention.	Training meetings.	List of participants.	MARN-NCC.

3.3.8.4 Timetable of activities per strategic objective and costs.

Table No. 64. Timetable of activities and cost of specific objective 1: Promote the strategy to identify the stockpiles and wastes containing POP, annex A, B, and C.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 1 Identify, characterize and quantify stockpiles, articles in use and wastes containing POP Annex A, B and C.										
ACTIVITY 1								53,550.00	6,652.17	MARN. Costs include installed capacity of MARN".
ACTIVITY 2								1,443,600.00	179,329.19	
ACTIVITY 3								47,550.00	5,906.83	
Total of strategic objective and activities								**1,290,058.21**	**160,256.92**	

Table No. 65. Timetable of activities and cost of specific objective 2: Regulation regarding the management of articles in use and wastes containing POP, annex A, B, and C to reduce or eliminate releases from POP stockpiles.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1Regulate handling of stockpiles, articles in use and wastes that contain POP, through new regulations for POP annex A, B and C from the Convention.										
ACTIVITY 1								318,432.80	39,556.87	MARN, MAGA, MSPAS, CHEMICALS UNION, COGUANOR.
ACTIVITY 2								152,932.77	18, 997.86	
2.2 Create a register of stockpiles, articles in use and obsolete pesticides wastes.										
ACTIVITY 1								96,582.77	11,997.86	Sub-Commission of POP Pesticides, MAGA, MARN.
ACTIVITY 2								236,000.00	29,316.77	
Total of strategic objective and activities								**803,948.34**	**99,869.36**	

Table No. 66. Specific objective 3. Promote the safe, effective and environmentally sound elimination of products and wastes containing POP annex A, B, and C.

STRATEGIC OBJECTIVES	YEARS							COST Q	COST US$	FUNDING SOURCES
	2010	2011	2012	2013	2014	2015	2016 2025			
3.1Promote safe management cooperation with the Basel Convention for an environmentally sound elimination										
ACTIVITY 1								240,432.80	29,867.43	MARN, MASPAS, MAGA, AGREQUIMA.
3.2 Promote cooperation with Basil Convention for an environmental sound disposal.										
ACTIVITY 1								168,600.00	20,944.10	MARN, costs include installed capacity of MARN".
ACTIVITY 2								993,600.00	123,428.57	
ACTIVITY 3								243,600.00	30,260.87	
Total of strategic objective and activities								**1,646,232.80**	**204,500.97**	
Total of action plan 3.3.8: Measures to reduce the releases of stockpiles and wastes (Article 6).								**3,994,881.17**	**496,258.53**	

3.3.8.5 Implementation of activity. Measures to reduce releases from stockpiles and wastes (article 6).

This activity has been planned to be executed in a period of three years, with an approximate cost of US$496,258.53 equivalent to Q3,994,881.17. All the stipulated strategic objectives require the coordination and work of institutions as MARN and MAGA; and, the support from MSPAS, the academic sector and the national and regional focal point of the Basel Convention and the POP NCC.

The specific objectives 1 and 2 are designed to support the strategy in order to identify, characterize and quantify stockpiles, articles in use and POP wastes, annex A, B, C, and regulate their management; therefore, the planned activities are oriented to identify more POP stockpiles and wastes to strengthen the inventory and existing database. The third objective plans actions to promote the efficient and environmentally sound disposal of products and wastes containing POP annex A, B, C. It is therefore essential the coordination and cooperation with the Basel Convention through trainings, and the research on new methods of disposal.

The activities proposed are designed to be a strategy which allows meeting the commitments acquired by Guatemala when signing the Stockholm Convention. Therefore, similarly to other activities, strategies or national action plans, this - without exception- must be socialized into the POP NCC. A close coordination with the Ministry of Agriculture and Livestock is hoped for this strategy, mainly regarding the registration of pesticides for new POP to be added to the annexes of the Convention.

3.3.8.6 Global cost and funding for activity.

Table No. 67. Global cost of activity.

Total costs of the activity	Total cost of the plan (US$)	Local financing (country)		Foreign financing
		MARN	MAGA	
Total of 3.3.8 activity: Measures to reduce the releases of stockpiles and wastes (article 6).	496, 258.53	66,521.73	129,736.79	
		73.86%	26.14%	

3.3.9 Strategy: Identification of stockpiles, articles in use and wastes.

3.3.9.1 Current situation.

This strategy aims to strengthen concrete action in regard to prohibition of production; minimization of articles in use or disuse and eventual elimination of POP, taking into account national strategies including all sectors involved; and an integrated, efficient and environmentally safe management.

The overall objective of this activity is to present a number of strategies and activities to be performed; and as a result, comply with the obligations of the Convention. Consequently, it is important to strengthen the actions identified in the activities (3.3.3, 3.3.4, and 3.3 .5) of this document related to POP inventories. Through such activities it is expected to achieve the identification of stockpiles in places that have not yet been covered due to the extension of the territory and the lack of economic resources.

The POP stockpiles reported in this project's inventories during the first months of 2008 determined the existence of DDT stored in different storage centers distributed throughout the national territory. There were a total of 15,057.70 kg of DDT, identified in a preliminary inventory conducted by the Ministry of Health and Social Assistance with support from PAHO.

The update PCB/BPC inventory was carried out in the period of 2007 and a quantity of electrical equipment was reported between the years 2005-2008, including capacitors, transformers, both of power and distribution, a total of 120,545. These equipments have been registered in the PCB/BPC national inventory. It was also found in the three electricity sectors, the amount of 118.322 liters of oil with PCB/BPC, of which the municipal companies have the least amount with 6.380 liters, individual users have 48.753 liters in contaminated equipment; and, the electricity sector reported the remaining 63.189 liters of oil.

During 2008, the work to identify and collect information related to the primary sources of generation of dioxins and furans were carried out, which initially were listed as priority sources. After that, their releases were estimated in accordance with the Standardized Toolkit for Identification and Quantification of PCDD/PCDF of UNEP. The estimate of polychlorinated biphenyls (PCB/BPC) and hexachlorobenzene (HCH) releases has not been calculated yet.

The results of the inventory of dioxins and furans, was conducted with estimated data from 2007 as the base year for its implementation, resulting in a total estimated release of 688.43 g TEQ/a (grams toxic equivalent per year).

The activity continued in 2009 and approximately 40 tons of obsolete pesticides were additionally identified, including 45.50 kg of dieldrín. On the other hand, 45.50Kg of DDT were identified with joint efforts from MSPAS and MARN.

3.3.9.2 General Objective.

Identify POP and obsolete pesticides stockpiles and wastes, articles in use and POP wastes (annex A part I and part II).

3.3.9.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 68. Specific objective 1: Present strategies to identify POP and obsolete pesticides stockpiles and wastes (annex A and B); as well as, equipment in use, oil and wastes contaminated with PCB/BPC (annex A, part II).

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
Strengthen the activities of identification of stockpiles, article in use and wastes of POP included in Annex A part I and II and B of the Stockholm Convention and other obsolete pesticides.	Instruments for the creation and evaluation of information of inventories ready for application.	1. Review, correction and application of questionnaires for the creation and evaluation of information for POP inventory.	Number of instruments reviewed and applied in the inventory.	Updated inventory in the information system of the Project.	MARN, similar institutions.
	Updated inventory, quantification and location of stockpiles storage, POP pesticides wastes, obsolete pesticides, and pesticides in evaluation process by the Stockholm Convention, electric equipment, oils and wastes with PCB/BPC.	2. Monitoring and updating of POP pesticide inventories (included in Annex A part I and Annex B of the Stockholm Convention) and other obsoletes, as well as the inventory of stockpiles of electrical equipment, oil and wastes with PCB/BPC (Annex A part II).	Percentage of stockpiles, updated through inventory every two years before the year 2015.	Updated database of POP and obsolete pesticides.	MARN, MAGA, MSPAS.
Strengthen the activities of identification of stockpiles, articles in use and wastes of POP included in Annex A part I and II and B of the Stockholm Convention and other obsolete pesticides.	Courses and training workshops on POP inventories. Verify and validate inventory through a field inspection program.	3. Training regarding POP inventory.	At least one updated course or training workshop in the year 2010.	Registration of carried out training workshops.	MARN, MAGA, MSPAS, AGREQUIMA.
	Inventory verified and validated through the program of field inspection.	4. Development and implementation of field inspection programs for verification and validation of updated information in POP inventories.	At least one developed and implemented program in the year 2010.	Written reports of the inspection programs with verified and validated information.	MARN, MAGA, MSPAS, and Private companies involved in the subject.
	Results of the inventory update in Project's database.	5. Evaluation of the results and development of reports on the updating of the inventories and POP database.	Updated inventory at the end of every year starting on the year 2010.	Written reports on performed activities.	MARN, MAGA, MSPAS, Time period from the year 2010 to 2015.

3.3.9.5 Strategy implementation.

This strategy presents a strategic goal that will allow strengthening the efforts to identify stocks, articles in use and POP wastes, including obsolete pesticides. The actions proposed are limited to updating the inventory of POP main groups (POP pesticides, PCB/BPC) from ballot review, methodologies and sectors involved in each POP group, review of preliminary inventory; and, train interested sectors on POP inventories. It is also planned to carry out programs of inspection, verification and validation of the preliminary inventory information of POP, with the collaboration of MAGA, MSPAS AGREQUIMA, private companies possessing electrical equipment and public electric companies.

A very important aspect of this strategy refers to the updating of information related to POP and obsolete pesticides, PCB/BPC, sites contaminated by POP in the information system designed and implemented by the Ministry of Environment and Natural Resources. This action will enable the identification of the degree of progress in the reduction and elimination of POP stockpiles, articles in use and wastes in the country; and, serve as input for reporting on management and disposal of POP to the Secretariat of the Convention on the dates already established. The implementation of this plan will be in charge of the Ministry of Environment and Natural Resources, with support from public and private institutions.

3.3.9.6 Global cost and funding for strategy: Identification of stockpiles, articles in use and wastes.

The costs to implement this strategy are included in the activities contained in the costs of the activities, strategies or plans of sections 3.3.1, 3.3.3, 3.3.4, 3.3.5 and 3.3.13; adding installed capacity of the Ministry of Environment and Natural Resources, which must assume the commitment to have a working group to execute these actions, with a special budgetary entry for the next 6 years.

3.3.10 Activity: Management of stockpiles and appropriate measures for handling and disposal of articles in use.

The planned activities for the management of stockpiles and appropriate measures for the handling and disposal of articles in use are described in the national plans:

a) National action plan 3.3.3: “Production, import and export, use, stockpiles and wastes of annex A, part I, chemicals”.
b) National action plan 3.3.4: “Production, import and export, use, identification, labeling, removal, storage and disposal of PCB/BPC and equipment containing PCB/BPC”.

c) National action plan 3.3.5: “Production, import and export, use, stockpiles and wastes of DDT (annex B, chemicals.)

3.3.11 Strategy: Identification of contaminated sites (annex A, B and C, chemicals) and remediation in an environmentally sound manner.

3.3.11.1 Current situation:

In the preliminary inventory of sites contaminated with POP (SCCOP) in 2008, several sites with high probability of being contaminated with POP were located. Guatemala is currently in a preliminary identification stage and in some places a preliminary assessment was made, which consisted of filling out a ballot prepared in the same stage of inventories. These sites must be verified with more complex evaluations that contain chemical, environmental, economic, social and human health analysis.

The SCCOP previously identified, have been only the sites contaminated with POP of annex A, due to the lack of analysis of unintended releases (dioxins and furans) in contaminated sites. For example, regarding the sites contaminated with PCB/BPC, it is known that stockpiles are in the open, outside of warehouses, or leaking; however, a more reliable tool is needed, such as the chemical analysis to determine whether the contamination of the involved matrices are above the limits allowed which were stipulated in the regulation development phase of this action plan.

The biggest limitation for the identification of contaminated sites is the analytical capacity in the country, since there is no equipment or methodologies for the quantification of POP in water, soil, air, etc. The only current capacity is recognition of POP through practical kits, example: Chlor-in-soil, Clor-in-oil, etc.

Due to the large amount of old electrical equipment throughout the country, the number of sites contaminated with PCB/BPC is relatively large. Many contaminated sites were identified, and based on the extent of contamination such were ranked by the type of intervention according to the Convention and depending on the extent of contamination.

Several contaminated sites were found distributed in different parts of the country. It is noteworthy that the sites found are only a preliminary inventory, which will be extended as new sites are known over time. Contaminated sites have an impact on companies, industries and institutions whose buildings were built long ago; therefore, their electrical installations are also old and that is the reason such are contaminated with PCB/BPC.

3.3.11.2 General objective.

Develop the strategy regarding the identification of contaminated sites (Annex A, B, and C chemicals) and environmentally sound remediation or rehabilitation.

3.3.11.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 69. Specific objective 1: Strengthen the POP legislation in Guatemala regarding the sites contaminated with POP.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Have a proper legislation regarding the management of POPCS (POP contaminated sites).	POPCS legislation.	1. Identify legislation and initiatives of legislation for the integration of norms and regulations regarding the management of CS (contaminated sites), to integrate the problem of POPCS.	90% of legislation and initiative of legislation regarding the identified issue.	List of identifies Laws or initiatives of law.	MARN, COGUANORM. (In collaboration with the National Coordination Commission).
		2. Develop a proposal of legislation regarding the management of POPCS.	Regulatory proposal available.	Proposal document.	MARN, COGUANOR. (In collaboration with the National Commission), universities, experts.
	Interested parties informed on regulations and legislation regarding POPCS.	3. Dissemination of the proposal through workshops.	Workshops.	List of attendance.	MARN, MEM, MAGA, MINTRAB, MSPAS, IGSS, universities, experts.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
		4. Dissemination of proposal to possible sources of contaminated sites through electronic material and workshops.	Possible contaminated sites production sources informed about the POPCS legislation.	Number of possible production sources informed on contaminated sites.	MARN, Owners of contaminated sites, MAGA, MSPAS, MEM, CNEE.
	Control and monitoring of compliance.	5. Integrate the regulatory compliance regarding POPCS into the inspections carried out by MARN, MEM, MAGA, MSPAS and MINTRAB.	80% of the carried out inspections take the problem of POP into consideration.	Inspection report.	MARN, MEM, MAGA and MINTRAB, MSPAS, IGSS.

Table No. 70. Specific objective 2: Establish management for contaminated sites.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1. Establish POPCS identification mechanisms through valid procedures.	Database.	1. Creation of a database for the prioritized inventory of POPCS.	Available contaminated sites database.	Database.	MARN.
	Manuals and procedures for the identification phase.	2. Create or adopt procedures for the preliminary identification of possible POPCS.	Existing valid procedures for the identification phase.	Procedure documents.	COGUANOR, MARN and Focal Points from Ministries.
	Identified sites possible contaminated with POP.	3. Preliminary identification of possible POPCS.	80% possible POPCS identified.	Amount of potential POPCS in the inventory.	MARN (with the support of the National Coordination Commission).
	Quality description of possible POPCS.	4. Inspection to contaminated site in order to gather information.	Inspection of all of the identified POPCS in the preliminary phase.	Inspection survey.	MARN, MAGA, MSPAS, MINTRAB, IGSS.
	Prioritized possible POPCS.	5. Establish levels of priority to be evaluated later.	Assigned priority level to all the inspected POPCS.	List of prioritized POPCS.	MARN.
2.2 Have a proper evaluation for contaminated sites. (Environmental, social, economic and human health impact).	Valid procedures for the proper POPCS evaluation.	1. Create or adopt procedures to carry out POPCS evaluation (chemical analysis, environmental, social, economical and human health evaluation).	Enough procedures for different activities.	Procedure document.	COGUANOR and MARN.
	POPCS Chemical analysis.	2. Analysis of contamination in different matrixes possible contaminated (soil, wastes, air and water, etc.) POPCS high priority.	Analysis of the high priority sites.	Laboratory analysis documents.	Contaminated sites owners, MARN and National Health Laboratory.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
	Complete POPCS evaluation.	3. Carry out an environmental, social, economic and human health evaluation regarding the contaminated sites, remediation of the sites. (This analysis will be carried out if the level is over the established standard in the different chemical analysis performed).	All the high priority sites in the inventory, and chemical analysis, evaluated or in process of evaluation.	Evaluation documents.	MARN.
	POPCS Prioritization.	4. Establish priority on sites for its respective remediation.	Established prioritization of the evaluated sites.	Prioritization list of POPCS.	MARN.
2.3 Remediation of contaminated sites in an environmentally sound manner.	Individual plans for each POPCS remediation.	1. Create detailed individual plans for the remediation of contaminated sites, previously evaluated and prioritized.	A plan for each POPCS that has been ranked according to remediation needs.	Document of remediation plan.	Contaminated site owners and MARN.
	Funding for the remediation of prioritized POPCS remediation.	2. Manage external funds for the financing of POP remediation.	Managed funds.	External economical support documents.	Contaminated site owners and MARN
	Sites previously contaminated with POP do not create a representative environmental, health, social, and economical impact.	3. Carry out POPCS remediation with highly trained personnel.	POPCS with the highest priority with a proper remediation.	Monthly reports on the advances on remediation.	Contaminated site owners and MARN in collaboration with international cooperation.
	Confirmation of site remediation.	4. Final evaluation to confirm complete POPCS remediation.	All POPCS previously worked on have a final evaluation.	Final evaluation document + F27.	MARN.

3.3.11.4 Timetable of activities per strategic objective and costs.

Table No. 71. Timetable of activities and costs for specific objective 1: Strengthening of POP legislation regarding contaminated sites with POP.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 Have a proper legislation regarding the management of POPCS.										
ACTIVITY 1								724,093.95	89,949.56	COGUANOR MARN, costs include the installed capacity of MARN". MARN, MEM, MAGA and MINTRAB
ACTIVITY 2										
ACTIVITY 3										
ACTIVITY 4										
ACTIVITY 5										
Total of strategic objective and activities								**724,093.95**	**89,949.56**	

Table No. 72. Timetable of activities and costs for Specific Objective 2: Establish management for contaminated sites.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1 Establish POPCS identifying mechanisms through valid procedures								**413,844.71**	**51,409.28**	
ACTIVITY 1								13,483.27	1,674.94	
ACTIVITY 2								70,247.20	8,726.36	MARN, costs include the installed capacity of MARN".
ACTIVITY 3,4, 5							To 2025	330,114.24	41,007.98	
2.2 Have a proper evaluation of contaminated sites. (Environmental, social, economic and human health Impact).								**630,864.98**	**78,368.32**	
ACTIVITY 1								156,431.95	19,432.54	MARN, costs include the installed capacity of MARN".
ACTIVITY 2							To 2022	221,375.00	27,500.00	Cooperation
ACTIVITY 3								223,290.49	5,500/site (5 Sites)= 27,737.95	Cooperation
ACTIVITY 4								29,772.04	3,698.39	MARN
2.3 Environmentally sound remediation of contaminated sites.								**1,181,974.74**	**146,829.16**	
ACTIVITY 1							To 2021	148,858.10	3,698.39/site (5 sites)= 18,491.69	Owners of POPCS and Cooperation.
ACTIVITY 2,							To 2022	6,741.63	837.47	
ACTIVITY 3							To 2021	805,000.00	100,000.00	Cooperation and POPCS owners.
ACTIVITY 4							To 2021	221,375.00	5,500/sitio 5 sitios= 27,500.00	Cooperation and POPCS owners
Total of strategic objective and activities								**2,226,688.93**	**276,606.76**	
Total cost of Strategy 3.3.11: Identification of contaminated sites (annex A, B and C, chemicals) and remediation in an environmentally sound manner.								**2,950,778.38**	**366,556.32**	

3.3.11.5 Strategy implementation:

To implement this strategy, two specific objectives have been identified, the first one aims at strengthening legislation on POP-contaminated sites, and the second stipulates their management. For the strengthening of POP legal framework regarding contaminated sites, the issue of contaminated sites and its remediation or rehabilitation is expected to be address in a general regulation on the safe management of hazardous substances.

The most important activities that will enable achievement of the goal are: working meetings with COGUANOR to develop the proposal, working meetings and workshops to socialize the proposal; as well as, field activities to verify compliance with the regulation by all indicated institutions.

The second specific objective contains three strategic objectives: the first will allow the identification of SCCOP, adopting procedures that are internationally known; the second objective will identify priority sites and assess the degree of pollution in environmental matrices, such as populations; and, the last one seeks to promote actions for environmental, economic, social and health assessments. To fulfill this strategy the coordinated participation of the following institutions is required: MARN, MAGA, MEM, MSPAS MINTRAB, IGSS and POP NCC; therefore, the development of plans for contaminated sites is essential, in addition to the management of funding for their remediation. This strategy has an approximate cost of US$366,556.32 equivalent to Q2,950,778.38 to be implemented from 2010 to 2025.

The complete management of contaminated sites is of paramount importance since a contaminated site has great impact on the environment and surrounding towns. The proposed expenditures for coordinating activities of the action strategies of this plan added US$213,120.44. Additionally, the cost of the evaluation and remediation of contaminated sites should be added to this quantity, which is approximately US$100,000.00 for each contaminated site, with a total of US$313,120.44 equivalent to Q2,520,619.54. Consequently, the total cost of the plan will be determined by the amount of contaminated sites identified and evaluated; on the other hand, foreign funds are to be managed for the activities of remediation of contaminated sites.

3.3.11.6 Total cost of strategy.

Table No. 73. Total cost of strategy.

Total cost of the activity	Total plan cost (US$)	Local financing (country)			External financing
		MARN	Other institutions and MARN	Cooperation	
Total cost of strategy 3.3.11: Identification of contaminated sites (annex A, B and C, chemicals) and remediation in an environmentally sound manner.	366,556.32	74,540.21	89,949.56	202,066.55	
		20.34%	24.54%	55.13%	

3.3.12 Activity: Facilitating or undertaking information exchange and stakeholders involvement.

3.3.12.1 Current situation.

The Stockholm Convention states in Article 9 that each Party shall facilitate the exchange of information relating to the reduction or elimination of the production, use, and release of POP; it also indicates that the Parties shall exchange information and each Party will designate a national focal point for the exchange of such information. Therefore, this action plan is developed to delineate and propose a number of ideas and strategic activities to allow, in a considerable period of time, the establishment of mechanisms for such exchange [sic].

This activity is based on both the Convention and the suggestions resulting from the prioritization workshop held after the National Inventories on POP stage. Some important goals were identified: to establish a direct information channel between the COP Information Center in Guatemala and the Secretariat; implementation of a Focal Point for information; make use of the information of POP on health and the environment without restrictions; and establish a framework for information exchange on POP.

To start the planning of this activity, the Ministry of Environment and Natural Resources (MARN) was appointed as Focal Point for the exchange of information by means of the Governmental Agreement No. 284-2008, which designates MARN, as ***"National Coordination Center for the Exchange of Information regarding the Reduction or Elimination of Production, Use, and Releases of POP."*** These legal actions provide the needed formality for the Ministry of Environment to continue the work which has been carrying regarding POP in the various phases and become the focal point in the process of information exchange with the public and with the Secretariat of the Convention.

To give effect to such activity, the institutions and entities that may be involved with the Coordinating Body of the Information Exchange –OCOIF in Spanish-; as well as, in education activities, were identified. The OCOIF must have as main task to provide and manage information before being placed for public use under the coordination unit, such will work as an information source for POP, involving all sectors through a network integrated by POP NCC, NGOs, state universities, industry, community, academia, physicians, teachers, engineers, business associations and organized agricultural sectors.

3.3.12.2 General objective:

Establish the information exchange mechanisms with institutions and with the Secretariat of the Convention, in a coordinated manner and through the establishment of a national center of coordinated information and training on POP safe management.

3.3.12.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 74. Specific objective 1: Have a specific entity for the information exchange regarding POP, nationally and internationally.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Information exchange directly with the Secretariat.	Database.	1. Systematize information.	Database created and running.	Documents.	IT Department of MARN.
		2. Develop database.			Project Coordination.
		3. Feed and run database.			POP Project assistant.
		4. Implement an alert system for new information.			Links to other Ministries.
1.2 Implementation of the Focal Point.	Information Coordination Body regarding POP. "OCOIF"(abbreviation in Spanish).	1. Identification of stakeholders carrying out a detailed list.	Team manager of information Coordination Body "OCOIF".	Board of Directors.	Guatemala POP Project Coordination and National Coordination Commission.
		2. Location of physical space. Location of virtual space.			
		3 Coordination meetings.			
		4. Videoconferences.			

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.3 Available information about health and environment without restrictions.	Virtual and physical free information space regarding POP information.	1. Creation of Website of the Convention in Guatemala running and with a well defined space for the Information Coordination Body "OCOIF" regarding POP or a link to it.	Running POP website.	Website visit counters and "contact us" spaces.	Coordinator of the Body and librarian hired by MARN.
		2. Designation of a space for Mini information Center within the headquarters of POP focal point.	Mini information Center attending public for free.	Consulting Registration book with the users' data.	
1.4 Establish a reference framework for the exchange of information.	A two way communication channel with the Secretariat. Have a Small inter-ministerial group to Coordinate the Information Center.	1. Focal Point encourages the legal framework and the communication channel by validating the POP legislation.	Official reports: Inventories, action plans, national plans.	Framework document. Official reports.	MARN communication and information responsible. .
		2. Workshop Seminars to form inter-ministerial focal groups.	Inter-ministerial advisory group on the issue.	Decree, list of participants. Names and data of the participants.	POP Project Coordinator – Guatemala.

3.3.12.4 Timetable of activities per strategic objective and cost.

Table No. 75. Timetable and cost of specific objective 1.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 Direct Exchange of information with the Secretariat										
ACTIVITIES 1, 2,3,4								108,675.00	13,500.00	MARN includes installed capacity.
1.2. Implementation of Focal Point										
ACTIVITIES 1, 2, 3,4								150,937.50	18,750.00	MARN includes installed capacity.
1.3 Availability of information about health and environment										
ACTIVITY 1,2								251,562.50	31,250.00	MARN includes installed capacity.
1.4 Establish a reference framework for the Exchange of information										
ACTIVITY 1,2								16,100.00	2,000.00	MARN includes installed capacity.
Total cost of strategic objective and activities								**527,275.00**	**65,500.00**	

3.3.12.5 Implementation of activity.

For the implementation of this activity it is essential to strengthen the Information Center on POP, which will be located at MARN, and will coordinate the information exchange actions with all public and private institutions, research centers, academia, NGOs and society in general. The information center, in order to be functional, must create an operational body to ensure activities (Coordinating Body for Information Exchange –OCOIF in Spanish-). The Information Center must have a specific area, human and financial resources, and create a special library that records information on POP, provide a service that guarantees access to updated information on related projects and experiences, new technologies and capacity building, research related to the subject, updated information on seminars and conferences; as well as, training, which will be provided by the focal point or other organizations.

The center must be renewed jointly with the new technological developments, allowing proper communication with the entities that must provide periodic reporting and also allows transferring information to the Secretariat of the Convention.

It is essential that the ministries such as MAGA, MSPAS, MEM, MINEX and research centers, network of laboratories, academia, NGOs, etc., have a focal point for the exchange of information and provides updating to the authorities in charge of the issue in each institution.

It is planned that this activity be implemented in the period of the NIP's implementation; however, there are other activities that may be developed in the short term, such as the establishment of the Information Center, establishment of referral framework for the exchange of information, and the identification of coordination points, etc.

The total cost for this activity is approximately of US$65,500.00 which is around Q527,275.00 to be absorbed by the Focal Point of the Convention, which in this case is the Ministry of Environment and Natural Resources.

3.3.12.6 Global cost and funding of activity:

Table No. 76. Global cost of activity.

Total cost of the activity	Total cost of plan (US$)	Local financing (country) MARN	External financing
Total cost of activity 3.3.12: Facilitating or undertaking information exchange and stakeholder involvement.	**65,500.00**	**65,500.00**	

3.3.13 Activity: Public awareness, information and education (article 10).

3.3.13.1 Current situation.

Article 10 of the Convention states that it is necessary to develop public information, awareness and education, especially with the most vulnerable groups (women and children) and the least educated; therefore, the communication, information and education strategy is developed with high audio visual content.

To raise the issue at higher educational levels, it is necessary to carry out cooperation agreements between the Ministry of Education and the universities to include POP issue in its syllabus. It is also necessary to locate sufficient funding to develop activities related to information and training on POP; and, that such funding reach all education levels and all sectors of the population.

Other major activities to meet the proposed for the awareness, education and communication of POP objectives are: to establish a benchmark in the field of communication that can build partnerships with countries in the region to exchange information, find new disposal and reduction technologies for these compounds; and, to monitor progress in the implementation of the NIP in the region.

The task of raising awareness, communication and training, implies high budgets, especially for the disclosure of information; alternative communication can be used if there is a low budget and small groups.

For this activity the following is presented: four matrixes with specific objectives, results, monitoring channels and responsibilities for each of the persistent organic pollutants and the matrix of progress on the implementation of the NIP.

3.3.13.2 General objective.

Implement necessary mechanisms to ensure awareness, information and training on the Convention and the persistent organic pollutants.

3.3.13.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 77. Specific objective 1: Implement information, awareness and training mechanisms for POP. Operational Matrix for PCB/BPC.

Strategic	Products	Activities	Indicators	Monitoring channels	Responsible
1.1. Raise public awareness regarding the sound management and final disposal of PCB/BPC and equipment containing it.	Aware population on the sound management of PCB/BPC and equipment containing it.	1. Develop database.	Constructed database.	Contacts that can be located.	Technical team of MARN.
		2. Delivery of information brochures.	Published brochures.	Three annual brochures.	PCB/BPC Sub Commission.
		3. Information workshops about what PCB/BPC, their use and handling.	Trained personnel.	List of attendance.	Electrical Engineering Unit from USAC, Del Valle and Landívar Universities.
1.2. Train the population in the sound management, as well as the final disposal of PCB/BPC and equipment containing it.	Population of the electrical sector trained in the use, management and proper disposal of PCB/BPC and equipment that contains it.	1. Workshop for the detection of equipment with PCB/BPC.	Didactics guide.	Workshop report.	POP information Unit technicians in PCB/BPC.
		2. Develop a manual about Management of contaminated sites.	Manual about the issue.	Printed document.	POP information Unit technicians in PCB/BPC.
		3. Regional workshops in areas where higher presence of PCB/BPC is detected.	Presentations and workshop guides.	List of attendance by regions.	POP information Unit technicians in PCB/BPC.
		4. Training of companies and personnel through workshops, manuals and dissemination material regarding the identification of	80% trained companies that own equipment.	List of called companies.	MARN and electrical equipment owners.

Strategic	Products	Activities	Indicators	Monitoring channels	Responsible
		equipment with PCB/BPC.			
		5. Train companies to transport equipment and PCB/BPC and contaminated oil.	Interested companies in taking the option of transporting this substance.	List of companies.	Installed capacity by MARN.
		6. Training workshop with the of PCB/BPC contaminated items manual.	Printed manuals to be used in workshops.	Edited document and list of participants.	Installed capacity of MARN.
3. Inform the population in the sound management, as well as the final disposal of PCB/BPC and equipment containing it.	General population informed in the use, management and proper disposal of PCB/BPC and equipment that contain it.	1. Information alert of the PCB/BPC situation in the country.	Brochure summarizing all the information on the subject.	Printing.	POP Project, MARN journalists, communication media direction at MARN.
		2. MARN Website.	Document with information.	Updated and running website.	Database technicians.
		3. Monitoring of inventories.	New ballots with data.	Information ballots.	Database technicians.
		4. Newspaper articles about the subject.	Newspaper publications.	Number of pages and articles.	RRPP, COIF, Magazine.
		5. Radio interview with open telephone communication to the public.	Recording of the interview.	Recorded CD with the material.	RRPP, COIF, radio.
		6 Dissemination program of the regulatory proposals through electronic material.	Companies and equipment owners informed on the updated regulations.	Number of informed people.	MARN, MEM, CNE and COGUANOR.

Table No. 78. Specific objective 2: Implement awareness, information and training mechanisms on POP. Operational matrix of dioxins and furans.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1. Raise awareness to the population regarding the sound management of unintentional dioxins and furans	Population aware of the sound management of unintentional releases of dioxins and furans.	1. Video on how dioxins and furans are produced.	Production of video.	Video dissemination reports.	OCOIF, Chamber of Industry, MARN, AGEXPORT and universities.
		2. Bulletin aimed toward the industrial sector regarding the harm these cause on human health and the environment.	Printed document.	Distribution notes.	CI, MARN.
		3. Presentation of cases of people exposed to dioxins	Audiovisual for discussion.	List of participants and meetings report.	CI, MARN, universities.
		4. Raise awareness of the main	Lectures and MCS	List and publication of	COIF, MARN.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
emissions.		production sources of dioxins and furans.	presence.	interview.	
		5. Raise awareness on guild representatives about dioxins and furans.	International seminar.	Summon and list of participants.	COIF MARN.
2. Train the population on the sound management of unintentional releases of dioxins and furans.	Trained population on the sound management of unintentional releases of dioxins and furans.	1. Workshop to technicians and interested parties on management and measures.	Document with the content of the workshop.	Signed list of participants with contact address and telephone.	INTECAP, CGP+L, universities, Sub-commission of D&F, NGOs.
		2. Train of trainers and/or promoters that manage the subject.	Three annual workshops.	Number of trained promoters.	INTECAP, CGP+L, universities, Sub-commission of D&F, NGOs.
		3. Workshops for environmental NGOs interested in disseminate information.	Two workshops.	Number of trained people.	INTECAP, CGP+L, universities, Sub-commission of D&F, NGOs.
		4. Include the subject in educational curriculum.	Awareness meeting with Education Authorities	Photographs of the meeting and reception stamps of response.	MARN, Ministry of Education.
		5. Build strategic training alliances with other interested organizations on the subject.	Expert panel contacted and identified.	List of expert panel and participant public.	INTECAP, CGP+L, Universities, Sub-Commission of D&F, NGOs.
3. Inform the population on sound management of dioxins and furans.	Informed population on the sound management of dioxins and furans.	1. Specialized magazine report.	Publication on magazine.	Clipping of publication.	Project Public Relations and/or of MARN.
		2. TV program interview with an open line to the public.	Television presentation.	Copy of interview on a DVD.	
		3. Publish advances and/or latest experiences on the subject in other countries.	Published documents.	Website.	Number of consultations.
		4. Mass media campaign.	Material for campaign.	Map of media purchase.	Media transmission.
		5. Create spaces for EPS work (Supervised Professional Exercise) and graduation thesis	Summon students in universities.	Grade Thesis documents collected for website.	Project Public Relations and/or of MARN.

Table No. 79. Specific objective 3: Implement awareness, information and training mechanisms on POP. Operational matrix of POP and obsolete pesticides.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1. Raise awareness to the population regarding the sound management as well as final disposal of POP pesticides and Obsolete pesticides.	Aware population on the subject of POP pesticides and Obsolete pesticides.	1. Regional meetings with pesticides distributers.	Programmed event.	List of participants and correspondence signature.	Pesticides Sub Commission, MARN, AGREQUIMA, universities.
		2. Mass media campaign.	Dissemination material, radio, TV and press.	Publications	PR of MARN and COIF.
		3. Regional Seminar to disseminate the progress and good practices in other countries.	Summon and agenda.	List of participants.	Pesticides Sub Commission, MARN, AGREQUIMA, universities.
		4 Delivery of news bulletin about progress and new dispositions of the Secretariat regarding the subject.	Editing of material.	Reception stamps.	Pesticides Sub Commission, MARN, AGREQUIMA, universities.
		5. Send voices of alert to congressmen responsible for environmental legislation.	Web reports.	Number of visits	COIF, MARN.
2. Train the population on sound management and disposal of POP pesticides and Obsolete pesticides.	Different sectors of civil society trained in the subject of POP pesticides and Obsolete Pesticides.	1. Workshops on the subject to local journalists.	Summoning.	List of attendance.	Training Unit of AGREQUIMA and MARN
		2. Information booklets on alternative to pesticide use.	Edited and printed booklet.	Distributed booklets.	COIF, MARN.
		3. Management of warehouses and storage of POP and obsoletes pesticides.	Procedures manual.	List of distribution.	COIF, MARN.
		4. Train customs personnel on the pesticide procedure manual.	50 trained customs agents.	List of participants.	COIF, MARN, SAT, MAGA.
		5. Training on proper storage for warehouses personnel.	Number of warehouse workers trained.	Database.	AGREQUIMA, MARN, MAGA
		1. Workshop on the subject of POP pesticides disposal methods by national and international experts.	Companies with information about the disposal of pollutants.	List of lecturers and participants.	MARN, Basel Convention.
		2. Documentary on the situation of pesticides and their effects.	Produced Audiovisual material	20 minute Video.	COIF and PR of MARN.

3. Inform the population about the sound management and disposal of POP pesticides and obsolete pesticides.	Informed population on the subject of POP pesticides and obsolete pesticides.	3. Manual of alternative uses.	Manual publication.	Manual printing.	MARN, MAGA, AGREQUIMA, MSPAS.
		4. Workshop seminars in different universities in the country.	Document and work guide	Base Document of edited work.	
		5. Inform on new regulation regarding DDT cancellation registry.	Number of meetings and law.	Number of meetings and law.	MARN, MAGA, AGREQUIMA, MSPAS.
		6. Produce posters about alternatives to the use of DDT.	Distributed posters.	Printed posters.	MARN and MSPAS.

Table No. 80. Specific objective 4: Inform and train regarding the National Implementation Plan for POP in Guatemala.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1. Raise awareness to the general population on the progress of the Stockholm Convention implementation.		1. Monitoring activity on the progress of the Stockholm Convention in the country.	NCC meeting.	List and report of the event.	MARN, NCC.
		2. Meeting with the network of Laboratories to inform of the progress.	Visit to annual RELABSA meeting.	List of participants and suggestions.	MARN, COIF.
		3. Sectors of the general population that have not been reached.	Mass campaign regarding POP.	Spot on radio, spot on TV and announcement on press.	COIF, MARN.
2. Train the involved sectors and general public.		2. Sponsor experts' participation to be trained on a regional level about POP.	Training workshop.	Manual and list of people interested in participating.	Environmental NGOs, MARN, Convention secretariat.
		3. Promote POP investigation in the country.	Meetings with University authorities.	Created basis.	Universities, MARN.
		4. MCS Diploma to journalists linked to environmental issues.	Content of the course.	Applications with information of the interested parties.	USAC.
3. Inform the population through various means, about the progress of the Stockholm Convention implementation.		1. Website update.	Published documents.	Number of visits to the sites.	MARN IT and project.
		2. Publication on different media.	Published documents.	Report, articles.	COIF MARN Public relations.
		3. TV Report.	Audiovisual material.	Audiovisual transmitted on a TV channel.	COIF MARN public relations.
		4 CD multimedia and video conferences.	Team and transmission material.	Carried out Video conferences.	Installed capacity of MARN.

3.3.13.4 Timetable of activities per strategic objective and cost.

Table No. 81. Timetable of activities and costs of specific objective 1: Implement awareness, information and training mechanisms. Operational matrix of PCB/BPC.

Strategic objectives	Years							Cost Q	Cost US$	Funding sources
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1. Raise awareness to the population regarding the sound management, as well as the final disposal of PCB/BPC and equipment that contain it.								**53,500.00**	**6,645.96**	
ACTIVITIES 1,	■							-----	------	The database costs are included in the strategy of the contaminated sites. (National Plan 11).
ACTIVITY 2		■						1,500.00	186.34	MARN, Sub-Commission of BPC/PCB.
ACTIVITY 3			■					52,000.00	6,459.63	Universities: USAC Electric Engineering Unit, Del Valle and Landívar.
1.2. Train the population on the sound management, as well as final disposal of PCB/BPC and equipment containing it.								**22,444.45**	**2,788.13**	
ACTIVITIES 1			■					3,750.00	465.83	MARN, technicians from the information of POP Unit. Installed capacity of MARN. CP+L.
ACTIVITY 2				■				1200.00	149.06	Technicians from the information of POP Unit. Installed capacity of MARN.
ACTIVITY 3					■			10,000.00	1,242.24	Technicians from the information of POP Unit. Installed capacity of MARN.
ACTIVITIES 4,5,6	■	■						7,500.00	931.68	MARN. Owners of equipment.
1.3 Inform population on the sound management, as well as final disposal of PCB/BPC and equipment containing it.								**30,569.00**	**3,797.39**	
ACTIVITY 1	■							2,000.00	248.45	Project POP, MARN. Journalists and media. Computing from MARN. Installed capacity of MARN.
ACTIVITIES 2,3,4,5,	■	■	■	■				1,573.40	195.41	Data base technician, RRPP COIF, Magazine.
ACTIVITY 6		■	■					27,000.00	3,354.04	MARN, MEM, CNE and COGUANOR.
Total of specific objective and activities								**106,518.97**	**13,232.17**	

Table No. 82. Timetable of activities and costs of specific objective 2: Implement awareness, information and training mechanisms on POP. Operational matrix of dioxins and furans.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1. Raise awareness to the population on the sound management of unintentional releases of dioxins and furans.								**43,000.00**	**5,341.61**	
ACTIVTY 1								10,000.00	1242.24	COIF, Chamber of Industry, AGEXPORT.
ACTIVITY 2								8,000 .00	993.79	Installed capacity of MARN, COIF.
ACTIVITY 3								5,000.00	621.12	MARN CIG, CI.
ACTIVITY 4								------	------	Installed capacity of MARN, COIF.
ACTIVITY 5								20,000.00	2,484.47	COIF, MARN.
2.2 Train the population on the sound management of unintentional releases of dioxins and furans.								**64,050.00**	**7,956.52**	
ACTIVITY 1								55,000.00	6832.30	INTECAP, CP+L UNIVERSITIES, NGOs, ALLIES.
ACTIVITY 2								3,750.00	465.84	INTECAP, CP+L UNIVERSITIES, NGOs, ALLIES.
ACTIVITY 3								2,500.00	310.56	INTECAP, CP+L UNIVERSITIES, NGOs, ALLIES.
ACTIVITY 4								2000.00	248.45	MARN, MINEDUC.
ACTIVITY 5								800.00	99.38	INTECAP-CP+L UNIVERSITIES, NGOs.
2.3 Inform the population about dioxins and furans sound management.								**125,000.00**	**15,527.95**	
ACTIVITY 1, 2,3								------	------	Installed capacity of MARN.
ACTIVITY 4								120,000.00	14,906.83	COOPERATIVE ORGANIZATIONS, NGOs.
ACTIVITY 5								5,000.00	621.12	Installed capacity of MARN.
Total of specific objective and activities								**232,050.00**	**28,826.09**	

Table No. 83. Timetable of activities and costs of specific objective 3: Implement awareness, information and training mechanisms on POP. Operational matrix of POP and obsolete pesticides.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
3.1 Raise awareness to the population regarding the sound management of POP and obsoletes pesticides.								**267,500.00**	**33,229.81**	
ACTIVITY 1								70,000.00	8,695.65	MARN, ACADEMY AGREQUIMA, Sub-Commission of Pesticides.
ACTIVITY 2								120,000.00	14,906.83	MARN.
ACTIVITY 3								70,000.00	8,695.65	MARN, ACADEMY AGREQUIMA, Sub-Commission of Pesticides.
ACTIVITY 4								5,000.00	621.12	MARN, ACADEMY AGREQUIMA, Sub-Commission of Pesticides.
ACTIVITY 5								2,500.00	310.56	Installed capacity of MARN.
3.2 Train the population regarding the sound management of POP and obsoletes pesticides.								**47,500.00**	**5,900.62**	
ACTIVITY 1								6,000.00	745.34	MARN, AGREQUIMA.
ACTIVITY 2								13,000.00	1,614.91	MARN COIF.
ACTIVITY 3								4,000.00	496.89	MARN COIF.
ACTIVITY 4								4,000.00	496.89	MARN COIF, SAT.
ACTIVITY 5							To 2020	20,500.00	2,546.58	AGREQUIMA, MARN, MAGA.
3.3 Inform the population regarding the sound management of POP and obsoletes pesticides.								**62,000.00**	**7,142.95**	
ACTIVITY 1								20,500.00	2,546.58	COIF PR of MARN.
ACTIVITY 2								12,000.00	1,490.68	MARN, MAGA, MSPAS, AGREQUIMA.
ACTIVITY 3								10,000.00	1,242.23	MARN, Academy.
ACTIVITY 4								7,000.00	869.57	MARN, MAGA, AGREQUIMA, MSPAS.
ACTIVITY 5								8,000.00	993.79	MSPAS, MARN.
Total of specific objective and activities								**372,500.00**	**46.273.37**	

Table No. 84. Timetable of activities and costs of objective 4: Implement awareness, information and training mechanisms on POP regarding the progress of POP implementation in Guatemala.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
4.1. Raise awareness to the general public on the progress of the Stockholm Convention Implementation.								**108,500.00**	**13,478.26**	
ACTIVITY 1								8,500.00	1,055.90	Installed capacity of MARN.
ACTIVITY 2										Installed capacity of MARN.
ACTIVITY 3								100,000.00	12422.36	COIF, MARN.
4.2. Train the involved sectors and population on the progress of the Stockholm Convention Implementation.								**160,000.00**	**19,875.78**	
ACTIVITY 1,								10,000.00	1,242.24	MARN, CP+L, ONGs.
ACTIVITY 2								50,000.00	6,211.18	MARN, Academy.
ACTIVITY 3								100,000.00	12,422.36	Academy.
4.3. Inform the population through different means about the progress of the Stockholm Convention Implementation.								------	------	
ACTIVITY 1,							TO 2018	------	------	Installed capacity of MARN (The costs are included in operative matrixes from the different POP groups).
ACTIVITY 2								------	------	
ACTIVITY 3								------	------	
ACTIVITY 4								------	------	
Total of specific objective and activities								**268,500.00**	**33,354.04**	

Table No. 85. Total budget of public information, awareness and education activity.

Total costs to implement awareness, information and training mechanisms for the management of PCB/BPC.	**Q106,518.97**	**US$ 13,232.17**
Total costs to implement awareness, information and training mechanisms in the management of DIOXINS AND FURANS.	**Q232,050.00**	**US$28,826.09**
Total costs to implement awareness, information and training mechanisms in the management of POP AND OBSOLETE PESTICIDES.	**Q372,500.60**	**US$46,273.37**
Total costs to implement awareness, information and training mechanisms regarding the progress of the POP implementation in Guatemala.	**Q268,500.00**	**US$33,354.04**
Total cost of activity 3.3.13: Public awareness, information and education (article 10).	**Q979,569.64**	**US$121,685.67**

3.3.13.5 Implementation of activity.

The timing for the implementation of the NAP should be prioritized in stages and should be planned from 2010 to 2020. However, it should be mentioned that during the process of implementation of the Project several activities of awareness, dissemination and education according to the stages have been developed; nonetheless, the mass dissemination of such is still pending. The proposed objectives for each matrix are based on awareness, training and information of each of the POP groups, starting from their natural characteristics up to their environmental sound and proper management. The last matrix presents objectives and actions aimed at informing people regarding the progress of the National Plan, educate them on the Stockholm Convention and raise awareness to adopt the proposed measures regarding the change of attitude and technologies in order to reduce releases into the environment. This plan will have a cost of US$121,685.67 equivalent to Q979,569.64 with funding from the institutions identified for each action.

Many stakeholders will have to work towards implementing this activity, and is an urgent need that each institution creates focal points and operational structures to create awareness, train, and educate the public in accordance with its line of work.

3.3.13.6. Global cost and funding of activity:

Table No. 86. Total cost of activity.

Total cost of the activity	Total plan cost (US$)	Local financing (country)		Funding source
		MARN %	MARN and Other Institutions	Cooperative parties
Total cost of activity 3.3.13: Public awareness, information and education (article 10).	121,685.67	40,158.13	66,621.12	14,906.83
		33%	54.75%	12.25%

3.3.14. Activity: Effectiveness evaluation (article 16).

3.3.14.1 Current situation.

The Stockholm Convention establishes that the Parties shall evaluate in a periodical basis the effectiveness of the Convention on regard of the presence of chemicals listed in annex A, B and C; as well as, their regional and global environmental transport, using existing monitoring programs and mechanisms (article 16). The evaluation will be conducted on the basis of available scientific, environmental, technical and economic information presented by each Party, for that purpose the reports send by the Party on the total quantities of production, import and export of chemicals listed in annex A, B, and C shall be taken in consideration. Guatemala does not produce any POP, and the information to be submitted is regarding the import and export data of some of the POP and wastes.

In the Fourth Meeting (May 2009) it is stipulated that the Effectiveness Evaluation should address, as every plan, the scope, limits, benefits through a monitoring, from a national to an regional level. To evaluate effectiveness on the implementation of the Stockholm Convention, Guatemala has to review the monitoring undertaken since 1955, which were mainly carried out on pesticides in marine fauna, cotton, coffee, and residues in meat. It should also review the monitoring performed during the 70's - 90's which were aimed to the analysis of food, vegetables, breast milk and adipose tissue; and more recently, to the monitoring carried out by laboratories from private and national universities.

Guatemala has, since January 2008, a Governmental Agreement that appoints the Ministry of Environment and Natural Resources as the center of POP information in the country. This situation will allow that, through this body, Guatemala can carry out the proper information exchange, both in national and international levels.

3.3.14.2 General objective.

Strengthen the mechanisms through which the Evaluation of Effectiveness of POP in Guatemala will be carried out, in compliance with article 16 of the Convention.

3.3.14.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 87. Specific objective 1: Strengthen the regulatory framework regarding the evaluation of effectiveness.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Have the proper legislation that defines how efficiency of elimination and/or reduction of POP in Guatemala will be evaluated.	Create an article in the POP legislation that contains POP monitoring guidelines in humans and the environment.	1. Build up an inter-institutional group for the development of laws.	Formed inter-institutional group, with a work agenda.	Formed group with list of attendance of the meetings.	MARN - NCC, MSPAS, MAGA, COGUANOR.
		2. Review of the data obtained from POP monitoring in the country, as well as the evaluation of the preliminary inventory results.	Number of reviewed documents.	Meetings reports.	COGUANOR, NCC.
		3. Creation or adoption of valid technical instrument for the POP national evaluation in the environment and in humans.	Validated instrument.	Instrument document.	COGUANOR, MARN, MSPAS.
		4. Creation of article and legislation publishing.	Regulations with their respective proposed parameters.	Article within the regulation.	COGUANOR, NCC.

Table No. 88. Specific objective 2: Strengthen the institutional capacity to evaluate effectiveness.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1 Strengthen contact with Regional Secretariat in the subject of Effectiveness evaluation.	Regional reports regarding the Effectiveness Evaluation in the Implementation of the Stockholm Convention.	1. Contact and show interest for participating in meetings organized by the Regional Secretariat.	Number of meetings.	Meetings report.	MARN, POP NCC.
		2. Identify the Monitoring guidelines for POP in each country.	Index for the monitoring progress.	Regional reports.	MARN, POP NCC.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.2 Strengthen the registration on POP intoxication of human health in Guatemala.	Register of POP intoxications in Guatemala.	1. Have knowledge of the registration procedures of pesticide intoxications by pesticides at MSPAS.	Training meetings.	List of participants.	Inter-institutional Commission MSPAS.
		2. Promote the strengthening of existing MSPAS registration including POP intoxications.	POP intoxication registration.	Report on POP intoxication cases.	Inter-institutional Commission, MSPAS, MAGA.
2.3 Strengthen POP research in Human Health.	Increase in number of investigations of POP in Human Health.	1. Inter-institutional coordination with CONCYT - SENACYT for the training on the Stockholm Convention in universities and institutions.	Number of carried out meetings.	List of participants.	MARN, CONCYT, SENACYT.
		2. Promote investigations on POP Health Risks.	Number of planned investigations.	Report on investigation progress.	Universities and Cooperative organizations.

3.3.14.4 Timetable of activities per strategic objective and cost.

Table No. 89. Timetable of activities and cost of specific objective 1: Strengthen the regulatory framework regarding the evaluation of effectiveness.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1. Have a proper legislation that specific how the effectiveness of the actions of disposal and/or reduction of POP in Guatemala will be evaluated.										
ACTIVITY 1								37,700.00	4,214.57	MARN including installed capacity.
ACTIVITY 2								28,700.00	3,565.22	MARN including installed capacity.
ACTIVITY 3								580,360.00	72,094.41	MSPAS, MARN, COGUANOR.
ACTIVITY 4								103,100.00	12,807.45	MARN including installed capacity.
Total of strategic objective and activities								**745,869.00**	**92,681.65**	

Table No. 90. Timetable of activities and cost of specific objective 2: Strengthen the institutional capacity to evaluate effectiveness.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1 Strengthen contacts with the Regional Secretariat in the subject of effectiveness evaluation.								**581,400.00**	**72,223.60**	
ACTIVITY 1								202,200.00	25,118.01	MARN includes installed capacity.
ACTIVITY 2								379,200.00	47,105.59	Cooperative entities.
2.2 Strengthen the registrations on POP intoxications in Human Health in Guatemala.								**499,100.00**	**62,000.00**	
ACTIVITY 1								36,700.00	4,559.01	MARN includes installed capacity.
ACTIVITY 2								469,400.00	57,440.99	Cooperative entities.
2.3 Strengthen research of POP in Human Health.								**1,401,300.00**	**174,074.53**	
ACTIVITY 1								59,700.00	7,416.15	MARN includes installed capacity.
ACTIVITY 2								1,341,600.00	166,658.39	Cooperative entities.
Total of strategic objective and activities								**1,401,300.00**	**174,074.53**	
Total of activity 3.3.14: Effectiveness evaluation (article 16).								**3,227,887.23**	**400,979.79**	

3.3.14.5 Activity implementation.

The Ministry of Environment and Natural Resources has planned different actions to be implemented in order to comply with the effectiveness evaluation, such is the case of the creation of an information center that will manage all the information on POP, (section 3.3.12 activity: **Facilitating or undertaking information exchange and stakeholder involvement**). This center will allow close communication, internally and to the general public, but mostly with all the decision-making bodies in the global level; therefore, the information exchange in Guatemala both in regionally and globally levels will be carried out from this center.

It is considered, according to the national prioritization, that the implementation activities of the Stockholm Convention and their evaluation are of vital importance since such will help identifying the effects of POP on human health and the environment, and they would also identify, reduce and eliminate POP with safe environmental practices, and thus making the research findings accessible to the public in a timely manner. However, to promote such activities, it is necessary that educational entities and institutions dedicated to research be sensitized and educated on this regard in order to increase monitoring and research which show the current country situation on POP and the degree of reduction in Guatemala and the region.

It is of great importance that Guatemala has an active participation in the activities coordinated by the Regional Secretariat of the Convention to ensure compliance with the reduction or elimination objective for POP in Guatemala and in the region.

According to this action plan, the activities that will promote the evaluation of effectiveness in Guatemala will cost approximately US$400,979.79 equivalent to Q3,227.887.23, which are planned to be completed in the medium term.

According to the first Global Monitoring Report of the Latin American and Caribbean, countries should formalize a coordinating structure for developing the Regional Action Plan (RAP.)

3.3.14.6. Global cost and funding of activity.

Table No. 91. Global cost of activity 3.3.14

Total cost of the activity	Total plan cost (US$)	Local financing (country)		External financing	Funding source
		MARN	MARN and other institutions		
Activity 3.3.14: Effectiveness evaluation (article 16).	400,979.79	57,680.41	72,094.41	271,204.97	
		14.38%	17.98%	67.63%	

3.3.15. Activity: Reporting.

3.3.15.1 Current situation.

This document presents an action plan that contains the activities to be carried out by the focal point of the Stockholm Convention in order to comply with the submission of reports to the Secretariat of the Convention, reporting progress on the Implementation of the Convention.

Its main objective is to prepare the country, both institutionally and legally, for the adoption of measures to comply with the stipulations of the Stockholm Convention on Persistent Organic Pollutants under Articles 5th, 7th, 15th and 16th , regarding the preparation and submission of periodical reports to the Secretariat. To this end, the Intergovernmental Negotiating Commission presented a draft format for reporting to be used by Parties as set out in paragraph 3 of article 15 of the Convention. These formats, as well as guides and manuals, have been developed for the purpose that either party may provide clear and orderly information and thereby facilitate the efficiency assessment process.

The format, within its sections, requests different types of information; for example, part A requests general information on the Party submitting the report; as well as, contact details and name of the officer who submitted the report. In part B, the format requests to provide information on the measures the country has taken into account for compliance with the Convention and the effectiveness of such measures.

In order to fulfill the submission of reports on the calendar and periodicity indicated by Convention, there are other institutions in the Country Party that should collaborate directly or indirectly with the focal points. These institutions will be linked to the life cycle of the substances and must generate information records and transfer those to the coordinating entity. To this end, a program responsible for the submission and delivery of inter-institutional information must be developed, which must comply with the appointed calendar.

This document presents an action plan containing the activities that the focal point of the Stockholm Convention must meet regarding the submission of reports to the Secretariat of the Convention, reporting progress on the Implementation of the Convention.

3.3.15.2 General objective.

Develop a national plan to prepare the country, institutionally and legally, in the adoption of measures through which it could comply with the stipulations of the Stockholm Convention on Persistent Organic Pollutants, under articles 5th, 7th, 15th and 16th, regarding the preparation and submission of reports on the Convention's progress, effectiveness and compliance, which are to be submitted to the Secretariat.

3.3.15.3. Specific and strategic objective, results, activities, monitoring channels and responsibilities.

Table No. 92. Specific objective 1. Strengthening of POP legislation in Guatemala. Prepare the country institutionally for the design of a structure that allows complying with the preparation and presentation of periodical reports by the Focal Point of the Convention to the Secretariat, including the requirements, time and periodicity pursuant to articles 5, 7, 15, and 17.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Integrate the Law proposal of the environmentally sound management of POP, in the initiatives regarding the obligatory requirement of presenting periodic reports on the progress of the implementation of the Convention according to articles 5th, 7th, 15th, and 16th and the creation of units execute such law, in each of the institutions related to the subject.	1. Initiative on the obligatory requirements of presenting reports to the Secretariat Convention included in the General Law on the management of POP.	1. Develop initiative law proposal on the obligatory requirements of presenting periodic reports for the knowledge for country reporting and for the creation of units to make such law operational. Inter-institutional meetings.	All the law initiatives regarding the presentation of reports and creation of organizational structure units elaborated in a period of four months.	Law initiative documents. Ministerial agreements of creation of operational units for the dissemination of POP information.	MARN, MSPAS, MINEX MAGA, INDE, electric companies, chemical and agricultural products guilds industry.
		2. Disseminate the proposal to interested sectors through two workshops.	100% of the interested sectors with the knowledge of the legislation in a period of three months.	List of participants on the two workshops. Report of each event. Meetings report.	
		3. Publish the legislation.	100 copies of the legislation in a period of two months.	Copies of the legislation proposal.	

Table No. 93. Strategic objective 2: Strengthening of National Infrastructure. Provide the Secretariat, the information on POP usage and form of use and importance to the country, in the format decided by the Conference of the Parties.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1 Prepare the country institutionally in the design of a structure that allows it to comply with the development and	Operational units established in each institution to produce information and national reports.	1. Create operational units for the compliance of the development of reports as pursuant to the Stockholm Convention.	The 80% of institutions that will report to the Convention have established operative units, after the corresponding legislation be issued.	Legal documentation for the creation of operational units in the 80% of the involved institutions.	MARN, MSPAS, MINEX, MAGA. Responsibility will be carried out by each of the Ministries and institutions.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
presentation of periodic reports by the Focal Point of the Convention to the Secretariat, including description of requirements, schedules, periodicity, in compliance with articles 5th, 7th, 15th and, 16th.	Focal Points appointed in each institution for the transfer of information.	2. Designation of the focal points in each institution that will generate information and will have coordination with the focal point.	Established focal points in the 80% of entities that will develop reports for the Stockholm Convention.	Appointment of the focal points in each institution.	Organization appointed by the evaluation Commission on the subject.
	1 Procedure manual for the administrative paperwork of presentation of reports to POP focal point.	3. Carry out inter-sectorial meetings for the development of the procedure manual.	1 Finished Procedures manual, for each designated organization.	Procedure manual --List of participants --Minutes of the 8 Meetings.	Responsibility will be carried out by each of the Ministries and institutions.
	Trained personnel in the fill out of formats.	4. Carry out training workshops for the personnel of the operational units.	The 100% of designated personnel trained in filling out formats.	-Minutes of the 8 meetings.	Responsibility will be carried out by each of the Ministries and institutions.
	1 Inter-institutional information register on the subjects included in articles 5, 7, 15 and 16 of the Convention.	5. Create an Inter-institutional Information Register for the issued that must be reported.	Have an Information Register in a period of one year.	Database to collect information regarding articles 5, 7, 15, 16.	Entity designated to carry out the registration.
	Reports on the progress of disposal or reduction of PCB/BPC, Dioxins and Furans, DDT in the estimated timetable.	6. Prepare and present national reports to the Convention Secretariat.	The 100% of the requested reports by the Secretariat delivered on the estimated time.	Inter-institutional and national reports.	Entity designated to carry out the registration.

3.3.15.4 Timetable of activities per strategic objective and costs.

Table No. 94. Timetable of activities and cost of specific objective 1. Strengthening POP legislation in Guatemala.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
1. 1 Integrate the Law proposal of the environmentally sound management of POP in the initiatives regarding the obligatory requirement of presenting periodic reports on the progress of the implementation of the Convention according to articles 5th, 7th, 15th, and 16th and the creation of units to carry out the law in each of the institutions related to the subject.										
ACTIVITY 1								61,900.00	7,689.44	Installed capacity of MARN.
ACTIVITY 2								13,000.00	1,614.91	MARN, MSPAS, INDE, MAGA.
ACTIVITY 3								5,000.00	625.11	Installed capacity of MARN.
Total of strategic objective and activities								**79,932.15**	**9,929.46**	

Table No. 95. Timetable of activities and cost of specific objective 2: Strengthening of national infrastructure.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
2. 1 Prepare the country institutionally to design a structure that allows it to comply with the development and presentation of periodic reports by the Focal Point of the Convention to the Secretariat, including description of requirements, schedules, periodicity, in the compliance with articles 5th, 7th, 15th and 16th.										
ACTIVITY 1,2								--------	---------	MARN, MSPAS, MINEX, MAGA. Se absorberá por cada uno de los Ministerios e instituciones señalados.
ACTIVITY 3								2,500.00	310.56	MARN, MSPAS, MAGA, INDE, MINEX.
ACTIVITY 4								4,000.00	496.89	MARN, MSPAS, MAGA, INDE, MINEX.
ACTIVITY 5								-------	-------	Designated ministry.
ACTIVITY 6,7								5,000.00	621.11	Installed capacity of MARN.
Total of strategic objective and activities								**11,499.91**	**1428.56**	
3.3.16. Total of activity 3.3.15: Activity: Reporting.								**91,432.06**	**11,358.02**	

3.3.15.5 Implementation of activity.

This activity should be implemented through two main specific objectives: first, prepare the country institutionally regarding the design of a structure that allows it to comply with the development and periodic reporting by the focal point to the Secretariat, including the description of requirements, calendar, periodicity, in compliance with articles 5, 7, 15 and 16; and the second objective will provide the Secretariat of the Convention, information on the amount and method of POP usage, annual reductions and degree of the NIP's implementation. It is expected that the legislation on POP be strengthened, including articles on the obligation to provide continuous information on POP.

Activities also aim to strengthening each institution responsible for the creation of special units that may be collecting information through inventory, monitoring, etc, and transfer such information to the focal point of the Convention.

This activity will be carried out in the period established by the Convention for the presentation of regular reports regarding the progress on elimination or reduction of POP and in compliance with the NIP. The total cost of this activity is US$11,358.02 equivalent to Q91,432.06 and the entities directly responsible to implement it are: MARN, MSPAS, MAGA, INDE, EE and MINEX.

3.3.15.6 Global cost and funding of activity:

Table No. 96. Global cost of activity 3.3.15

Total cost of the activity	Total plan cost (US$)	Local financing (country)		External financing
		MARN	Other institutions	
Total cost of activity 3.3.15: Reporting.	11,358.02	8,935.66	2,422.36	
		78.67%	21.33%	

3.3.16. Activity: Research, development and monitoring (article 11).

3.3.16.1 Current situation.

The inventories and other research on the most important groups of POP carried out in the second phase of the project showed that the research activity on POP, mainly of analysis or monitoring, has decreased over the last decade due to ignorance of the hazards that such pollutants cause in the environment and human health, lack of interest or lack of economic resources.

The development of analytical capacity has been rather low as found in the preliminary inventory of the national technical infrastructure and monitoring of POP; the information obtained on the classification criteria of the laboratories showed that of the 35 surveyed laboratories, only 3 have the technical characteristics and trained personnel for POP analysis, thus being a level 1 classification. During the preparation of this NPA, the INCAP laboratory was added to the level 1 category classification.

According to the national prioritization, the activities of research, development and monitoring are considered vital since they will help to identify the effects of POP on human health and the environment, and would identify, reduce and eliminate them with safe and friendly environmental practices; and thus, making the research findings accessible to the public in a timely manner.

3.3.16.2 General objective.

Develop the necessary mechanisms to promote, through this activity, actions to foster research, development and monitoring of POP in humans and environment; and, strengthen the analytical capacity in the network of laboratories for the analysis of POP in Guatemala.

3.3.16.3 Specific and strategic objectives, results, activities, monitoring channels and responsibilities.

Table No. 97. Specific objective 1: Strengthen national legislation regarding research, development and monitoring of POP in humans and in the environment.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.1 Have a proper National Legislation that defines the parameters for	Legislation containing parameters of POP for monitoring in	1. Form an inter-institutional group for the development of regulations.	Integrated inter-institutional group, with work agenda.	Integrated group with list of attendance of the meetings.	RELABSA, MARN, MSPAS, academy, COGUANOR, includes installed capacity.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
POP in the activities of Monitoring in humans and the environment.	humans and the environment.	2. Review of international scientific information for the comprehension of POP.	Number of revised documents.	Meetings report.	COGUANOR, NCC, ONGs, MARN.
		3. Review of data from carried out POP monitoring in the country, as well as the evaluation of the preliminary inventory results.	Number of revised documents.	Meetings report.	COGUANOR, NCC, MARN.
		4. Write and publish the legislation.	Legislation with respective proposed parameters.	Law document.	COGUANOR, NCC, MARN.
1.2 Promote investigation activities in universities and/or institutions related to the subject.	Increase the research of POP reports related to human health and environment.	5. Training meetings regarding the Convention to universities and investigation institutions.	Number of carried out meetings	List of participants	MARN
		6. Promote the investigation of techniques and methodologies for the identification, reduction and elimination of POP.	Number of planned investigations.	Investigation progress reports.	Universities, cooperation entities.
1.3 Strengthen analytical capacity in the network of laboratories for the analysis of POP and PCB/BPC.	Increase and strengthening of certified laboratories in the POP analytical capacity.	7. Manage the training for analytical capacity through international organizations.	Number of generated projects with technical international support.	Name of Project and cooperative organization.	RELABSA, NCC.
		8. Replicating the experience acquired by internationally trained professionals.	Number of carried out workshops.	List of participants.	NCC - Universities, SEGEPLAN, International Cooperation Organizations.
		9. Strengthen existing laboratories, equipped with the proper technologies for the analysis and investigation of POP.	Number of laboratories with POP analytical capacity.	Certified Laboratories and Methodologies for the POP analysis.	COGUANOR, OGA, laboratories.
		10. Evaluate current POP analytical ability of the network of laboratories.	Number of laboratories with POP analytical capacity.	List of visited laboratories.	MARN.
1.4 Create an analysis mechanism for Dioxins and Furans, abroad.	Increase in identified samples with Dioxins and Furans.	11 Identify laboratories abroad that provides the service.	Number of identified laboratories, abroad.	List of contacts.	Dioxins and furans Sub Commission, MARN.
		12. Meetings/ workshops for the dissemination of the list of existing laboratories, procedures and costs.	Number of meeting and workshops.	List of participants.	Dioxins and furans Sub Commission, MARN.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1.5 Identify analytical techniques for the measurement of POP.	Existing certified methodologies.	13. A work team will be formed.	Inter institutional group.	Meetings with attendance list and work agenda.	NCC, RELABSA, OGA.
		14. Review of existing methodologies.	Number of reviewed methodologies.	List of methodologies.	Inter-institutional Commission.
		15. Publication of certified methodology.	Number of certified methodologies.	The results of analyzed samples can be reproduced.	OGA.
1.6 Identify safe alternatives of chemical products. Non-chemical products as well as practice of new pesticides disposal.	Existence of substitute products of the use of new POP pesticides.	16. Form an inter-institutional team to identify products and practices.	Integrated inter-institutional group, with work agenda.	Formed group with list of attendance for the meetings.	POP Pesticides Sub Commission, MAGA, ACADEMY, MSPAS.
		17. Review the international findings regarding the products and practices.	Number of review meetings.	Meetings reports.	MARN, MSPAS.
		18. The implementation of pilot tests for the adoption of such products and/or implementation of alternative practices.	Training meetings.	List of participants.	Inter-Institutional commission cooperative entities.
		19. Use of substitute products to the new POP pesticides.	Decrease in the marketing of new POP pesticides.	Importation of substitute products.	MARN, CNC.

Table No. 98. Specific objective 2: Identify the effects caused by POP in human health and in the environment.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
2.1 Promote studies on health risk.	Document: health risk studies.	1. Training workshops of the Stockholm Convention; as well, as of health risk studies.	Training workshop.	List of participants.	Inter-institutional commission cooperation.
		2. Encourage the health risk study.	Number of studies of risk.	Progress on the proposed study of health risk.	Investigation entities, cooperation entities.
2.2 Strengthen the MSPAS register of intoxications by identifying the toxic pesticides.	Strengthen registration of pesticide intoxication.	2. Know the registration procedure of MSPAS for pesticide intoxication.	Training workshop.	List of participants.	Inter-institutional Commission – MSPAS.
		4. Strengthen the existing registrations of MSPAS, including intoxication by POP.	POP intoxication register.	Report on POP intoxication cases.	Inter-institutional commission, MSPAS.

3.3.16.4 Timetable of activities per strategic objective and costs.

Table No. 99. Timetable of activities and costs of specific objective 2. Promote activities of research, development and monitoring of POP in humans and in the environment.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
1.1 Have the proper National Legislation that defines POP parameters in the activities of Monitoring in humans and the environment.								**206,738.00**	**25,681.86**	
ACTIVITY 1								28,700.00	3,565.22	RELABSA, MSPAS, academy, COGUANOR, includes installed capacity of MARN.
ACTIVITY 2								28,700.00	3,565.22	
ACTIVITY 3								57,400.00	7,130.43	
ACTIVITY 4								92,100.00	11,440-99	
1.2. Promote POP investigation activities in Universities and/or institutions involved in the subject.								**1,471,126.47**	**182,748.63**	
ACTIVITY 5								59,700.00	7,146.15	Includes installed capacity of MARN.
ACTIVITY 6								1,413,600.00	175,602.48	Cooperation, universities.
1.3 Strengthen the Analytical Capacity of the network of Laboratories for the analysis of pesticides POP and PCB/BPC.								**788,592.09**	**97,961.75**	
ACTIVITY 7								181,200.00	22,509.32	RELABSA, CNC.
ACTIVITY 8								225,200.00	27,975.16	CNC, universities, cooperation.
ACTIVITY 9								332,400.00	41,291.93	COGUANOR, OGA, laboratories.
ACTIVITY 10								49,800.00	6,186.34	MARN.
1.4 Create mechanisms for Dioxins and Furans analysis abroad.								**84,999.23**	**10,558.91**	
ACTIVITY 11								29,200.00	3,627.33	MARN, Sub-commission of dioxins and furans.
ACTIVITY 12								55,600.00	6,931.68	
1.5 Identify analytical techniques for the measurement of POP releases.								**181,300.00**	**22,521.74**	
ACTIVITY 13								27,700.00	3,440.99	CNC, RELABSA, OGA.
ACTIVITY 14								28,200.00	3,503.11	Inter-institutional commission.
ACTIVITY 15								125,400.00	15,577.64	OGA.
1.6 Identify safe alternatives in chemical products as well as non-chemical products for the elimination of the use of new POP pesticides.								**1,724,300.00**	**214,198.75**	
ACTIVITY 16								27,700.00	3,440.99	POP pesticides sub-commission, MAGA, MSPAS academy, MARN.
ACTIVITY 17								58,400.00	7,254.66	
ACTIVITY 18								1,466,000.00	182,111.80	CNN, Cooperation.

Strategic objectives	Years	Cost Q	Cost US$	Funding source
ACTIVITY 19		172,200.00	21,391.30	MARN, CNN.
Total of specific objective and activities		**4,459,399.98**	**553,671.64**	

Table No. 100. Timetable of activities and costs of specific objective 2. Identify the effects caused by POP in human health and in the environment.

Strategic objectives	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
2.1 Promote a POP study regarding the risks on Health and Environment.								**793,509.32**	**98,509.32**	
ACTIVITY 1								102,600.00	12,745.34	Inter-institutional commission, cooperation.
ACTIVITY 2								690,400.01	85,763.98	
2.2 Strengthen MSPAS Register on POP intoxications.								**390,600.00**	**48,521.74**	
ACTIVITY 5								36,200.00	4,496.89	Inter-institutional commission, MSPAS.
ACTIVITY 6								354,400.01	44,024.85	
Total of specific cost and activities								**1,183,600.03**	**147,031.06**	
Total of activity 3.3.16: Research, development and monitoring (article 11).								**5,640,656.74**	**700,702.70**	

3.3.16.5 Implementation of activity.

The activities proposed in this Plan have been programmed for short term and with an approximate cost of US$700,702.70 equivalent to Q5,640,656.74. According to its analysis the inter-institutional coordination between MARN, MAGA, MSPAS, RELABSA, COGUANOR and academy, is necessary. However, to promote such activities it is necessary that Guatemala has the proper legislation containing the permitted parameters according to the country's reality and taking into consideration the preliminary inventories developed in the previous phases. Additionally, MARN and other stakeholder institutions should combine inter-institutional efforts to manage projects that strengthen the POP analytical capacity of the country. The harmonization of mythologies will provide reliable results in a unified unit system for an easier analysis and correlation.

These activities will allow promoting research, development and monitoring of POP in humans and environment. Activities for research of products that can substitute the use of POP have been planned for a long term.

The activities regarding the identification of the effects of POP on human health and environment will cost approximately US$147,031.06 equivalent to Q1,183,600.03 to be carried out in the short term; only the activity that aims to identify and implement practical alternatives to DDT is expected to take place in the long term.

For the implementation of this national plan, it is recommended the inter-institutional coordination among MARN, MSPAS, MAGA, RELABSA, OGA and academy.

There is an important factor to strengthen the analytical capacity in Guatemala, it is the publication of regulations for these pollutants; as well as, environmental laws to restrict or reduce their use.

3.3.16.6 Global cost and funding of activity.

Table No. 101. Global cost of activity 3.3.15.

Total cost of the activity	Total plan cost (US$)	Local financing (country)		External financing	Funding source
		MARN	Other Institutions		
Total cost of activity 3.3.16: Research, Development and Monitoring.	700,702.70	60,404.65	184,074.45	456,223.60	
		8.62%	26.27%	65.11%	

3.3.17. Activity: Technical and financial assistance (articles 12 and 13).

3.3.17.1 Current situation.

As a Party to the Convention, the principle of shared commitment or responsibility by the various stakeholders in the problem of POP, is a necessary condition to carry out the process of implementing the National Plan, thus some players that may have a relevant role managing or providing technical and/or financial assistance were identified.

According to the General Secretariat for Planning - SEGEPLAN, during 2009, in addition to the stakeholders previously identified, there is interest in strengthening the environmental matters by the following countries: Brazil, Chile, Colombia, China, Korea, Cuba, Spain France, Britain and Japan. Similarly, the agencies interested in the life cycles of POP and that are potential sources of support for the country are: the Global Environment Facility - GEF-, World Bank, the United Nations Development Program –UNDP-, United Nations Environment Program – UNEP-, and United Nations Industrial Development Organization –UNIDO-, among others. The role of international cooperation is essential in developing countries like Guatemala, and significant contributions to the successful development of the Plan are expected in the short, medium and long term.

Guatemala is a developing country, has a relatively low standard of life, an underdeveloped industrial base and a low Human Development Index; therefore, the appropriate and timely technical assistance can be requested to develop and strengthen its capacities. In addition, Guatemala can also require the transfer of technologies for the effective implementation of the Convention.

Based from the inventory process, the identification of strengths and weaknesses, and based on the dialogue established with the stakeholders involved with the issue in Guatemala; the project proceeded to identify needs and priorities of the country, which are synthesized in the need for technical assistance as it follows:

List of priorities: Identified areas where technical assistances are needed –PCB/BPC-.

Identification of equipment with PCB/BPC's in Guatemala; strengthening of regulatory measures for PCB/BPC; Ensure that the equipment and oil containing polychlorinated biphenyls are not exported or imported, except for the purpose of environmentally sound waste management; have warehouses that meet demand and recommendations of temporary storage for equipment and oil contaminated with PCB/BPC; have specific transportation for equipment and oil contaminated with PCB/BPC that complies with environmentally sound procedures; and, identify, store and dispose of, in an environmentally safe manner, the articles containing more than 0.005% of polychlorinated biphenyls.

a) DDT: Legal and administrative regulation is needed to restrict the production and use of DDT (annex B) in Guatemala; identify the strategies to foster research and development of alternatives to DDT; and, identify and eliminate DDT stockpiles in an environmentally sound manner.

b) PESTICIDES: Identify and disseminate laws, agreements, decrees and regulations already existing in Guatemala related to POP and obsolete pesticides; reform and strengthen existing legislation covering the entire life cycle of POP pesticides; establish a supervision and control system for customs and illicit distributers of POP pesticides; and, proper management of POP and obsolete pesticides stockpiles, safely to humans and the environment.

c) DIOXINS AND FURANS: Strengthen the legal framework to achieve the minimization and/or elimination of unintentional releases; strengthen the capacities of institutions responsible for monitoring and control of unintentional releases; verification of compliance with the issued parameters and/or standards; identify all sources of dioxins and furans of generation by anthropogenic sources; promote the minimization of unintentional releases of dioxins and furans; definition of strategies to identify contaminated sites; and, strengthen national technical and professional capacities regarding the identification of contaminated sites.

d) STOCKPILES AND WASTES: Identify articles in use and wastes containing POP (annex A, B and C) to reduce or eliminate POP releases from stockpiles; strengthen MAGA's pesticide register including POP pesticides; and, promote cooperation with the Basel Convention for a sound disposal.

e) EXEMPTIONS: Creation of regulation for exemptions of products listed in annex A or B of the Stockholm Convention; and, development of procedure to receipt applications for exemptions and creation of register.

Governmental Institutions with greater involvement:
It is desirable and necessary that MARN, MSPAS, MEM and MAGA join efforts and provide some technical and financial resources in implementing the Convention and it should explicitly appeared in the budgets of these ministries. Other sources may be the environmental and social funds in the country. Furthermore, the regional development banks may interact directly by providing some specific support in the initiatives boosted by Guatemala.

3.3.17.2 General objective.

Establish the mechanisms to create a technical infrastructure that allows managing an adequate and proper technical assistance regarding POP in order to develop and strengthen the capacity, and require the transfer of technologies for the effective application of the Convention.

3.3.17.3 Specific and strategic objective, results, monitoring channels and responsibilities.

Table No. 102. Specific objective 1: Strengthen technical and financial infrastructure.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
1. Have a technical infrastructure to follow up the necessities arising from cooperation on POP.	1. Technical team formed and strengthened by national and international cooperation.	1. Hiring of Specific personnel that will be a link for the identification, management and monitoring of the national and international cooperation in regard to POP.	Technical team built within the Environmental Management Unit of MARN.	Inclusion and development of the technical team within the structure of MARN.	MARN.
	2. Project Portfolio that complies with the defined needs and priorities.	2. Formulate the Project Portfolio with external consultancy based on the identified priorities in the country regarding the subject of POP.	Number of national projects that include POP.	National projects elaborated.	MARN.
2. Efficient use of national cooperation. 3. Efficient use of international cooperation.	1. Updated directory of sources and links of national cooperation organizations.	1. Formulate with external consultancy an annual updated directory of sources and links of national cooperation in the government.	Directory of institutions and links of national cooperation.	Updated directory.	MARN, National coordination Commission, with the support of international cooperation.
	2. Updated Directory of non-governmental organizations in the country.	2. Formulate with external consultancy an annual updated directory of registration of non-governmental organizations interested in the subject of POP.	Directory of non-governmental organizations interested in POP.	Updated directory of interested NGOs.	MARN, National coordination Commission, with the support of international cooperation.
	3. Disseminate national priorities in the subject of POP.	3. Carry out priority dissemination events for Guatemalan in the subject of POP.	Number of workshops.	List of participating institutions or companies, memory aid, of the events, Photographs.	MARN, MAGA, MSPAS, USAC, Department of Work and other institutions of interest.
	4. Establishment of strategic alliances	4. Carry out inter-institutional alliances and usage of the infrastructure, training, investigation, and information system in the country.	Operational intra and inter-institutional Coordination regarding the needs.	Letter of Agreement signed by members.	MARN and national institutions.
	5. Formalization of cooperation relations.	5. Formulation of agreements or understanding letters with governmental and non governmental institutions that facilitate: management execution of projects, mutual consultancies, joint program offers, joint investigations, co-publications, exchange of publications, among others.	Number of confirmed commitments during the period of time.	Signed documents by institutions involved.	MARN and national institutions.
	6. Implementation of effective communication mechanisms.	6. Periodical Coordination meetings that allow a good communication and keep links of cooperation.	Number of Coordination meetings carried out with final products.	Schedule of carried out meetings enclosing cooperation results.	MARN and national institutions.

Strategic objective	Products	Activities	Indicators	Monitoring channels	Responsible
	1. Participation in sectorial environmental table formed by cooperation sources and MARN.	1. Permanent participation in spaces of relationship between MARN and Cooperation sources, where the basis of the work is formed by the national priorities, like the environmental sectorial table.	Number of carried out meetings with these organizations.	Summoning, meetings report, photographs.	MARN and cooperation entities.
	2. Presentation of priorities before international organizations.	2. Definition and/or review of strategies, relation mechanisms, as well as the good use of spaces to make the country's priorities known to instances of broader cooperation on the subject of POP, at a global level.	Number of presentations before cooperation organizations.	List of aware organizations on the priorities of the country.	MARN, MAGA, MSPAS.
	3. Dissemination of technical assistance and financing priorities.	3. Dissemination meetings in the frame of bilateral cooperation as well as multilateral in the technical assistance and financing priorities.	Number of dissemination meetings.	List of aware organizations	MARN, MAGA, MSPAS.
	4. Coordination with regional authorities and counterparts.	4. Coordination with regional authorities and counterparts of other governments, especially Central American States.	Agreements, exchanges, joint projects.	List of Agreements, exchanges, joint projects.	MARN.
	5. Obtain technical financial support from international organizations.	5. Participation in the management of technical and financial support before International organizations related to POP.	Quantification of resources for authorized technical and financial activities.	Proposals, agreements, applications to obtain technical and financial support.	MARN and national institutions.
3. Participate in international processes regarding POP, that can be negotiating spaces for technical cooperation and financing aid.	1. Identification of other cooperation spaces in the Central American area.	1. Participation in scientific events for exchange and coordination in Central American area.	Identified spaces. Bureaucratic procedures carried out. Obtained cooperation.	Activities report. Sent proposal. Correspondence to carry out requests.	MARN, donors.
	2., Identification of other cooperation spaces on an international level.	2. Participation in scientific events, exchanges and cooperation out of Central American area.	Identified spaces. Bureaucratic procedures carried out. Obtained cooperation.	-Activities report. Sent proposal. Correspondence to carry out requests.	MARN, donors.

3.3.17.4 Timetable of activities per strategic objective and costs.

Table No. 103. Specific objective 1. Strengthen the technical and financial infrastructure.

Strategic objectives and activities	Years							Cost Q	Cost US$	Funding source
	2010	2011	2012	2013	2014	2015	2016 2025			
1. Have a technical infrastructure to follow up the cooperation needs regarding POP.										
ACTIVITY 1								144,000.00	17,888.20	MARN.
ACTIVITY 2								163,200.00	20,273.29	
Total of strategic objective and activities								**307,200.00**	**38,161.49**	MARN.
2. Efficient use of National Cooperation										
ACTIVITY 1								163,200.00	20,273.29	MARN, POP NCC, with support of international cooperation.
ACTIVITY 2								163,200.00	20,273.29	
ACTIVITY 3								12,000.00	1,490.68	MARN, MAGA, MSPAS, USAC, work department and other interested institutions.
ACTIVITY 4								24,000.00	2,981.37	MARN and national institutions.
ACTIVITY 5										
ACTIVITY 6								10,000.00	1,242.24	
Total of strategic objective and activities								**372,400.00**	**46,260.87**	
3. Efficient use of International Cooperation										
ACTIVITY 1								12,000.00	1,694.92	MARN and cooperation institutions.
ACTIVITY 2								27,200.00	3,841.81	MARN, MAGA, MSPAS.
ACTIVITY 3								12,000.00	1,694.92	MARN, MAGA, MSPAS.
ACTIVITY 4								25,000.00 ----	3,531.07 -----	MARN and other national institutions.
ACTIVITY 5										
Total of strategic objective and activities								**86,639.90**	**10,762.71**	
4. Participate in international processes related to the subject of POP that can constitute spaces for negotiating technical and financial cooperation.										
ACTIVITY 1								16,000.00	2,259.89	MARN, donors.
ACTIVITY 2								24,000.00	3,389.83	MARN, donors.
Total of strategic objective and activities								**45,480.25**	**5,649.72**	
Total of activity 3.3.17: Technical and financial assistance (articles 12 and 13).								**811,720.00**	**100,835.00**	

3.3.17.5 Implementation of activity:

The technical and financial assistance is extremely important for achieving the National Plan, since the implementation of many of the proposed activities will greatly depend from such assistance. To properly implement this activity, all efforts have been focused to establish mechanisms to provide a technical infrastructure that allows the management of appropriate and timely technical assistance on POP, in order to develop and strengthen the capacity of MARN, the POP NCC and the operational structure that will give life to the implementation of the Plan. It will also facilitate to obtain the required funds in the periods proposed for the effective implementation of the Convention.

This activity proposes strategic objectives aimed to the management of national and international cooperation through the implementation of interagency partnerships, formulation of agreements or letters of understanding with governmental institutions and NGOs and other national entities, regular coordination meetings, permanent involvement in environmental issues, adequate use of spaces to disseminate the country's priorities regarding POP before a wider global cooperation, coordination with regional entities and with counterparts in other governments, participation in scientific meetings, exchange of coordination, etc.

These activities can be carried out along with MARN, MAGA, MSPAS and other relevant institutions, primarily national and international cooperation agencies. MARN must have a working group to manage cooperation, mainly for the subjects whose financing is very high and without the external cooperation could not be carried out.

The proposed period for this activity is planned until 2025, since the management of resources must be constant over the duration of the implementation of the National Plan.

3.3.17.6 Global cost and funding of activity.

Table No. 104. Global cost of activity 3.3.17

Total cost of the activity	Total plan cost (US$)	Local financing (country)		External financing	Funding source
		MARN	Other Institutions		
Total of activity 3.3.17: Technical and financial assistance (articles 12 and 13).	**100,835.00**	41,692.56	11,251.02	47,891.22	Cooperation organizations, NGOs.
		41.34%	11.15%	47.49%	

3.4 DEVELOPMENT AND CAPACITY-BUILDING ACTIVITIES.

During the development of the third chapter of this National Plan, development and capacity building activities have been proposed in most of the activities, strategies or national plans; consequently, this section presents some prioritized activities in the following table (103).

These activities are planned to be developed in the short, medium and long term. For this NIP, the activities to be implemented in the short term (ST) cover a period of 1 to 3 years, medium-term activities (MT) from 4 to 10 years, and long-term activities (LT) are considered to be executed in a period longer than 11 years.

All the proposed actions are addressed to:

1. Train personnel through workshops, trainings and manuals of training.

2. Solve problems related to:

a) Storage and disposal of stockpiles of POP pesticides and PCB/BPC;
b) Strengthening of laboratories that can analyze all POP, making efforts to find accessible methodologies for the analysis of dioxins and furans;
c) Identification, assessment and remediation of contaminated sites; and,
d) Establishment of special measures in the industry, such as, combustion temperature controls, process control, installation of equipment for environment pollution control by dioxins and furans, etc. It is expected that through these actions, the groundwork for encouraging the rest of the activities planned for the NIP will be established.

Table No. 105. Strengthening of capacities.

Name of the activity, strategy or national plan	Construction of capacities	Período		
		CP	MP	LP
Activity: Institutional and regulatory strengthening measures.	Training Workshops on the sound management of POP.			
Activity: Production, import and export, use, stockpiles, and wastes of POP pesticides annex A, Part I.	MARN and MAGA supervisors training, programs of regulation monitoring of POP pesticides.			
	Customs personnel training on procedures and responsible management of agricultural chemicals.			
Activity: Production, import and export, use, identification, labeling, removal, storage, and disposal of PCB/BPC and equipment containing PCB/BPC (annex A, Part II, chemicals).	Training on aspects of regulation and management to companies and personnel that work with PCB/BPC through workshops, manuals, and dissemination material.			
	Develop manual on electric equipment transportation in an environmentally sound manner.			
	Training for owners of contaminated articles for its management, through manuals and training workshops.			
Activity: Production, import and export, use, stockpiles, and wastes of DDT (annex B, chemicals) if in use in the country.	1. Training for the enforcers of the regulation compliance and owners of DDT through regulations of Crop Life (AGREQUIMA) norms on the transportation, storage, and disposal of pesticides in activities of DDT, identification, storage and disposal.			
Action Plan: Measures to reduce releases form unintentional production (article 5).	Develop training workshops for the formation of capacities, in the monitoring of measures for minimization and/or elimination of unintentional releases.			
	National and international training in the subject of dioxins and furans, for professionals in the area of research.			
	Building and training the productive sector in the BAT/BEP in accordance with the different industrial or guild sectors.			
Strategy: Identification of contaminated sites (Annex A, B and C, chemicals) and remediation in an environmentally sound manner.	Dissemination of Regulation Proposal to possible generation sources of contaminated sites, through electronic material and Meetings.			
Activity: Facilitating or undertaking information exchange and stakeholder involvement.	Workshop seminar to build inter-ministerial focal groups.			
Activity: Public awareness, information and education	Publishing and mailing of POP information brochures, information booklets regarding alternatives to the use of pesticides.			

Name of the activity, strategy or national plan	Construction of capacities	Período		
(Article 10).	Training of companies and people through workshops, manuals, and dissemination material regarding the identification of equipment with PCB/BPC, to the industry in the application of BAT and BEP and on the management of POP pesticides.			
Activity: Reporting.	Carry out meetings to train personnel that form the operational units of each institution that shall elaborate reports for the final report.			
Activity: Research, development and monitoring (Article 11).	Workshops to replicate the acquired experiences of internationally trained professionals in the POP analytical capacity.			
	Meetings for the implementation of the pilot test for the adoption of substitute products for the new POP pesticides.			
	DEVELOPMENT ACTIVITIES			
Activity: Production, import and export, use, identification, labeling, removal, storage, and disposal of PCB/BPC and equipment containing PCB/BPC (Annex A, Part II, chemicals).	Make an analysis on the economical feasibility of renting or building a warehouse for PCB/BPC and equipment containing stored PCB/BPC. Acquisition of warehouses.			
	Store all inventoried articles in an environmentally sound manner in authorized warehouses, used for PCB/BPC.			
	Make an evaluation of the internal and external elimination capacity (national or international) available for the environmentally sound elimination.			
Action Plan: Measures to reduce releases form unintentional production (article 5).	Establishment of special measures for the Industry, like combustion temperature control, process control, installation of dioxins and furans environment contamination control equipment, etc.			
	Identification of Dioxins and Furans contaminated sites.			
Activity: Measures to reduce releases from stockpiles and wastes (article 6).	Identify new stockpiles for the POP preliminary inventory. Monitoring and updating of the POP pesticides inventories. (included in Annex A, part I and Annex B of the Stockholm Convention) and other obsolete pesticides, as well as the inventories of stockpiles of electric equipment in use, oils and wastes with PCB/BPC (Annex A, Part II), and update the Dioxins and Furans Inventory.			
Strategy: Identification of contaminated sites (Annex A, B and C, chemicals) and remediation in an environmentally sound manner.	Create or adopt procedures for preliminary identification of potential SCCOP and proceed to evaluate them and future remediation.			
Activity: Research, development and monitoring (article 11).	Strengthen existing laboratories, equipped with proper technologies for the analysis and investigation of POP.			

3.5 TIMETABLE FOR PLAN IMPLEMENTATION AND MEASURES OF SUCCESS.

The following table provides a summary of the specific objectives for each activity, strategy or action plan and the period to be executed. The achievement of each of the objectives will be possible if the following measures of success are considered:

1. **Organization and coordination of each of the activities outlined in the NIP:** The Focal Point of Stockholm, which is the Ministry of Environment and Natural Resources, should lead this organization and coordination through the establishment of an operational structure that is responsible for evaluating, in conjunction with POP NCC, the progress of implementation through reviewing the achievements stated in each activity, strategy or plan. This follow up will be based on the monitoring of the NIP's performance and is responsible for making necessary changes or adjustments in light of the progress or special circumstances, under which it was not possible to achieve certain objective.

2. **Active participation:** Each of the agencies identified as responsible for the activities, strategies or action plans should work in coordination with the focal point, assume their role in the various activities within their responsibility and internalize the proposed costs for each activity. It is necessary to identify the focal points of each institution to ensure the success of the Implementation Plan; and if possible, to conform operational units to respond to the NIP's proposals.

3. **Strengthen the POP legal framework:** The development of a regulation for POP is of paramount importance as it will allow that many actions linked to POP life cycle may be carried out in established periods.

4. **Development of procedures, techniques and guidelines:** Regarding POP will help address the proper and sound management of these compounds according to the annexes of the Convention.

5. **Evaluation:** The ongoing assessment of the progress of the NIP is an important task for the success of its implementation, for that reason a system to evaluate the effectiveness for each activity, strategy and national plan included in the NIP, will have to be developed in conjunction with POP NCC.

Table No. 106. Timetable of the execution of the specific objectives planned in each activity, strategy or national plan.

Activity, strategy or national plan	Specific objectives	Implementation schedule															
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Activity 3.3.1: Institutional and regulatory strengthening.	Have an institutional framework that allows addressing the subject of POP in an effective manner in the country.																
Activity 3.3.3: POP pesticides, annex A Part 1.	Have a proper legislation for the life cycle of POP and obsolete pesticides.																
	Properly manage the activities of the life cycle of POP and obsolete pesticides.																
Activity 3.3.4: PCB/BPC (annex A, part II, chemicals).	Create or strengthen regulatory measures for the restriction of use of equipment and oil contaminated with PCB/BPC, as for its environmentally sound disposal.																
	Identify, label, and withdraw from use all the equipment that contains more than 0.005% (50ppm) to be disposed of by the year 2025.																

Activity, strategy or national plan	Specific objectives	Implementation schedule															
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Activity 3.3.4: PCB/BPC (annex A, part II, chemicals)	Carry out efforts to identify other articles that contain more than 0,005% (50ppm) of polychlorinated biphenyls (like cable covering, sealing compounds and painted articles) and their management in an environmentally sound manner.																
	Establish mechanisms for the identification, recollection of information, quantification, removal, and elimination of the compounds (as well as contaminated equipment with such compounds) that is included in annex A, part II.																
	Prepare a report every five years regarding the achieved progress in the disposal of polychlorinated biphenyls and present it to the Secretariat of the Convention.																
Activity 3.3.5: DDT (annex B, chemicals).	Propose legal and administrative measures to restrict the production and use of DDT in Guatemala.																
	Identify the strategies to encourage research and development of alternatives to the use of DDT.																
	Identify and manage in an environmentally sound manner the stockpiles of DDT.																
Activity 3.3.6: Exemptions register.	Strengthen the legislation on POP exemptions.																
	Strengthen the National Technical Infrastructure and analytical capacity of POP.																
Activity 3.3.7: Reduce releases from unintentional production.	Have a Legal Framework that regulates the unintentional releases included in the Stockholm Convention.																
	Identify and make known the sources of dioxins and furans releases, as well as the measures to reduce the releases of such pollutants.																

Activity, strategy or national plan	Specific objectives	Implementation schedule															
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Activity 3.3.7: Reduce releases from unintentional production.	Identify and promote the remediation of sites contaminated by unintentional releases of dioxins and furans.																
Activity 3.3.8: Measures to reduce releases from stockpiles and wastes (article 6).	Promote strategies to identify articles in use and wastes that contain POP Annex A, B and C.																
	Regulation for the management of articles in use that contain POP Annex A, B and C, to reduce or eliminate the releases from POP stockpiles.																
	Promote the effective, environmentally sound elimination of the products and wastes that contain POP Annex A, B and C.																
Strategy 3.3.11: Identification of contaminated sites (annex A, B and C, chemicals) and remediation in an environmentally sound manner.	Strengthen POP Legislation in Guatemala, regarding POP contaminated sites.																
	Establish a procedure for contaminated sites.																
Activity 3.3.12: Facilitating or undertaking information exchange.	Have a Specific entity for the Exchange of information on POP on a national and international level.																
Activity 3.3.13: Public awareness, information and education (article 10).	Implement mechanisms of awareness, information and training about POP. Operational PCB/BPC Matrix.																
	Implement mechanisms of awareness, information and training about POP. Operational dioxins and furans matrix.																
	Implement mechanisms of awareness, information and training about POP. Operational POP and obsoletes pesticides matrix.																
	Inform and train on the National Implementation Plan of POP in Guatemala.																

Activity, strategy or national plan	Specific objectives	Implementation schedule															
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Activity 3.3.14: Effectiveness evaluation (article 16).	Strengthen Regulatory framework on the Effectiveness Evaluation.																
	Strengthen the institutional capacity to evaluate effectiveness.																
Activity 3.3.15: Reporting.	Prepare the country institutionally to design a structure that allows the fulfillment of the elaboration of periodical reports by the Focal Point of the Convention to the Secretariat including the descriptions of the requirements, time, and periodicity in compliance with articles 5th, 7th, 15th, and 16th.																
	Provide the Secretariat of the Convention, information of the used amount and usage of POP; as well as, the importance it has for the country, in the format decided by the Secretariat of the Convention.																
Activity 3.3.16: Research, development and monitoring (article 11).	Strengthen the National Legislation regarding the activities of research, development and monitoring of POP in humans and the environment.																
	Identify POP effects in human health and environment.																
Activity 3.3.17: Technical and financial assistance (articles 12 and 13).	Strengthen technical and financial infrastructure.																

3.6 RESOURCES REQUIREMENTS FOR NIP IMPLEMENTATION.

In table 107, it is presented a summary of national and international financial resources required for each of the activities, strategies or national plan, in national and foreign currency.

Table No. 107. Resource requirements.

Name of activity, strategy or national plan	Cost in Q		Cost US$	
	Local resources	External resources	Local resources	External resources
Total Cost of Activity 3.3.1: Institutional strengthening.	**8,359,000.06**	----------	**1,038,385.10**	----------
Total Cost of Activity 3.3.3: Production, import, export, use, stockpiles and POP pesticides wastes (annex A, part 1, Chemicals).	**352,477.62**	**20,499.97**	**43,786.04**	**2,546.58**
Total Cost of Activity 3.3.4: PCB/BPC and equipment containing PCB/BPC.	**3,085,555.25**	**161,000,000.00**	**383,298.79**	**20,000,000.00**
Total Cost of Activity 3.3.5: DDT.	**239,725.14**	----------	**29,779.52**	----------
Total Cost of Activity 3.3.6: Exemptions register.	**95,529.27**	----------	**11,866.99**	----------
Total Action Plan 3.3.7: Reduction of unintentional production.	**2,987,939.43**	----------	**371,172.60**	----------
Total Cost 3.3.8: Reduction of stockpiles and wastes releases.	**3,994.881.17**	----------	**496,258.53**	----------
Total Cost of the Strategy 3.3.11: Contaminated sites.	**1,324,142.65**	**1,626,635.73**	**164,489.77**	**202,066.55**
Total Cost of Activity 3.3.12: Information exchange.	**527,275.00**	----------	**65,500.00**	----------
Total Cost of Activity 3.3.13: Public awareness, information and education.	**859,569.66**	**119,999.98**	**106,778.84**	**14,906.83**
Total Cost of Activity 3.3.14: Effectiveness evaluation.	**1,044,687.30**	**2,183,200.01**	**129,774.82**	**271,204.97**
Total Cost of Activity 3.3.15: Reporting.	**91,432.06**	----------	**11,358.02**	----------
Total Cost of Activity 3.3.16: Research, development and monitoring.	**1,968,056.76**	**3,672,599.98**	**244,479.10**	**456,223.60**
Total Cost of Activity 3.3.17: Technical and financial assistance.	**426,195.82**	**385,524.32**	**52,943.58**	**47,891.22**
Total costs of activities, strategies and plans.	**25,356,467.19**	**169,008,459.99**	**3,149,871.70**	**20,994,839.75**
Total cost of NIP		**194,364,927.18**		**24,144,711.50**
Operation cost of the operational structure of POP at MARN.		**7,844,000.02**		**974,409.94**
TOTAL COST OF NIP		**202,208,927.20**		**25,119,121.40**

Table No. 108. Cost of the operational structure of POP at MARN.

The following table presents the required cost for the organization and implementation of the NIP, including MARN's installed capacity.

INSTITUTIONAL STRENGTHENING									
Activities: a. Create a POP responsible Unit, with operational budget, within the general structure of MARN, in charge of enforcing the Stockholm Convention and the implementation of the NIP. b. Have trained personnel in the subject of POP.									
	Category	**Amount**	**Years**	**Unit Cost (month)**	**Cost/year (Q)**	**Total period indicated (Q)**	**Cost/year (US$)**	**Total (US$)**	**Comments**
1	**Personnel**						$0.00	$603,726.71	
	Coordinator of the Operational Structure of POP, fee.	1	15	Q16,000.00	Q192,000.00	Q2,880,000.00	$23,850.93	$357,763.98	
	Responsible for the Action Plan, fees.	3	6	Q12,000.00	Q144,000.00	Q864,000.00	$17,888.20	$107,329.19	
	Technical support salary.	3	6	Q5,500.00	Q66,000.00	Q396,000.00	$8,198.76	$49,192.55	
	Secretary salary.	1	15	Q4,000.00	Q48,000.00	Q720,000.00	$5,962.73	$89,440.99	
2	**Services.**							$308,944.10	
	Meetings.	3	15	Q1,800.00	Q5,400.00	Q81,000.00	$670.81	$10,062.11	NCC Meetings
	Services (telephone, internet, electricity, others).	1	15	Q1,700.00	Q20,400.00	Q306,000.00	$2,534.16	$38,012.42	
	Report publications.	1	15	Q20,000.00	Q20,000.00	Q300,000.00	$2,484.47	$37,267.08	
	Incidental expenses.	1	15	Q10,000.00	Q10,000.00	Q150,000.00	$1,242.24	$18,633.54	Incidental expenses in the year
	Travel expenses of the Unit's personnel.	1	15	Q3,500.00	Q42,000.00	Q630,000.00	$5,217.39	$78,260.87	Expenses for all personnel
	Fuel.	1	15	Q4,000.00	Q48,000.00	Q720,000.00	$5,962.73	$89,440.99	
	Travel expenses abroad.	1	15	Q20,000.00	Q20,000.00	Q300,000.00	$2,484.47	$37,267.08	
3	**Consumer goods.**							$24,472.05	
	Office supplies.	1	15	Q3,000.00	Q3,000.00	Q45,000.00	$372.67	$5,590.06	
	Others.	1	6	Q2,000.00	Q2,000.00	Q2,000.00	$248.45	$248.45	
	Personal protection equipment.	1	15	Q5,000.00	Q5,000.00	Q75,000.00	$621.12	$9,316.77	
	Analysis equipment (kits, reagents, etc.).	1	15	Q5,000.00	Q5,000.00	Q75,000.00	$621.12	$9,316.77	
4	**Capital goods.**							$37,267.08	
	Furniture and equipment.	3	1	Q100,000.0	Q300,000.00	Q300,000.00	$37,267.08	$37,267.08	One only cost
Total					**Q930,800.00**	**Q7,844,000.00**	**Q115,627.30**	**$974,409.94**	

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