



**UNITED NATIONS DEVELOPMENT PROGRAMME  
UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION  
AND  
THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIETNAM**

**Project: Building capacity to eliminate POPs pesticides stockpiles in Vietnam**

**Brief description**

The Government of Vietnam has faced serious constraints in dealing with stockpiles of POPs pesticides, including constraints due to funding, access to appropriate technologies, and coordination among multiple ministries and agencies. While some stockpiles are housed in sheds or other buildings, in some communities with particularly large stockpiles, the lack of suitable infrastructure resulted in the burial of POPs pesticides stockpiles. An estimated 1140 tonnes of POPs pesticides have been located in five such sites, and again it is certain that there are more such sites in the country. The buried stockpiles are of far greater concern than above-ground stockpiles both because of their size and because there is far less control over storage conditions, resulting in much larger potential and actual human health problems. This project will eliminate all known stockpiles of POPs pesticides in Vietnam. However, the destruction of known stockpiles is an incomplete response for two reasons. Firstly, it is clear that there are a potentially large number of additional, as yet unknown stockpiles, meaning that a one-off destruction process will be inadequate in dealing with additional stockpiles as they are discovered. Secondly, there is a major continuing problem of illegal importation of pesticides which may contain substantial amounts of POPs. Consequently, as important as the destruction of known stockpiles, is the need to build capacity both to destroy additional stockpiles as they are discovered, and to eliminate continued importation of illegal POPs pesticides. Capacity to eliminate continued importation is needed on both the demand side, to reduce and ultimately eliminate demand for such pesticides, and on the supply side, to eliminate the source of the pesticides. Supply-side management will require bilateral cooperation with neighbouring states, China, Lao PDR and Cambodia.

**[UPDATED FOR ENDORSEMENT, SEPTEMBER 2009]**

## SIGNATURE PAGE

**Country: Vietnam**

**UNDAF Outcome(s)/Indicator:**

Viet Nam has adequate policies and capacities for environmental protection and the rational management of natural resources and cultural heritage for poverty reduction, economic growth and improving the quality of life.

**Expected Output(s): Indicator(s):**

Environmental strategies, policies, plans and regulations developed with broad participation of local people and stakeholders and in line with international environmental Conventions.

**Expected Output(s): Indicator(s):**

Improved and publicly accessible environmental information, including data on poverty environment links, for monitoring and use in statistical and economic policy instruments.

**Implementing partner:**

*(designated institution/Executing agency)*

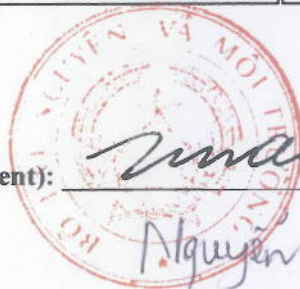
Ministry of Natural Resources and Environment (MONRE)

**Other Partners:**

United Nations Food and Agriculture Organization (FAO)

Programme Period:	UNDP Strategic Plan 2008-2011	Total budget:	\$10,900,909
Programme Component:	Environment and Sustainable Development	Allocated resources:	
Project Title:	Building capacity to eliminate POPs pesticides stockpiles in Vietnam	• Government	\$6,390,109
Project ID:	00060927	(including in kind and cash)	
Project Duration:	(4 years) 2009-2012	• UNDP Regular	\$110,000
		• GEF	\$4,300,800
		• FAO:	\$100,000

Agreed by MONRE (Government):



Date Oct 1<sup>st</sup> 2009

*Nguyễn Văn Đức*

Agreed by UNDP:

*S. Yamazaki*

Date 12 Oct. 2009

*Setsuko Yamazaki  
Country Director*

Agreed by FAO:

*Andrew W. Speddy*

Date 15 OCT 2009

*Andrew W. Speddy  
Representative in Vietnam*

## TABLE OF CONTENTS

<b>SECTION I: Elaboration of the Narrative</b> .....	6
<b>Part I: Situation Analysis</b> .....	6
• Context and global significance .....	6
• Status of POPs pesticide stockpiles in Vietnam.....	6
• Institutional, sectoral and policy context.....	7
○ <i>Policies on environmental protection and sustainable development</i> .....	8
○ <i>Policies specifically related to POPs: Vietnam’s Commitment to the Stockholm Convention</i> .....	10
○ <i>Institutional and administrative context</i> .....	12
○ <i>Assessment of institutional, sectoral and policy context for POPs sound management in Vietnam</i> .....	14
• Stakeholder analysis .....	16
• Business-as-usual analysis .....	22
<b>PART II : Strategy</b> .....	24
• Project Rationale and Policy Conformity .....	24
• Project Goal, Objective, Outcomes and Outputs/activities .....	24
• Project Indicators, Risks and Assumptions.....	33
• Expected global, national and local benefits .....	34
• Country Ownership : Country Eligibility and Country Drivenness.....	35
• Sustainability.....	37
• Replicability .....	37
<b>PART III : Management Arrangements</b> .....	37
<b>PART IV: Monitoring and Evaluation Plan and Budget</b> .....	39
• Project Inception Phase .....	39
• Monitoring responsibilities and events.....	40
• Terminal Tripartite Review (TTR).....	41
• Project Monitoring Reporting .....	41
○ <i>Inception Report (IR)</i> .....	41
○ <i>Annual Project Report (APR)</i> .....	42
○ <i>Project Implementation Review (PIR)</i> .....	42
○ <i>Quarterly Progress Reports</i> .....	42
○ <i>Project Terminal Report</i> .....	43
• Independent Evaluation .....	43
○ <i>Mid-term Evaluation</i> .....	43
○ <i>Final Evaluation</i> ... ..	43
• Audit Clause í í í í í í í í .....	43
• Learning and Knowledge Sharing .....	43
• Monitoring and Evaluation Work plan and corresponding Budget	<b>Error! Bookmark not defined.</b>
<b>PART V: Legal Context</b> .....	44
<b>SECTION II: Strategic Results Framework and GEF Increment</b> .....	45
<b>PART I : Incremental Cost Analysis</b> .....	45
• Project Background .....	45
• Incremental Cost Assessment .....	45
○ <i>Business-as-Usual</i> .....	45
○ <i>Global Environmental Benefits</i> .....	46
○ <i>Results Framework</i> .....	46
○ <i>Incremental Reasoning</i> .....	46
○ <i>Co-financing</i> .....	47

- Summary of Costs .....**Error! Bookmark not defined.**
- PART II : Logical Framework Analysis .....48**
- SECTION III: Total Budget and Workplan.....Error! Bookmark not defined.**
- SECTION IV: Additional Information .....Error! Bookmark not defined.**
- PART I : Other agreements.....Error! Bookmark not defined.**
- PART III : Terms of References for key project staff and main sub-contractsError! Bookmark not defi**
- PART IV : Stakeholder Involvement Plan.....Error! Bookmark not defined.**

## Acronyms

CBD	Convention for Biodiversity
DARD	Provincial departments of agriculture and rural development (under the Provincial People's Committees)
DONRE	Provincial departments of natural resources and environment (under the Provincial People's Committees)
DPP	Department of Plant Protection (under MARD)
DSENRE	Department Of Science, Education Natural Resources and Environment
ExA	Executive Agency
FAO	Food and Agriculture Organization
FSP	Full Size Project
GDOC	General Department of Customs (under the Ministry of Finance)
GEF	Global Environment Facility
IA	Implementing Agency
IPM	Integrated Pest Management
IVM	Integrated Vector Management
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MOC	Ministry of Construction
MOD	Ministry of Defense
MOET	Ministry of Education and Training
MOIT	Ministry of Industry and Trade
MOH	Ministry of Health
MOST	Ministry of Science and Technology
MOT	Ministry of Trade
MPI	Ministry of Planning & Investment
MSP	Medium Size Project
NINST	National Institute for Natural Sciences and Technology
NIP	National Implementation Plan for the Stockholm Convention
NSC	The National Steering Committee for Stockholm Convention on POPs
PDF	Programme Development Facility
PMU	Programme Management Unit
POPs	Persistent Organic Pollutants
PPCs	Provincial People Committees
SD	Sustainable Development
SDPP	Sub Department of Plant Protection (at provincial level)
STAMEQ	Directorate for Standards Measures and Quality
STAP	Scientific and Technical Assessment Panel
TOR	Terms of Reference
UNDP	United National Development Programme
UNDP CO	UNDP Country Office
VCC	Vietnam Corporation on Chemicals
VEA	Vietnam Environment Administration (under MONRE)

## SECTION I: Elaboration of the Narrative

### Part I: Situation Analysis

#### *Context and global significance*

1. Persistent Organic Pollutants (POPs) are chemical substances that possess toxic properties, resist degradation, bioaccumulate and are transported, through air, water and migratory species, across international boundaries and deposited far from their place of release, where they accumulate in terrestrial and aquatic ecosystems, have significant impacts on human health and the environment.
2. POPs are a concern because of the following 4 characteristics:
  - **Toxicity:** POPs are toxic chemicals that laboratory, field, and health studies have linked to certain adverse health effects in people and wildlife.
  - **Persistence:** POPs are highly stable chemicals that resist the natural processes of degradation. Once introduced into the environment, they can persist for a long time.
  - **Long-Range Transport:** POPs released in one part of the world can travel far from their original source via wind, water and, to a lesser extent, migratory species.
  - **Bioaccumulation:** POPs are readily absorbed in fatty tissue and accumulate in the body fat of living organisms; these substances become more concentrated as they move up the food chain, especially into larger, longer-living organisms.
3. Studies have linked POPs exposure to population declines, diseases, or abnormalities in a number of wildlife species, including certain kinds of fish, birds, and mammals. Wildlife also can act as sentinels for human health: abnormalities or declines detected in wildlife populations can sound an early warning bell for people. Behavioral abnormalities and birth defects in fish, birds, and mammals in and around the Great Lakes, for example, led scientists to investigate POPs exposure in human populations.
4. In people, reproductive, developmental, behavioral, neurologic, endocrine, and immunologic adverse health effects have been linked to POPs. People are mainly exposed to POPs through contaminated foods. Less common exposure routes include drinking contaminated water and direct contact with the chemicals. In people and other mammals alike, POPs can be transferred through the placenta and breast milk to developing offspring.
5. The Stockholm Convention is a global treaty with the general objective to protect the environment and human health against the threat of POPs. The Stockholm Convention divides POPs into 3 categories: chemicals that **must be eliminated**, including 8 pesticides and PCBs (Annex A); chemicals whose **use and production need to be reduced**: DDT (Annex B); and **unintentionally produced** chemicals: Dioxins, Furans and PCBs (Annex C).

#### *Status of POPs pesticides stockpiles in Vietnam*

6. Vietnam has suffered perhaps more than any other country from the effects of POPs. Most of the negative impacts are associated with the war-time use of chemical defoliants. However, there are also sites in Vietnam where dramatic health impacts, including deaths and birth abnormalities have resulted from storage of POPs pesticides. One example of this is a site in Yen Son district, Tuyen Quang province, where at least 14 deaths and numerous other health problems are linked to a large DDT stockpile.
7. The import and use of all POPs pesticides is now banned in Vietnam. However, stockpiles that accumulated before the bans came into effect still exist. The Government of Vietnam has faced serious constraints in dealing with stockpiles of POPs pesticides, including constraints due to funding, access to appropriate technologies, and coordination among multiple ministries and agencies. Despite these constraints, the government at central and local level has made determined efforts to deal with stockpiles, and where government funding has not been forthcoming, local communities have taken action themselves.

8. Because of these actions by government and communities, the quantities found in above-ground stockpiles are modest. An inventory of POPs pesticides stockpiles undertaken during the preparatory process of the project revealed that, for the 25 provinces sampled, which included all those expected or known to have significant stockpiles, a total of only 70 tonnes of POPs pesticides were found in above-ground stockpiles. These figures can be extrapolated to a national level, indicating total current above-ground stockpiles of 150 tonnes of POPs pesticides. However, as noted above, it is certain that substantial additional unknown stockpiles remain, many of which will be discovered and will require treatment in coming years.
9. Furthermore, while some stockpiles are housed in sheds or other buildings, in some communities with particularly large stockpiles, the lack of suitable infrastructure resulted in the burial of POPs pesticides stockpiles. An estimated 1140 tonnes of POPs pesticides have been located in five such sites, and again it is certain that there are more such sites in the country. The buried stockpiles are of far greater concern than above-ground stockpiles both because of their size and because there is far less control over storage conditions, resulting in much larger potential and actual human health problems. Also, while the locations of above-ground stockpiles are usually known, records concerning buried stockpiles are incomplete and sometimes missing completely. This results in farmers using the land for gardens and building houses above the buried stockpiles.
10. Although the production of POPs pesticides has never been legal, pesticide production plants tend to source their chemical supplies purely on the basis of lowest cost, and government controls over chemical safety standards is weak. As a result, many of the raw materials are of unknown quality and newly produced pesticides may therefore contain POPs.
11. While many stockpiles date from before the banning of POPs pesticides in Vietnam, others are active, especially in border regions, where significant quantities of banned pesticides are captured and confiscated every month. For example, in Lang Son province, confiscated illegal pesticides in a Customs Department storage facility were incinerated in December 2006, yet the 2m x 5m x 2m storage facility was filled again by June 2007. Even though illegal pesticides were known to be crossing the border, no further confiscations can be undertaken until the new stockpile is destroyed since there are no further storage facilities. It is estimated that, for the northern provinces bordering China, 5-7 tonnes of illegal pesticides are confiscated every month, and there are larger quantities which cross the border without being confiscated, either because they evade detection, or because the authorities do not have the capacity to confiscate them.
12. Many of the imported pesticides carry no labels indicating their chemical content, so determining whether they contain POPs would require expensive and continuous sampling of newly confiscated pesticides. However, it is believed that a high proportion of the confiscated pesticides contain at least some proportion of POPs.

*Institutional, sectoral and policy context*

13. Agriculture employs more than two thirds of Vietnam's labour force and contributes one fourth of the country's GDP and a third of export earnings. Over the last 10 years, food output has increased by an average of 1.2 million tonnes/year. Coffee, rubber, tea and sugar outputs have increased in recent years by 400, 200, 65, and 750 thousand tonnes, respectively. The area of fruit and vegetable production is about 450 thousand hectares with an estimated output of 4.5 million tonnes. The growth rate of the livestock sector is 5-6%/year, and in 2006, total meat production reached 3.1 million tonnes, 9.3% higher than the 2005 figure.
14. While the production of livestock products, sugar, fruits and vegetables mainly supplies domestic markets, other products are mainly for export, including coffee (95% exported), cashew (90%), rubber (80-85%), pepper (90%), and tea (50%). Vietnam is now the second largest global rice exporter (rice exports in 2005 were 5 million tonnes), and robusta coffee exporter, and the fourth largest cashew exporter.

15. The increased pressure to maintain high levels of rice and other agricultural products for consumption and export has resulted in increased use of pesticides that maximize yield. In 1957, the pesticides had been used with the quantity of 100 ton/year. In the end of years 80, the quantity of pesticides used was 10,000 tons/year, then in the years 90, this quantity is growing up to double (21,600 ton/year in 1990), to triple (33,000 ton/year in 1995), and up to 48,300 tons in 2004 year. The improper use and handling of agrochemicals has had an adverse impact on ecosystem as well as field laborers. Farmers who use pesticides and herbicides have higher reported incidences of rashes, eye irritation, gastrointestinal disorders and headaches. The long-term effect of the pesticides and herbicides has far reaching consequences for the environment, the people and trade.

***Policies on environmental protection and sustainable development***

16. Policies on environmental protection and sustainable development are consistently integrated with general development policies and legislation of Vietnam.

17. In its legal framework, Vietnam has promulgated many laws and decrees directly or indirectly related to environmental protection. The primary legal instrument is the Law on Environmental Protection, which was approved by the National Assembly on 27 December 1993. Based on that law, the legal framework related to the environment has subsequently been developed and refined. The amended Law on Environmental Protection was approved on 29<sup>th</sup> November 2005 by the National Assembly. Guidance on implementation of the Law has been developed and applied, forming a relatively comprehensive legal framework for environmental protection.

18. In addition, Vietnam has also promulgated the Law on Land (1993, 2003), the Law on Mineral Resources (1996) and amended (2005), the Law on Water Resources (1998), the Law on Agricultural Resources Protection and Development (1989), the Law on Aquaculture (2004), the Law on Forest Protection and Development (1991, 2004), the Law on Enterprises, the Code of Criminal Affairs, and the Decree on Chemical Safety (2005), among others. In such legislation, regulations regarding natural resource exploitation and use are supplemented by regulations on environmental protection and sustainable development.

19. Regarding the policy framework, Vietnam has developed and promulgated many policies and strategies on sustainable development such as Resolution 41-NQ/TW dated 15<sup>th</sup> November 2004, Directive 36-CT/TW dated 25<sup>th</sup> June 1998, Orientation for Sustainable Development (Agenda 21) dated 17<sup>th</sup> August 2004, the National Strategy for Environmental Protection until 2010 and Vision toward 2020 (2003), the Comprehensive Strategy on Poverty Alleviation, and the Plan for Radical Treatment of Environmentally Polluting Hotspots (2003). Government, ministries, sectors and localities have developed implementation plans for Resolution 41-NQ/TW. The National Strategy on Pollution Control (2005). In addition, ministries such as Ministry of Industry (MOI), Ministry of Agriculture and Rural Development (MARD), Ministry of Construction (MOC), Ministry of Health (MOH), Ministry of Transportation (MOT), have development plans that take account of environmental protection.

20. Vietnam is currently seeking to complete its legal system on environmental protection. Sanctions and economic measures appropriate to a market economy are being enhanced in order to prevent and control environmental pollution.

21. Vietnam is also rearranging the governmental administrative structure to promote environmental protection. MONRE, established in 2002, is responsible for overall governmental management of the environment, which includes sound management of chemicals and hazardous wastes in Vietnam. Ministries have also assigned specializing units for environmental issues within their scope. Many provinces have established a Division of Natural Resources and Environment at the district level.

22. Currently in Vietnam there is a lack of environmental investment, even though Vietnam has policies designed to enhance and diversify environmental investment, including through the national budget allocation process and international financial aids. Research and development



activities on environmental protection are being promoted, but there are shortcomings because of inadequate investment and uncoordinated approaches. Vietnam is strengthening the socialisation of environmental protection.

23. The Vietnam Environmental Fund was established in June 2002. It is a governmental financial mechanism for the environment, directly under the administration of MONRE and under the financial management of the Ministry of Finance. Its responsibility is to mobilize domestic and international financial sources pursuant to Vietnamese legislation in order to invest in environmental activities and provide financial aid for programmes, projects and activities to prevent and mitigate the effects of environmental pollution, and pollution-related incidents at all levels: national, interdisciplinary and inter-regional.
24. Recently, Vietnam has played an increasing role in promoting regional and international cooperation on environmental protection. So far, Vietnam has ratified or accessed to seventeen international conventions on the environment. These include the Climate Change Convention, the Kyoto Protocol and Clean Development Mechanism, the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal, the Stockholm Convention on POPs, the International Labor Organization Convention on Safety in the Use of Chemicals at Work, and others.
25. The key policies and legal provisions for management of chemicals and hazardous wastes, including POPs and POPs-pesticides are:
  - Resolution 41/TW dated 15<sup>th</sup> November 2004 on "Environmental Protection in the industrialization and modernization of Vietnam" and the Governmental implementation program for Resolution 41/TW: Create a firm policy and direction to enhance environmental protection. Ministries, sectors and localities have developed specific implementation programmes for Resolution 41/TW, including environmental pollution prevention and degradation recovery, wastes (including hazardous wastes) management and raising of awareness of and responsibility for environment and human health protection.
  - The Law on Environmental Protection (1993) and amended (2005). The Law on Environmental Protection affirms that environmental protection is the responsibility of the whole population. The basic principle of environmental protection is to seek to prevent environmental degradation, pollution and incidents. The use of chemicals, chemical fertilizers and pesticides, as well as wastes treatment should comply with the legislation. The Law on Environmental Protection (2005) more specifically regulates hazardous wastes management and pollution prevention.
  - The National Strategy on Environmental Protection (2003) consists of thirty six national programmes covering all fields of environmental protection, including hazardous wastes management, application of environmentally friendly technologies and environmental pollution (including pesticides pollution) treatment and recovery.
  - The National Plan on Environment and Sustainable Development (1991) and Orientation for Sustainable Development in Vietnam (Agenda 21 - 2004), which serve as the nation's blueprint for sustainable development, provide specific requirements for the sound management of chemicals and hazardous wastes.
  - The Plan for thoroughly handling establishments which cause serious environmental pollution (2003), ratified in Decision 64/2003/QĐ-TTg dated 22<sup>nd</sup> April 2003 is now under implementation. It contains regulations on penalties for violation of environmental standards, and defines appropriate policies and mechanisms for facilities that need to be closed or removed. According to this plan, 439 facilities of this type must be closed by 2007, some of which are contaminated by POPs pesticides.
  - The Law on Population Health Protection (1989) specifies that people have the right to live healthily. Any activities that cause adverse impacts to the environment and human health should be minimised, eliminated or carefully controlled.

- The Ordinance on Plant Quarantine and Protection (2001) unifies the management of the production, export, import, maintenance, storage, transport, trade and use of pesticides. MARD has the responsibility for management of pesticides through the organization of registration, the issuance of permits, and publishing the lists of permitted pesticides, restricted pesticides and prohibited pesticides in Vietnam.
- The Decree on Chemical Safety (2004) and Law on Chemicals (in preparation, 2006): there are seventeen provisions dealing with the sound management and treatment of hazardous wastes/toxic chemicals.
- Hazardous Waste Management Regulations, based on decision 23/2006/QD-BTNMT dated 26<sup>th</sup> September 2006 (issuing the Lists of Hazardous Wastes) and Decree ND80, under the Environmental Protection Law (2005) regulate all stages of the hazardous wastes life-cycle, including their production, transportation, storage, treatment and final disposal. Regulations on permits for collection, transport, storage, treatment and disposal are relatively specific. However, the application of these regulations is difficult due to lack of human capacity, equipment and a lack of clarity in some articles. Although these regulations are applied to all POPs, there is no clear distinction between POPs and other hazardous wastes.
- The Strategy for the Management of Municipal Solid Waste (1999) and Regulations on the Management of Solid Waste Landfills (2004), issued by MOC contain regulations on sanitary landfilling of solid wastes (including hazardous wastes). However, landfilling is not the best disposal method for POPs because they are highly toxic and persistent, even at low concentrations.
- Decision 328/2005/QD-TTg dated 12<sup>th</sup> December 2005 of the Prime Minister on approving the national plan on environmental pollution control till 2010, has set up the objectives of the management of wastes and waste sources, enhancement of the capacity for wastes treatment and implementation of international treaties related to pollution control to which Vietnam is a Party. The national plan on environmental pollution control presented nineteen priority projects, plans and programmes. The implementation of these priority plans and projects will cooperate with and support the sound management, reduction and elimination of POPs.

***Policies specifically related to POPs: Vietnam's Commitment to the Stockholm Convention***

26. One of the elements of the overall strategy for the protection of the environment and the pursuit of sustainable development is exemplified by Vietnam's ratification of the Stockholm Convention on POPs on July 22, 2002. Vietnam was one of the first countries to sign and to ratify the Stockholm Convention. The Government, through MARD, MOH, MOI and MONRE, has adopted a series of legal documents on prohibition of the production and use of all POPs pesticides in Vietnam. DDT and Lindane have been officially prohibited since 1993. All nine of the POPs pesticides covered by the Stockholm Convention have now been prohibited from use.
27. Being aware of environmental issues related to POPs, the Government of Vietnam has prepared policies and implemented some specific actions, aimed at sound management of chemicals including POPs. Chief among these is the National Implementation Plan for the Stockholm Convention (NIP), approved by Parliament under Decision 184/2006/QD-TTg, 10<sup>th</sup> August 2006 and submitted to the Stockholm Convention Secretariat in August 2007. The NIP includes 15 priority actions, the second of which is *safe management, disposal and phase-out of POPs pesticides stockpiles*. Other policy documents specifically addressing POPs include:
- In 1991, the Ministry of Agriculture and Food Industry (the precursor of MARD) promulgated Regulations on Pesticides Registration in Vietnam. MARD subsequently cooperated with line ministries and sectors in establishing the Consultative Council on pesticides. Based on advice from this Committee, MARD published a list of pesticides that are allowed to be used in Vietnam. By 1992, most of organochlorine pesticides including POPs and organophosphor pesticides with high toxicity and persistence had been prohibited.
  - In 1998, the Government of Vietnam issued Directive 29/1998/CT-TTg on enhancing the management of the use of pesticides and POPs, which stipulates the safe treatment and

management of POPs and the relevant responsibility of line ministries and sectors. The regulations include:

- *Strictly prohibit all organizations and individuals from the production, trade, storage, transport and use of dangerous and prohibited pesticides. Any violation will be treated pursuant to legislation, and if it results in serious consequences, criminal proceedings will be taken against the facility.*
- *Require timely and appropriate collection and treatment of prohibited pesticides. This includes the application of environmental pollution treatments for former pesticide stores.*
- *Promote the dissemination of knowledge about the harm of pesticides to the environment and human health.*
- *Prohibit the release of PCBs-containing oils and products into the environment. This includes the restriction and eventual prohibition of the use of PCBs-containing products. Strict controls are also specified to ensure that the release and transport of PCBs-containing products are pursuant to hazardous wastes management regulations. The organization of the collection, treatment and disposal of PCBs-containing products with hazardous wastes treatment technology is also covered.*
- *Assign line ministries, sectors and localities different tasks according to their functions and responsibilities.*
- Decision 1970, 1971, 1972/QD-BKHCMNT dated 10<sup>th</sup> November 1999 of MOSTE, on treatment technology for prohibited pesticides stockpiles, consists of guidelines on pesticide (including POPs) disposal. However, there has not been any assessment of the application of these guidelines in relation to POPs pesticides treatment.
- Circular 08/2001/TT-BCN dated 14<sup>th</sup> September 2001 issued a List of Conditionally Exported and Imported Toxic Chemicals and their Products. This provided the basis for the prohibition by the Electricity of Vietnam Corporation of the import of PCBs-containing equipment by all its members.
- Decision 60/2002/QD-BKHCMNT dated 07<sup>th</sup> August 2002 of MOSTE, on publishing the technical guidelines on hazardous wastes landfilling, contains technical guidelines on landfilling of chemicals and hazardous wastes (including pesticides and POPs).
- Decree 59/2007/ND-CP of the Government on solid waste management has some provisions on solid HW in general
- Decree 81/2006/ND-CP of the Government on the environmental violation punishment stipulates the violation regarding HW
- Circular 12/2006/TT-BTNMT of MONRE on guiding the professional capacity and the permit procedure of HW management has details on HW management, particularly the permit for disposal facilities and requirement on capacity and operation...
- Emission standards contained in TCVN 6560:2005 on Emission of Healthcare waste incinerator; the Standards for HW incinerator emission are under development and will be issued soon
- In order to implement the Ordinance on Plant Quarantine and Protection (2001), MARD approved a series of decisions on management of pesticides including:
  - *Decision N. 60/2003/QD-BNNPTNT of May 6<sup>th</sup>, 2003 of MARD on publication of the list of veterinary medicines permitted to be produced, exported, handled, imported, trade, used and limited to be used in Vietnam.*
  - *Decision N. 63/2003/QD-BNNPTNT of May 27<sup>th</sup>, 2003 of MARD on official registration, added and special registration of some pesticides for protection of plants to the list of permitted pesticides for protection of plants to be used in Vietnam.*
  - *Decision N. 145/2002/QD-BNNPTNT of December 18<sup>th</sup> 2002 of MARD on procedure of registration, production, bottling, handling, importation, exportation, labeling, packaging, advertising pesticides for protection of plants.*
- In 2003, MARD cooperated with the Norwegian Agency for Development Cooperation (NORAD) in performing an inventory of pesticides stockpiles in Vietnam. In 2002-2003, MONRE cooperated with UNEP Chemicals and SDC in demonstrating the application of POPs inventory toolkits through an initial inventory and assessment of PCBs and Dioxins/Furans release sources in Vietnam.

- In 2002-2003, MOSTE (the precursor of MONRE) supported the implementation of some pilot projects on treating POPs and pesticides stockpile wastes, such as safe disposal in landfills in combination with bio-chemical treatment, research and development of the technology for the disposal of POPs and hazardous wastes at high temperature in specialized incinerators, and the incineration of pesticides in cement kilns (see report on cement kiln trial in Technical Annex 3).
  - In 2004, the POPs Project Office (established within VEA) cooperated with consultants, domestic and foreign experts and local authorities in an inventory and assessment of POPs issues in Vietnam, including: the production, export-import, use, transport, storage and disposal of POPs pesticides; the status of PCBs-containing oils and equipment; unintentionally produced dioxins/furans sources; an overview on toxic chemical-contaminated areas related to the chemicals used by the US Army during the war in Vietnam (including those contaminated with dioxins); assessment of the POPs monitoring and treatment infrastructure; and a review of policy, legislative and institutional framework related to POPs management. These POPs assessments provided the scientific base for the development of the NIP for the Stockholm Convention.
  - In 2004, MONRE was designated by the Government to be the focal point for the coordination of implementation activities under Stockholm Convention in Vietnam. In collaboration with other line ministries, sectors and localities, MONRE was responsible for developing the National Implementation Plan and submitted it to the Prime Minister for approval.
  - Decree 80/2006/ND-CP on the enforcement of, and financial penalties related to, environmental protection includes regulations on the trade, export-import, transport and treatment of wastes, including POPs. Procedures are defined for determination of penalties, and jurisdiction for their application is assigned to chief inspectors specialized in environment, presidents of wards, and districts, towns, provinces and cities.
  - Some specific regulations on POPs are found in Vietnamese Standards: TCVN 5938:1995, TCVN 5941:1995, TCVN 5942:1995, TCVN 6560:1999, TCVN 6774: 2000, TCVN 6984:2001, TCVN 6985: 2001, TCVN 5507:2002.
28. In general, Vietnam Government is determined to eliminate POPs as soon as practicable by implementing the NIP. It is the intention of the Government to undertake review of its policies and legislative framework relevant to the implementation of the Stockholm Convention to strengthen capacity of institutions that deal with POPs including the establishment of mechanisms for coordination, monitoring of POPs and review and updating of the NIP. Also the Government realises the importance of generating and disseminating public information and creating public awareness at all levels to tackle the issues of POPs in a comprehensive way. In doing so, the Government within its limited capacity, shall make deliberate efforts to implement its obligations under the Stockholm Convention and hence eliminate POPs as scheduled. To achieve the NIP objectives, Vietnam will seek cooperation of the international community in dealing with problems of POPs.

#### *Institutional and administrative context*

29. Key Ministries and Institutions involved in POPs and POP-pesticides management in Vietnam are as follows:
30. **Ministry of Natural Resources and Environment (MONRE)** as designated in Decree No. 91/2002/ND-CP dated 11 November 2002, is the principal government agency having an overall mandate for resource and environmental strategy, legislation and policy formulation, resource and environmental institution building, environmental impact assessment, resource and environmental research, environmental quality standards, data collection and management. MONRE is charged with inspection, developing guidelines for provinces and sectors, and international cooperation for resource and environmental protection. Based on its function and tasks, MONRE has responsibility to guide the management of POPs and POP-pesticides in their whole life cycle from the import to export, production, handling, transportation, treatment and disposal. And Vietnam Environment Administration (VEA) which is under MONRE is responsible for the preparation of national action plans, development of guidelines, implementation of state management activities for pollution prevention and control, environmental monitoring and emergency response.

31. **Ministry of Science and Technology (MOST)** according to Decree No. 54/2003/ND-CP dated 18 July 2003, is responsible for cooperating with MONRE and other Ministries to introduce advanced scientific techniques and technological applications to manage resources effectively and to control sources of pollution. It has an overall mandate to unify governmental management to meet Vietnamese standards, and to develop standards relating to POPs and other chemicals. Relevant agencies within MOST are the General Department of Standards, Measure and Quality (STAMEQ), the Department of Nuclear and Radioactive Control and Safety, the Department of Science and Technology in Economic-technical Sectors, and the Department of Evaluation, Appraisal and Control of Technology. .
32. **Ministry of Industry and Trade (MOIT)** according to Decree No. 55/2003/ND-CP dated 28 May 2003), is a governmental agency carrying out governmental management functions relating to industry, including the mechanical, metallurgical, electrical, energy development, renewable energy, petroleum and gas, metal exploitation, chemicals (including pharmaceuticals and industrial explosives), food, and other processing sectors throughout the country. These functions include management of public services and representation of governmental ownership at industrial enterprises in conformity with laws and regulations. The relevant agencies of MOIT in management of chemicals are the Department of Industrial Safety, the Department of Local Industries, the Department of Science and Technology, the Department of Mechanics, the Department of Metallurgy, the Department of Chemicals, the Department of Energy and Petroleum, the Department of Market Control, the Department of Importation and Exportation, and Department of Trade Inspection and. Vietnam Corporation on Chemicals. According to Decree No. 29/2004/ND-CP dated 16 January 2004, MOIT also has the function of governmental management of the import, export, and circulation of goods and trade services throughout the country.
33. **Vietnam Corporation on Chemicals (VCC)** is a state-owned corporation responsible for trade activities, including exploitation, production, and trade (including import and export) of chemicals. The Corporation also produces basic chemicals, pesticides, electronical chemical products (accumulators and batteries) which may contain POP.
34. **Ministry of Agriculture and Rural Development (MARD)** according to Decree No. 86/2003/ND-CP dated 18 July 2003, is responsible for governmental management of activities related to agriculture, forestry, water resources and rural development, and terrestrial national parks and protected areas, including coastal wetlands. MARD plays an important role in the control and reduction of sources of pollution originating from agricultural activities and the use of chemical fertilizers. The main agencies related to the management of POPs and chemicals are the Department of Plant Protection, the Department of Veterinary Services, and the Institute of Plant Protection. Annually, MARD checks and publishes lists of new pesticides permitted to be used, and those which are subject to limited use or are prohibited in Vietnam, based on advice received from the National Consultative Council on Pesticides, and with the participation and cooperation of relevant ministries and sectors.
35. **Ministry of Health (MOH)** according to Decree No. 43/2003/ND-CP dated 15 March 2003, is responsible for governmental management of care and protection of public health, including medical services, medicines, cosmetics, food safety and sanitation, and medical equipment. The Ministry is responsible for overseeing the delivery of health services in the country and managing hospital wastes. It therefore has a direct role in raising awareness related to environmental health issues. The Ministry manages unintentional production of POPs from incineration of hospital wastes.
36. **Ministry of Defense (MOD)** is responsible for management of chemical equipment and centers serving defense and security objectives, as well as polluted areas from chemicals used by the American Army during the war (1960-1975).
37. **Ministry of Planning & Investment (MPI)** is responsible for overall planning of economic development projects and dealing with environmental consequences of such projects. The key

department within MPI is the Department of Science, Education, Natural Resources and Environment (DSENRE), which oversees environment sector issues and is MPI's counterpart to MONRE and VEA.

38. **Ministry of Finance (MOF)** (and specifically the **General Department of Customs - GDOC**) according to Decree No. 16-CP dated 07 March 1994 and Vietnam Customs Law are responsible for the state management of customs including import, export, transit activities, combating transboundary smuggling or illegal transportation of goods. The GDOC is thus responsible for the management of import and export of POPs and other chemicals.
39. **Ministry of Education and Training (MOET)** is responsible for cooperation with MONRE in raising awareness and knowledge on environmental issues, and in integrating policies and legislation on environment protection as well as POPs/hazardous chemicals management in the education.,
40. **Relevant Universities and Research Institutions** serve as a technical advisor on environmental issues, technology process, means and techniques to effectively manage POPs and other chemicals.
41. **Provincial People Committees (PPC)** have authority over state management of local environmental protection. The Department of Resources and Environment is responsible to the PPC on local environmental and resources protection.

*Assessment of institutional, sectoral and policy context for POPs sound management in Vietnam*

42. Vietnam has defined the functions and responsibilities of ministries and sectors, including chemicals and hazardous wastes management in particular, and environmental protection in general. Furthermore, for multi-sectoral tasks and responding to particular conditions, the Government has issued supplementary regulations that modify the functions of, establish regulatory and cooperative relations among, and determine the responsibilities of relevant stakeholders for specific tasks and objectives.
43. In general, Vietnam has been endeavoring to establish a legal and institutional framework for sound management of chemicals and hazardous wastes, including POPs and POP-pesticides. However, there are still shortcomings that need to be addressed. These include:
  - Despite of regulations, responsibilities of authorities in POPs management are unspecific, overlapped, and the responsibilities of authorities are not coordinated over the whole life-cycle of POPs. The Government issued policies on the safe management of POPs, but the authorities have not adequate capacity for their effective implementation.
  - Despite the various legal documents on chemicals management, there is still no Law on Chemical Safety, nor a database that can serve as a basis for management of POPs and other hazardous chemicals. In 2000, the former National Environment Agency (now VEA) with support from SEMA (Sweden) started drafting such a law. However, since MONRE inherited the environmental function from the former Ministry of Science, Technology and Environment, the draft has not been developed further. In 2004, MOI proposed a draft Law on Chemicals but it is still under discussion. These developments show that governmental agencies are aware of threats from and the need for sound management of chemicals, chemical products and wastes. However, their endeavors have thus far not been sufficient or adequately focused.
  - Legal documents on POPs management are vague and insufficient. Regulations on Hazardous Wastes Management are not sufficiently specific to be useful in the management of POPs and POPs-containing wastes. The legal documents on chemicals import, export, use, and transportation do not take into account the special characteristics of POPs management. There are no regulations requiring enterprises that export, import, produce, use, and dispose of POPs to provide information on toxicity, classification, and labeling of chemicals. There is no

effective information management system and database for the control of the export-import and use of toxic chemicals including POPs.

- In spite of number of POPs inventories that have been conducted to support the continuous survey and assessment of POPs required by the Stockholm Convention, they are still fragmented and not completely reliable.
  - There is a gap of specific policies on dissemination of information and knowledge of POPs and hazardous chemicals and adverse impacts. There is lack of capacity and infrastructure for systematic pollution monitoring and evaluation on POPs impact to human health and the environment. There are no regulations covering responsibilities of communities and the private sector, or providing incentives for their involvement in POPs management and treatment.
  - Vietnam is now a party to WTO. However, WTO regulations on chemical trade have not been legalized in Vietnam as required for accession. Furthermore, Vietnam has not participated in some other agreements on chemical management, such as the London Guidelines on chemical information exchange in international trade (amended 1989), and the Rotterdam Convention on prior informed consent procedures for certain hazardous chemicals and pesticides in international trade (1998).
  - Strategy and policy on training of experts in pollution monitoring, management and safe treatment of hazardous wastes, including POPs and POPs-pesticides, have been developed, but have not been paid proper attention. The knowledge of POPs issues and their management is not widely known in the government structures despite of the various responsibilities in this regard. This applies both to line ministries working on legislation, enforcement and monitoring as well as to local government which has the hands-on contact with potential polluters and handlers of POPs.
  - Ministries and sectors, especially the industry, energy, and environment sectors, in their development strategies and programmes, have not yet developed specific activities associated with sound management, reduction and elimination of POPs.
44. Overall, the establishment and maintenance of effective legal, scientific, economic, and political institutions for POPs in general and POP-pesticides in particular are significantly hampered because of insufficient human and financial resources. This deficiency is further compounded by the lack of appropriate administrative infrastructures needed to design, implement, monitor, and enforce relevant policies and programs that are vital in the sound management of POP-pesticides.

Stakeholder analysis

Stakeholder	Stakeholder Role/Interest in the Project	Assessment of Impact	Potential Strategies for obtaining support or reducing obstacles to the Project
1. MONRE/VEA	<ul style="list-style-type: none"> <li>Responsible to guide the management of POPs pesticides in their whole life cycle from the import to export, production, handling, transportation, treatment and disposal.</li> <li>The project offers great opportunity for MONRE/VEA to enhance their capacity in management of POPs in general, and POPs pesticides in particular, and also to improve the capacity in coordinating actions on POPs management.</li> </ul>	Positive if actively engaged in coordinating the activities of the project.	<ul style="list-style-type: none"> <li>In full support of the project.</li> <li>Emphasizing the coordinating role of MONRE/VEA in the implementation of the project, and also coordinating this project with other contemporary projects on POPs (BAT/BEP project on U-POPs, PCB project) and National Implementation Plan (NIP).</li> <li>The challenge is to establish an effective consultation and coordination mechanism with relevant ministries to oversee management of POPs pesticides in whole country.</li> </ul>
2. MOST	<ul style="list-style-type: none"> <li>In charge of introducing appropriate technologies for the management and elimination POPs pesticides stockpiles.</li> <li>It is a chance for MOST to raise the qualification of its staff in up-to-date technologies for the treatment of POPs pesticides.</li> </ul>	Positive if actively engaged in the development of appropriate technologies for the management and elimination POPs pesticides stockpiles.	<ul style="list-style-type: none"> <li>In full support of the project.</li> <li>Training key MOST staff on technologies for the management and elimination of POPs pesticides stockpiles.</li> </ul>
3. MOI/VCC	<ul style="list-style-type: none"> <li>Managing industrial sectors, including chemicals sector.</li> <li>VCC produces different chemicals, including pesticides.</li> </ul>	Positive if they can take part (in cooperation with MOST) in the development of appropriate technologies for the treatment/disposal POPs pesticides	<ul style="list-style-type: none"> <li>Support the project</li> <li>The challenge will be the way to have their participation in the implementation of the project</li> </ul>



Stakeholder	Stakeholder Role/Interest in the Project	Assessment of Impact	Potential Strategies for obtaining support or reducing obstacles to the Project
4. MARD	<ul style="list-style-type: none"> <li>• Responsible for the control and diminution of polluted areas dealing with agricultural activities and the use of pesticides. Annually, MARD screen and identifies new pesticides which may be used, limited in use or prohibited in Vietnam.</li> <li>• Compiling a report on pesticide management and the amount of prohibited pesticide stockpiles in the country.</li> <li>• Acts in cooperation with MONRE, MOST and PPCs on management, control and supervision of pesticide producers about the kind of pesticides permitted for production, trade and other activities in accordance with provisions of the Ordinance on protection and quarantine of plants.</li> <li>• Closely collaborate with MOF/GDOC, MOT and the Department of Market Management in strictly controlling, supervising and punishing the illegal importation of pesticides.</li> <li>• The project gives great chance for MARD and its departments in strengthening their capacity in management of POPs pesticides.</li> </ul>	Positive if actively engaged in inventory and assessment process, preventing the illegal importation of pesticides.	<ul style="list-style-type: none"> <li>• In full support of the project.</li> <li>• Strengthening the capacity of Departments of MARD, including the Department of Plant Protection, Department of Science, Technology and Environment, Research Institute for Plant Protection, and DARDs in dealing with the list of banned pesticides and in inventory methodology and assessment of POPs pesticides.</li> </ul>
5. MOH	<ul style="list-style-type: none"> <li>• Building awareness of environmental pollution caused by pesticides in agricultural products, foods, and water environment and propose measures for recovery and rehabilitation.</li> <li>• Study the reverse impact of pesticides on human health in order to develop effective prevention and therapy measures.</li> </ul>	Positive if it can raise awareness of the communities of the reverse impact of POPs pesticides on human health.	<ul style="list-style-type: none"> <li>• In full support of the project.</li> <li>• Training key MOH members in toxicity of POPs pesticides and their impact on human health.</li> </ul>

Stakeholder	Stakeholder Role/Interest in the Project	Assessment of Impact	Potential Strategies for obtaining support or reducing obstacles to the Project
6. MPI/DSEE	<ul style="list-style-type: none"> <li>• Balance and allocate appropriate budgets for relevant ministries and localities to support and ensure implementation of the project.</li> <li>• Responsible for overall planning of projects relating to environmental issues through DSEE which oversees environment sector issues and is the MPI's counterpart to MONRE/VEA</li> </ul>	Positive if actively engaged in budgetary allocation for the project.	<ul style="list-style-type: none"> <li>• In full support of the project.</li> <li>• Conducting consultative meetings with implementing agencies for the development of financing program.</li> <li>• The main challenge will be the way to allocate budget to stakeholders of the project.</li> </ul>
7. MOF/GDOC	<ul style="list-style-type: none"> <li>• Managing and supervising the import and export of pesticides in the permissible list across national borders</li> <li>• Responsible for enforcing border controls in regulating the entry of banned pesticides</li> <li>• Responsible for measures that will prevent further stockpiling of obsolete pesticides, including a legal framework governing POPs pesticides</li> <li>• It is a good opportunity for GDOC to raise the qualification of its staff in up-to-date techniques for the control of import and export of POPs pesticides.</li> </ul>	Positive if it can successfully perform the function of management of import and export of pesticides, and implement measures for preventing further stockpiling of obsolete pesticides.	<ul style="list-style-type: none"> <li>• Support the project.</li> <li>• Strengthening the capacity of GDOC for preventing importation and use of illegal POPs pesticides.</li> <li>• Proposals on modifications to existing, or creation of new regulations to address gaps and inconsistencies in the legal framework for importation and use of POPs pesticides.</li> </ul>
8. MOT	<ul style="list-style-type: none"> <li>• MOT has the function of state management of goods, imports, exports, circulation and trade services throughout the whole country. It is responsible for the inspection and supervision of imports and exports and market circulation of prohibited pesticides</li> <li>• The inspection and supervision of imports and exports and market circulation of prohibited pesticides</li> <li>• Ensure the necessary capacity within</li> </ul>	Positive if actively taking part in the inspection and supervision of imports and exports and market circulation of prohibited pesticides.	<ul style="list-style-type: none"> <li>• Support the project.</li> <li>• Raising awareness of key MOT staff governing importation and use of POPs pesticides.</li> </ul>

Stakeholder	Stakeholder Role/Interest in the Project	Assessment of Impact	Potential Strategies for obtaining support or reducing obstacles to the Project
	competent and relevant authorities for implementation of, and effective collaboration on obligations for the sound management of POP-pesticides.		
9. MOET	<ul style="list-style-type: none"> <li>Responsible for raising awareness and understanding within various target groups on POPs and POPs pesticides and their impacts on human health and the environment, contributing to the sound management of POPs and the reduction of their impacts.</li> <li>The project offers great opportunity for MOET to upgrade environmental education materials relating to POPs and POPs pesticides.</li> </ul>	Positive if actively engaged in raising awareness and understanding within various target groups on POPs pesticides and their impacts on human health and the environment.	<ul style="list-style-type: none"> <li>In full support of the project.</li> <li>Emphasizing the importance of education on POPs pesticides in general environmental education programs.</li> <li>Developing information, education and communication materials for POPs pesticides issues and their implementation.</li> </ul>
10. PPCs/DONREs	<ul style="list-style-type: none"> <li>The PPCs have authority over state management of local environmental protection, and the DONREs are responsible to the PPCs on local environmental and resources protection.</li> <li>Collaborating with MONRE and relevant ministries and sectors in developing and implementing project activities related to their localities, e.g in the emigration of people relating to the contamination caused by POPs pesticides stockpiles</li> </ul>	Positive if they understand the benefits that project will bring to them. Their involvement, as well as linkages with national authorities is central to the success of the project.	<ul style="list-style-type: none"> <li>Support the project</li> <li>DONRE staff is trained in identification, handling and disposal of POPs pesticides.</li> <li>Emphasizing the important role of PPCs and DONREs in the implementation of the project.</li> </ul>
11. NGOs	<ul style="list-style-type: none"> <li>NGOs and professional associations such as the Vietnam Association for Conservation of Nature and Environment, the Vietnam Union of Scientific and Technical Associations, the Chemistry Association, and the Biology Association contribute actively by</li> </ul>	Positive if NGOs and professional associations such as the Vietnam Association for Conservation of Nature and Environment, the Vietnam Union of	<ul style="list-style-type: none"> <li>In full support of the project.</li> <li>Promoting NGOs and professional associations to take active part in the implementation of the project</li> </ul>

Stakeholder	Stakeholder Role/Interest in the Project	Assessment of Impact	Potential Strategies for obtaining support or reducing obstacles to the Project
	<p>commenting on the development of strategies and legal documents on POPs pesticides issues, exchanging experiences and expertise, enhancing international cooperation, disseminating knowledge of environmental protection, and also supporting governmental authorities in supervising POPs pesticides in localities and facilities.</p> <ul style="list-style-type: none"> <li>• Complement the Government's efforts especially in the rural areas</li> <li>• Promote wider public participation and awareness and advocacy</li> </ul>	<p>Scientific and Technical Associations, the Chemistry Association, and the Biology Association can be actively involved in the project implementation.</p>	
12. Private sector	<ul style="list-style-type: none"> <li>• Some private enterprises have indicated an interest in assisting with disposal of POPs pesticides, and they have already been equipped with modern/ hi-tech equipment for safe disposal of POP pesticides (e.g. a cement manufacturers).</li> <li>• Interest in the opportunities the project offers for involvement in the process of treatment/disposal of POPs pesticides by inherent technologies.</li> </ul>	<p>Positive if private enterprises have willingness to take part in the implementation of the project.</p>	<ul style="list-style-type: none"> <li>• Support the project</li> <li>• Encouraging private sector engagement throughout the project implementation.</li> </ul>
13. Community-based organizations	<ul style="list-style-type: none"> <li>• Social Associations such as the Vietnam National Front, the Vietnam Women's Union, the Vietnam Youth Union, and the Vietnam Peasantry Association play active and important roles in promoting the socialization of environmental protection.</li> <li>• They are helpful in ensuring and promoting local level (bottom-up) participation</li> </ul>	<p>Positive if they encourage and facilitate the public to participate in control and the environmentally sound management of POPs pesticides.</p>	<ul style="list-style-type: none"> <li>• In full support of the project.</li> <li>• Training key staff of these organizations in toxicity of POP-pesticides and their reverse impact on human health.</li> <li>• Emphasizing the important role of these organizations in awareness raising of local communities in POPs</li> </ul>

Stakeholder	Stakeholder Role/Interest in the Project	Assessment of Impact	Potential Strategies for obtaining support or reducing obstacles to the Project
14. Relevant Universities and Research Institutions	<ul style="list-style-type: none"> <li>Serving as a technical advisor on environmental issues, technology process, mean and technique to effectively manage POPs pesticides.</li> </ul>	Positive if they have willingness to join in inventory and assessment of POPs pesticides, and to develop technologies for treatment/disposal of POPs pesticides stockpiles.	<p>pesticides.</p> <ul style="list-style-type: none"> <li>In full support of the project.</li> <li>Assessing to research opportunities and enabling conditions for research.</li> <li>Promoting scientists in developing environmentally sound methods according to international standards (avoiding unacceptable emissions levels of dioxins/furans) for destroying existing stockpiles of POPs pesticides.</li> </ul>
15. Farmers (local householders)	<ul style="list-style-type: none"> <li>Involving in Environmental Impact Assessment (EIA) for POPs pesticides treatment technologies.</li> <li>They are beneficiary of results of the project.</li> </ul>	Positive if they understand the reverse impact of POPs pesticides on human health; negative if they refuse to use alternatives of POPs pesticides.	<ul style="list-style-type: none"> <li>Disseminating knowledge of toxicity of POP-pesticides and their adverse impact on human health and appropriate use of pesticides in agricultural activities.</li> <li>Convincing farmers (local householders) to give up the use of POPs pesticides.</li> <li>They support the project as long as they can have access to the alternatives of POPs pesticides.</li> </ul>

*Business-as-usual analysis*

45. Vietnam has been making efforts to deal with POPs pesticides stockpiles for some time. For example, this year MARD has allocated a budget of VND 5.144 billion (\$320,000) to destroy POPs pesticides. Under the newly formed Decision 646 fund to treat chemical hotspots, MONRE spent VND 2.8 billion (\$175,000) in 2006 on POPs pesticides, mostly addressing the treatment of contaminated sites. Even with limited central government support, some of the worst affected provinces have allocated their own scarce budget resources to eliminating stockpiles. For example, provinces allocated a total of VND 994 million (\$62,000) in 2006 for this purpose.
46. Such initiatives have destroyed POPs pesticides by incineration. Two facilities have mainly been used. One is a mobile incinerator of the Ministry of Defense. The incinerator has recently been operating in a military area of Backan province, primarily for military waste destruction. The technology uses a multi-stage incinerator with presence of additives and catalysts, at a cost of approximately \$2,800/tonne. Pesticide incineration, especially of organic chlorinated pesticides causes strong corrosion of equipment and the wall of incinerator. Though the wall of the incinerator is made of 30mm thick inox, each 20 tons of pesticide the incinerator walls have to be replaced. The amount of slag and ash is approximately 0.1 - 0.2 m<sup>3</sup>/ tonne of pesticide. Slag and ash is stabilized by CaO and kept at least three months for monitoring.
47. The other facility used for pesticide destruction has been the incinerators of the Green Environment Company, located in Binh Chanh, HCMC. This incinerator is used for hazardous wastes in general and pesticides in particular. The Green Environment Company undertakes collection, transportation and disposal of pesticides, with costs varying on a case by case basis. Staff of the company in charge of handling pesticides has been trained by local experts. A new incinerator with a solvent distillation unit is being installed in Binh Duong.
48. For both of these facilities, there is evidence that unstable incineration conditions and low temperatures result in emissions of significant quantities of dioxins.
49. In the absence of a GEF project, some POPs pesticides stockpiles would be destroyed, but, there would continue to be short-comings with this situation:
- Destruction procedures would not necessarily meet international standards, both in terms of handling and transportation of the pesticides, but also in terms of the quality of incineration, with poor technology and lax standards resulting in the production of significant quantities of dioxins from an incomplete combustion process
  - Many stockpiles would remain untreated
50. Compounding these problems, the continued movement of illegal pesticides across borders from neighbouring countries, which may include POPs components, will result in an on-going environmental and human health threat. The reasons for such a significant quantity of illegal pesticides being imported include:
- The poverty level of farmers, which makes minimum cost options by far the most desirable. Illegally imported pesticides are significantly cheaper than legal pesticides, creating a strong incentive among poor farmers to buy illegal pesticides
  - Limited success of efforts to promote low-chemical input farming including IPM techniques. Vietnam has a long history of successful projects to promote IPM, yet despite this, high chemical input farming remains the norm throughout much of the country. One reason for this is that despite efforts by some agencies to promote IPM, other agencies are promoting the increased use of pesticides. For example, the GoV recently allocated 100 billion VND for agricultural pesticide production.
  - Low capacity of Customs, police and plant health inspectors to apprehend smugglers and confiscate illegal pesticides. By their nature, pesticides are difficult to inspect. If labels are

missing, only time-consuming chemical testing can reveal the content of pesticides, and even if labels are present, there is no guarantee they are accurate. Other constraints include the lack of storage facilities which results in reduced efforts when stores are full.

- Despite the quantity of legal documents, there are nevertheless key weaknesses in the overall framework. For example, Vietnam does not have a comprehensive code on chemical safety. In some cases, different institutions issue conflicting regulations. For example, definitions, formulations and types of pesticides are specified in the 1993 Decree, but the 1997-import/export tariffs of the Ministry of Finance introduced new and ambiguous definitions for pesticides.
- Enforcement of laws and regulations is weak. For example, a 2000 nationwide survey conducted by the Plant Protection Department found:
  - Approx. 2,400 pesticide retailers operating without a business license (about 23.4 per cent of all inspected retailers)
  - Approx. 5,200 out of 10,250 inspected retailers (50.2 per cent) had no store for pesticides, and in many cases, the stores were failing to follow safety regulations (no fire and explosion extinguishers, no first-aid kits, and pesticides stored with construction materials, food and animal feeds)
  - 4,800 litres and 5,700 kg of illegally imported or counterfeit pesticides.
- A lack of awareness of the potential harmful effects of illegal pesticides containing POPs, compounded by the lack of labels on illegal pesticides, or labels which use non-Vietnamese characters. Surveys have revealed that:
  - 96.6% of farmers use pesticides excessively and not in compliance with the instructions on the labels only 4.8 per cent know how to properly dispose of left-over pesticides
  - Nearly 95% of farmers pour spray remains into canals, ditches or spray on other plants or use it up by continuing to spray
  - 38.1% bury pesticide containers and packing after use, most others discard containers in the fields, into the canals, ditches, ponds or sell to scrap collectors or utilize for other purposes.

51. The key shortcomings which need to be addressed through a GEF-funded project include:

52. **Improvement of systemic capacity.** This includes improvements to the legal and regulatory framework as well as the improvement of awareness among farmers and the general public. Improved coordination among different agencies is also a component of systemic capacity.

53. **Improvement of institutional capacity.** The capacity of key institutions responsible for coordinating action on POPs (MONRE/VEA) and for enforcement of laws and regulations relating to use (MARD) of pesticides is inadequate. This results in inappropriate storage of hazardous chemicals, including POPs pesticides resulting in contamination of storage sites and the surrounding environment.

54. **Improvement of individual and technical capacity.** Many agencies and even communities in Vietnam have attempted to deal with the problem of POPs pesticides, but these efforts have been constrained by a lack of training and limited access to appropriate technologies. Thus, for example, the treatment of stockpiles has frequently included burial, often in sub-standard facilities. Incineration of stockpiles has also not met international standards.

## **PART II : Strategy**

### *Project Rationale and Policy Conformity*

55. This project will eliminate all known stockpiles of POPs pesticides in Vietnam. However, for reasons described above, the destruction of known stockpiles is an incomplete response for two reasons. Firstly, it is clear that there are a potentially large number of additional, as yet unknown stockpiles, meaning that a one-off destruction process will be inadequate in dealing with additional stockpiles as they are discovered. Secondly, there is a major continuing problem of illegal importation of pesticides which may contain substantial amounts of POPs.
56. Consequently, as important as the destruction of known stockpiles, is the need to build capacity both to destroy additional stockpiles as they are discovered, and to eliminate continued importation of illegal POPs pesticides. Capacity to eliminate continued importation is needed on both the demand side, to reduce and ultimately eliminate demand for such pesticides, and on the supply side, to eliminate the source of the pesticides. Supply-side management will require bilateral cooperation with neighbouring states, China, Lao PDR and Cambodia.
57. The GEF's goal in the POPs focal area is to protect human health and the environment by assisting countries to reduce and eliminate production, use and releases of POPs, and consequently contribute generally to capacity development for the sound management of chemicals.
58. For the period of GEF-4, this goal will be met through three Strategic Programmes, including **Strategic Program 1: Strengthening Capacities for NIP Development and Implementation**
59. Under *Objective 1 (b)* of this Strategic Programme (*NIP Implementation*) the GEF will strengthen and/or build the capacity required in eligible countries to implement their Stockholm Convention NIPs in a sustainable, effective and comprehensive manner, while building upon and contributing to strengthening a country's foundational capacities for sound management of chemicals.
60. Projects to be implemented under this program will be largely oriented towards technical assistance and capacity building, as is the case with this project.
61. The project is also consistent with guidance provided in document GEF/C.31/10 in that it has adopted the principle of cost effectiveness in the identification of destruction and treatment technologies. The monitoring framework of the project will also contribute to global tracking of impact through indicators such as:
- Quantity of POPs pesticides destroyed
  - Number of people previously exposed to POPs
62. The project is closely linked to UNDP's Country Programme Action Plan (2006 ó 2010), particularly to several of the outputs under Promotion of environmentally sustainable development.

### *Project Goal, Objective, Outcomes and Outputs/activities*

63. Given the business-as-usual situation, and the priorities for action developed through the NIP preparatory process, the **Objective** of this project is to remove capacity barriers to the sustainable elimination of POPs pesticides in Vietnam. This will contribute to the broader **Goal** of support to sustainable development in Vietnam through the elimination of POPs from the environment.
64. The PDF-B process involved an assessment of the shortcomings in the business-as-usual situation, which indicated the necessary Outcomes and Outputs required to achieve the project Objective. The key Outcome is Outcome 2, **All known stockpiles are destroyed**. However, before this Outcome can be achieved, certain pre-conditions are required, such as training and facility licensing, which will be achieved through Outcome 1, **Improved capacity facilitates**



**elimination of POPs pesticides stockpiles**. This Outcome will also build capacity to ensure that future stockpiles can be safely destroyed and contaminated sites managed to prevent human health problems. Finally, to prevent the future development of new stockpiles, measures to prevent illegal importation of POPs pesticides will be undertaken through Outcome 3, **Improved chemicals management prevents importation and use of POPs pesticides**.

### **Outcome 1. Improved capacity facilitates elimination of POPs pesticides stockpiles**

65. Before POPs pesticides stockpiles are destroyed (Under Outcome 2) improved capacity is required in certain areas, particularly related to the standard of pre-treatment (including re-packaging) and transportation. Only tested and licensed facilities will be considered in the bidding process for destruction of the pesticides (Output 2.5). Facilities in Viet Nam that have been used to destroy POPs in the past include the Holcim Vietnam cement kiln and the GEF/SGP-funded facility at Ben Nuc, Long An province.
66. Whilst all known stockpiles will be destroyed under Outcome 2, given the problems described previously, the present information concerning POPs pesticides stockpiles is indicative, and it is certain that additional sites will be discovered. The necessary capacity to manage and dispose of such newly-discovered stockpiles needs to be developed to ensure sustainability of project results. This will involve the development of improved consultation and monitoring processes as well as mainstreaming both awareness of POPs pesticides issues and actions to detect and destroy stockpiles into the activities of multiple governmental and non-governmental stakeholders.
67. Therefore, the Outputs that will contribute to this Outcome are:

#### Output 1.1. Qualified agencies selected to provide excavation, re-packaging, temporary storage, transportation and sampling/testing services

68. One or more organizations will be selected to undertake the various stages of stockpile destruction, in particular the excavation of buried stockpiles, re-packaging, where necessary, temporary storage and transportation. Given the geography of Vietnam, it is possible that different organizations are selected to cover different parts of the country. The tendering process will follow standard UNDP procedures, with the selection being made by the project Steering Committee on the basis of submitted tenders. The technical specifications for the tenders will be developed during the initial stages of the project in consultation with VEA and FAO. Templates by FAO which have been used in the Afirca Stockpiles Programme and similar projects could be considered at that time as long as they would be tailored for a suitable application in Viet Nam. To the extent possible, submissions under this tendering process will address, inter alia:
- The way the waste will be received at the plant
  - The way it will be handled and stored at the plant
  - The way it will be pre-treated and inserted into the incinerator
  - The level of skill of its workers handling the waste and assurance that when workers are replaced by new workers, they would be trained adequately before handling such waste
  - Information on rate of feed, how long the destruction will take (i.e. for the proposed 1140 tons)
  - The price charged by them to accept the waste
  - A risk-assessment in case of power cuts or other unforeseen circumstances
  - A risk assessment for the surrounding population

In the event that a cement kiln facility is selected as the preferred option, the selected agency and facility will be required to follow the GTZ-Holcim Guidelines on Incineration of Waste Materials in a Cement Kiln, a summary of which is provided in Technical Annex 2. As noted above, the regulatory environment of Viet Nam supports the application of these guidelines, for example, through:

- The Law on Environmental Protection 2005 has a Section with 7 Articles on HW
- Decree 59/2007/ND-CP of the Government on solid waste management has some provisions on solid HW in general

- Decree 81/2006/ND-CP of the Government on the environmental violation punishment stipulates the violation regarding HW
- Circular 12/2006/TT-BTNMT of MONRE on guiding the professional capacity and the permit procedure of HW management has details on HW management, particularly the permit for disposal facilities and requirement on capacity and operation...
- Emission standards contained in TCVN 6560:2005 on Emission of Healthcare waste incinerator; the Standards for HW incinerator emission are under development and will be issued soon

Output 1.2. Staff of government agencies trained in appropriate technologies and application of standards and guidelines.

69. Staff of relevant government agencies will be trained in the technical processes and in particular, in monitoring processes in order to ensure that international standards can be met at every stage of the destruction process. FAO will partner in the provision of training resources for this Output.

Output 1.3. A monitoring plan for disposal of stockpiles.

70. The project will support the development and implementation of a monitoring plan to ensure that during every stage of the destruction process international standards are adhered to. The monitoring plan may include, for example, independent (and possibly international) monitors who will make unannounced visits to sites during the excavation, re-packaging and temporary storage procedures, and will inspect the vehicles used for transportation.

Output 1.4. Testing and licensing of destruction facilities

71. During the PDF-B an analysis was made of options for destruction of existing known stockpiles, including transportation abroad, incineration and non-combustion options. A comprehensive report of this analysis is given in Annex 1. Based on results from a 2003 test burn of obsolete POPs pesticides at the Holcim cement plant in southern Vietnam (see Technical Annex 3), which recorded *the best destruction efficiency ever measured*, and emissions that were between 9 and 30 times cleaner than standards applied in the USA, co-incineration in the Holcim cement kiln was identified as the most appropriate technology. However, as mentioned above, final selection of technology and facility will be based on a tendering process. In the case of buried stockpiles, dispersed pesticides will also be treated in situ using bio-remediation and phyto-remediation techniques.

72. Additional testing needs to be undertaken on DDT to ensure that a suitable facility can be identified that meets emissions standards. Assuming such standards can be met, a license for destruction of POPs pesticides can be issued by the government.

73. A GEF SGP project at Ben Nuc, Long An province, has piloted small scale destruction of obsolete pesticides. This facility may also be used for destruction of most of the above-ground stockpiles, which typically occur in small quantities with a low proportion of POPs. The facility will also be tested to ensure that emissions standards are met.

Output 1.5. MONRE/VEA establishes an effective consultation and coordination mechanism to oversee management of POPs in Vietnam.

74. Because POPs pesticides have historically been used in several sectors ó most obviously the agricultural sector, but also the health and transportation sectors (and by the military) ó a comprehensive assessment and analysis of the status of POPs pesticides is difficult, and therefore effective management of stockpiles and contaminated sites is compromised. This problem was highlighted during the PDF process, when the difficulty of obtaining accurate and comprehensive information was very evident. Project interventions will therefore establish a multi-sectoral consultation and coordination mechanism in order to facilitate the development of a clear, comprehensive and sustainable process to eliminate POPs pesticides. The results of Output 1.4,

particularly the awareness raising campaign for government officials, will also contribute to this Output.

Output 1.6. A regular and systematic monitoring programme covers POPs pesticides inventories.

75. VEA has already implemented an annual chemical survey, the first survey being undertaken in 2006. The initial survey philosophy and methodology did not highlight POPs pesticides as a special issue, and so the results of the 2006 survey conveyed little information of value for POPs pesticides management. Therefore the project will work with VEA to modify and improve the methodology of future annual surveys to ensure that additional information on POPs pesticides is captured effectively. The information gathered through this process will be used in the information management system to be developed under Output 1.7.

Output 1.7. Establishment of a POPs pesticide management information system.

76. Vietnam will implement the FAO web-based information system to manage information gathered from the NIP and PDF inventories and additional information provided through periodical surveys in the future. This Output will be delivered with technical assistance from FAO.

Output 1.8. Specific activities associated with sound management, reduction and elimination of POPs incorporated in development strategies and programmes of key ministries and sectors.

77. In the business-as-usual scenario, treatment of POPs pesticides occurs on an *ad hoc* basis. With project support, key sectors, especially the agriculture, and environment sectors, will develop strategies and programmes integrated into their normal management processes to deal with POPs pesticides. This will allow for a coordinated approach across sectors to ensure that there is neither duplication of effort nor gaps in coverage.

Output 1.9. Communications strategy covering responsibilities of communities and the business sector.

78. MONRE, in cooperation with MOST will develop, in a participatory manner, a communications strategy to be implemented jointly by MONRE and MARD to communicate both the needs and responsibilities for management and destruction of POPs pesticides. This will, in part, build support among stakeholders for the need to destroy POPs pesticides, and educate them on the risks and safeguards associated with the selected technology.

Output 1.10. Awareness of the legal provisions governing importation and use of POPs pesticides among government officials and the general public supports efforts to prevent importation and use.

79. Continued importation of illegal pesticides occurs, in part, because of a low level of awareness among government officials, the general public, and particularly the agricultural community regarding the dangers of pesticides. The project will therefore support targeted awareness-raising campaigns for different stakeholder groups to increase awareness of the risks and alternatives. This activity will be supported by technical input from FAO

Output 1.11. Technical and managerial guidelines are prepared governing treatment of contaminated sites.

80. Given the number of contaminated sites in Vietnam, the challenge of rehabilitating them so as to improve the global environment is immense. Currently, government capacity is constrained due to uncertainties over methodologies and procedures, related to the lack of experience in tackling the issue. The project will formulate an operational plan for cost-effective management and containment of contaminated sites. This activity will be supported by technical input from FAO

Output 1.12: Stakeholder platform is established for preparation for a nation-wide empty container management programme

81. Empty container management programmes are an element of improved farmer awareness and control of illegal pesticides. The project will develop a proposal for the organization of Vietnamese national empty container management programme based on involvement of all stakeholders dealing with pesticides. Training on such a programme will be provided in cooperation with FAO.

## **Outcome 2. All known stockpiles are destroyed and impacts on human health relieved**

With the capacity developed under Outcome 1, all known stockpiles can be destroyed. The selected technology for destruction could be incineration through co-processing in a cement kiln, because Viet Nam has a state-of-the-art facility belonging to Holcim Vietnam, at Hon Chong, Kien Giang Province. A bidding exercise will be conducted at the outset of the implementation phase which will determine the most cost effective destruction facility and service provider meeting the specified technical and legal standards, also ensuring that all technical & environmental specifications would be adhered to. The following additional information (indented and in italics) is given as additional background information on Holcim, as these were the findings from the PDF-B phase of the project. However, these paragraphs should not be seen as pre-empting or encouraging the choice of HOLLCIM as destruction-option, as this will solely be determined during the just-mentioned bidding exercise.

*The Holcim facility produces cement clinker in a new dry suspension preheater rotary cement kiln equipped with a precalciner, a best available techniques plant (IPPC, 2001). The site was tested for emissions from incineration of liquid chlorinated pesticides in 2003 and again in 2004 (see Technical Annex 3). The treatment of solid DDT waste is different from the liquid waste treated in 2003. However, the Fibronil treated in 2003 can very well be compared a POPs as the concentrations of chlorine are 16,2 % and of fluorine 26,06%.*

*The most vital part is the pre-treatment of the material. In this case a 16m<sup>3</sup> steel tank for receiving, blending and feeding of the insecticide mix was built and connected to the light fuel oil pumping system with automatic dosage and switch off/on through the main control system. The tank was equipped with a diaphragm pumping system and was placed in a banded concrete construction for spill recovery. The insecticide mix was pumped from the tank through stainless steel pipes*

*For the destruction of the DDT waste another specific pre-treatment by means of a blending and feeding device will be constructed that ensures that appropriate and equally spread concentration of DDT.*

*The chlorine tolerance of a kiln differs widely due to process constraints, but as rule of thumb, chlorine should usually be limited to 300 to 500 g/t cement clinker for a kiln without by-pass and 400 to 750 g/t for a kiln with by-pass. The concerned cement kiln has a by-pass. For further details, see appended SBC POPs Technology Specification and Data Sheet for Cement Kiln Co-Processing (High Temperature Treatment).*

*The plant produces approximately 4400 tonnes of clinker per day. Pure DDT contains about 50% chlorine, but in our case the DDT has been excavated and is mixed up with other materials and therefore it is expected that concentrations will be less than 1%. The design of the feeding will anyway make sure that not more than 300g Cl/t of clinker is fed to the kiln during the destruction.*

*Requirements as fulfilled during the tests in 2003 will be applied again:*

- *Project supervision and evaluation by third party experts.*
- *Independent stack gas sampling and analysis by an accredited company.*
- *The transport and the handling of the hazardous waste should comply with the hazardous waste management regulation in Vietnam, Decision 155 (1999).*
- *The emission levels should comply with the Vietnamese emission limit values in the standard TCVN 5939-1995 and TCVN 5940-1995 (Decision 155, 1999; Karstensen et al., 2003a).*
- *Power and water supply had been evaluated to be stable and adequate.*

*Additionally the following requirements will be applied:*

- *Holcim/GTZ Guidelines*

- *Holcim has committed itself to comply with newly developed international “certification” Guidelines which set an international benchmark for cement kilns treating hazardous wastes.*

*A number of conditions have already been fulfilled such as:*

- *An environmental impact assessment (EIA) following the Vietnamese requirements had been successfully completed (Decision 155, 1999; HCMC, 2002).*
- *The cement plant has previously been evaluated to be technical and chemical feasible for treatment of hazardous wastes. This evaluation will be repeated.*

*In US, the cement industry treats since 1990 about 25% of all organic hazardous waste. Globally, around 10 Million tonnes of organic hazardous waste are treated by cement kilns.*

*After the successful test in 2003, the plant has been treating more than 15000 tons of hazardous waste and has demonstrated considerable experience for proper treatment of hazardous waste. The details can be seen in the following list:*

Typical waste material	Waste consumed (MT)
Plastic waste	5,000
Footware waste	8,700
Other bulk wastes (rubber waste, yarn waste...)	600
Consumer products (shampoo, tobacco..)	900
Obsolute pesticides	178
Bottom ash from Haz waste incinerator	350
Paint waste	110
Hazardous contaminated rags, packcaging materials	320
Misc Chemical waste	400
Hazardous waste water	300
Used oils	200
Waste water sludge (Hazardous)	500
	15,732

*Cement kilns have proven to be effective means of recovering value from waste materials (Kreft, 1995; Balbo et al., 1998) and co-processing in cement kilns is now an integral component in the spectrum of viable options for treating hazardous and industrial wastes, mainly practiced in developed countries. Alternative fuel and raw materials (AFR) derived from industrial sources such as tyres, waste oil, plastics, solvents and many more are commonly used by the cement industry as substitute fuels, but also hazardous organic wastes have been used as a co-fuel since the early 1970s (Chadbourne and Helmstetter, 1983; Burton, 1989; Hansen et al., 1996). Many tests have investigated the influence on the emissions and the product quality when waste materials are used to replace either fuels or raw materials in clinker production. So far, no adverse impacts have been identified (Lauber, 1982, 1987; Branscome et al., 1985; Garg, 1990; Karstensen, 1994; Chadbourne, 1997; Balbo et al., 1998).*

*Proper preparation and selection of appropriate feed points is however essential for environmentally sound co- processing. This means that alternative raw materials free of organic compounds can be added to the raw meal or raw slurry preparation system while mineral wastes containing significantly quantities of organic components must be introduced via the solid fuels handling system, i.e. directly to the main burner, to the secondary firing or, rarely, to the calcining zone of a long wet or dry kiln (“mid-kiln”). Alternative fuels must be fed to the main burner, to the precalciner, eventually to the kiln inlet, or to the mid-kiln of a long wet kiln. Most importantly is to ensure sufficient temperature, oxygen, retention time, and proper mixing conditions.*

*A stable cement kiln will comply with the US TSCA PCB incineration criteria which require a temperature of 1200 C and 2 s retention time at 3% oxygen (Dempsey and Oppelt, 1993; Federal Register, 1999; Lee et al., 2000) or the EU Directive 2000/76/EU, requiring a temperature of 850 C for at least 2 s for the incineration of non-chlorinated hazardous waste and 1100 C and 2 s retention time for organic substances containing more than 1% halogen at 2% oxygen (Council Directive, 2000). Another important criterion for environmentally sound destruction and irreversible trans- formation is to achieve a sufficient destruction efficiency (DE) or destruction and removal efficiency (DRE) (Basel Convention, 2007). The DRE consider emissions to air only while the more comprehensive DE is also taking into account all other out-streams, i.e. products and liquid and solid residues. A DRE value greater than 99.9999% is required for disposal of POPs in the US (Federal Register, 1999).*

*The importance of a strong and enforced regulatory environment will be dealt with by the technical conditions of the respective tender documents. The bidder has to fulfil these conditions but in the supervision works these conditions will be strictly controlled by the employed supervisory staff and therefore the Holcim/GTZ Guidelines will be adhered to.*

*Additionally Holcim is developing international certification procedures for cement kilns and these procedures will be applied for the test as well as for the whole project. The certification procedures are the most stringent ever been applied for cement kilns and requires cement plants to fulfil the following preconditions/prerequisites:*

- *An approved environmental impact assessment EIA and all necessary national/local licences;*
- *Compliance with all relevant national and local regulations;*
- *Compliance with the Basel and the Stockholm Convention;*
- *Approved location, technical infrastructure and processing equipment;*
- *Reliable and adequate power and water supply;*
- *Adequate air pollution control devices and continuous emission monitoring ensuring compliance with regulation and permits; needs to be verified through regular baseline monitoring;*
- *Exit gas conditioning/cooling and low temperatures (<200<sup>0</sup>C) in the air pollution control device to prevent dioxin formation;*
- *Clear management and organisational structure with unambiguous responsibilities, reporting lines and feedback mechanism;*
- *An error reporting system for employees;*
- *Qualified and skilled employees to manage hazardous wastes and health, safety and environmental issues;*
- *Adequate emergency and safety equipment and procedures, and regular training;*
- *Authorised and licensed collection, transport and handling of hazardous wastes;*
- *Safe and sound receiving, storage, preparation and feeding of hazardous wastes;*
- *Adequate laboratory facilities and equipment for hazardous waste acceptance and feeding control;*
- *Demonstration of hazardous waste destruction performance through test burns;*
- *Adequate record keeping of hazardous wastes and emissions;*
- *Adequate product quality control routines;*
- *An environmental management and continuous improvement system certified according to ISO 14001, EMAS or similar;*
- *Regular independent audits, emission monitoring and reporting;*
- *Regular stakeholder dialogues with local community and authorities, and for responding to comments and complaints;*
- *Open disclosure of performance reports on a regular basis.*

The outputs that will contribute to this Outcome are:

Output 2.1 Buried POPs pesticides are excavated, where needed separated from contaminated soil, and deposited for repackaging

82. The majority of stockpiled pesticides are buried, and will therefore require excavation. For some of the buried stockpiles, the containers are still in good condition, so separation from soil is not required. However, in other cases the containers have deteriorated (or were open when the pesticides were buried), so the pesticides are mixed with soil to varying degrees. In such cases, separation of the pesticides from soil may be required.

Output 2.2. POPs pesticides in degraded containers are re-packaged on-site in preparation for transportation and disposal.

83. For some of the buried stockpiles and above-ground stockpiles containers have degraded to such an extent that re-packaging will be necessary for safe handling and transportation. In the case of buried stockpiles, the re-packaging process is complex because of the need to separate the stock itself from the surrounding medium (soil) and manage them separately. The new containers and

re-packaging process will conform with international standards to ensure effective containment and minimal safety risks.

#### Output 2.3. Stocks are tested for destruction.

84. In the case of buried stockpiles, pure pesticides and soil with high pesticide concentrations will be sent for destruction to the selected disposal facility. Soil with low pesticide concentrations will be treated in situ using bio-remediation and phyto-remediation technologies. While visual inspection can separate these categories to a large degree, there will also be a requirement for testing to determine into which category a substantial amount of the excavate material should be placed. Also, for some above-ground stockpiles testing will be undertaken to ascertain chemical composition of the pesticides and pesticide concentrations in the media of buried stockpiles..

#### Output 2.4. Stocks are transported to the destruction facility (ies)

85. The excavated POPs pesticides will be transported to the selected facility under conditions that meet international standards so as to maintain safety risks at the lowest level possible. In the case of above-ground stockpiles, of which there are a large number, with each one containing only small quantities, given the geography of Vietnam, it may be necessary to transport stocks initially to transit points where they will be consolidated for further transportation to the destruction facility. This means that a combination of road and rail transportation may be required. For both modes of transportation, the same international standards will be applied as for the transportation to the destruction facility.

#### Output 2.5 Stocks are destroyed

86. Once stocks have been re-packaged and transported to the destruction facility, the POPs pesticides will be destroyed. As mentioned before, a bidding exercise will determine at the outset of the implementation phase which technology / facility will be carrying this out.

#### Output 2.6. Related contaminated media will be treated using bio-remedial and phyto-remedial technologies

87. These technologies are adapted from a technology successfully applied at a pilot scale in Danang (100m<sup>3</sup> with 1 m depth in the heavy herbicide/dioxin contaminated site). Active landfill cells use microbial stimulation technology to detoxify DDT. The cap or landfill cell designed following the real DDT contamination level of the location. In the top of these cells direct injection pipe system serves as a net which provides water and water-soluble treated products for microbial growth following to the cycle treatment (at least 6 cycles). Different groups of microorganisms play roles in aerobic or anaerobic toxicant degradation. Based on this category about 2000 m<sup>2</sup> soil with depth ranging from 1.5 to 1.7 m (3000 m<sup>3</sup>) can be treated by this technology.

### **Outcome 3: Improved chemicals management prevents importation and use of POPs pesticides**

88. Outcome 1 and 2 will generate the capacity to manage and destroy newly discovered historical stockpiles, but there is also the risk of new POPs pesticide stockpiles becoming established due to importation and confiscation of illegal pesticides of unknown content. The project will prevent this happening by addressing both the demand and supply sides of illegal pesticide use.

89. There are currently efforts to introduce improved chemicals management to Vietnam. For example, the EU-GTZ project "Sound Chemicals Management for a Healthier Environment in Vietnam" has the overall objective to support local stakeholders in the development and implementation of environmentally sound and sustainable management of chemicals and pesticides in urban and semi-urban areas. Specifically, the project aims to support counterparts in Vietnam in the enhancement of capacities for:

- Improvement of the management of chemicals and pesticides
- Inventory and risk assessment tools

- Environmental monitoring techniques
- Monitoring of environmental pollution
- Safety measures when handling chemicals

90. Consequently the project will partner with GTZ and other partners on this issue so as to establish the individual and technical capacity for prevention of continued cross-border movement of illegal pesticides. GEF funding will be used to address particular issues of POPs pesticides.

91. Outputs that will contribute to this Outcome are:

Output 3.1: National chemicals safety standards

92. Although the legislative framework for chemicals management is well developed, this has not yet been translated into an effective regulatory system. A key element of such a system is the establishment of national chemicals safety standards. The project will work with GTZ and FAO on the establishment of such standards. No GEF funding will be used for activities resulting in this Output.

Output 3.2: Line agency staff trained in management of POPs pesticides.

93. Staff of different line agencies have responsibilities related to importation of pesticides. The project will develop and deliver targeted training courses to build individual capacity within line agencies to deliver their mandates. This will include, for example, training of DONRE and SDPP staff in handling, transportation and disposal of pesticides, training of customs, border police and plant health inspectorate staff in identification, handling and storage of illegal pesticides, training in pollution monitoring, management and safe treatment of hazardous wastes, including POPs and POPs-pesticides, and training of farmers, pesticide suppliers and distributors. Training will also include aspects of IPM and IVM, with linkages built to parallel IPM and IVM initiatives led by FAO.

Output 3.3: A compendium of legal documents on POPs pesticides management for use by Customs and other key agencies involved in management and destruction of POPs pesticides.

94. Another identified weakness of the regulatory environment stems from the lack of a unified chemical safety law, meaning that the legal provisions regarding importation and use of pesticides are viewed by stakeholders such as GDoC as being very complex. The project will produce a compendium, summarizing legal provisions concerning importation and use of pesticides to facilitate the work of Customs and other law enforcement agencies.

Output 3.4: Bilateral task forces between Vietnamese border provinces and their Chinese counterparts

95. As established during the PDF process, by far the most significant issue in eliminating POPs pesticides is the prevention of on-going illegal importation from neighbouring countries. This issue cannot be addressed unilaterally. Therefore bilateral task forces will be established, initially with China, and subsequently, if necessary, with Laos PDR and Cambodia, to eliminate illegal importation of POPs pesticides.

Output 3.5: Facilities for handling and storage of illegal pesticides developed at key border sites

96. Storage facilities will be expanded at high-volume illegal border crossing sites to eliminate the situation where authorities discontinue checking for illegal pesticides when storage is full.

Output 3.6: Capacity to deal with new accumulations of obsolete pesticides



97. Systems will be developed to ensure that any new obsolete pesticides generated through confiscations, damage, age or other reasons will be disposed off in a timely and environmentally sound manner.

*Project Indicators, Risks and Assumptions*

98. Indicators at the level of Objective and Outcomes are provided below. For indicators at the Output level, see Section II, Part II.

**Objective:**

- By the end of the project the inventory of POPs pesticides stockpiled sites in Vietnam contains no sites posing known or potential threats to human health

Justification: Destruction of POPs pesticides from all stockpiles, including those which may be discovered during project implementation, and effective treatment of contaminated sites will result in the elimination of human health hazards

**Outcome 1**

- Within 9 months of the start of project implementation, international standards have been adopted for management of pesticide stockpiles

Justification: The application of international standards will reduce the risks associated with destruction of pesticide stockpiles, including the risk of dioxin production from incomplete incineration.

- From 2008 onwards, government expenditure on destruction of POPs pesticides is at least \$600,000 (until stockpiles destroyed)

Justification: Government funding to an on-going programme to eliminate POPs pesticides is an indicator of commitment and enhanced capacity

**Outcome 2**

- By the middle of 2011, all known stockpiles destroyed

Justification: A direct measure of volume of POPs pesticides destroyed.

**Outcome 3**

- By the end of the project, the volumes of illegal pesticides confiscated are no more than 2 tonnes per month (based on equal level of effort)

Justification: A direct measure of the effectiveness of interventions designed to prevent continued illegal importation of pesticides.

*Assumptions*

99. Key assumptions required to achieve the Outcomes and Objective are:

- External changes do not affect the viability of selected technologies
- Improved capacity addresses the demand-side dynamics for use of POPs pesticides
- Government maintains Decision 64 funding
- Government maintains application of international standards to minimize potential impacts on human health
- Mainstreaming POPs pesticides into improved chemical management eliminates illegal importation

Risk		Risk Mitigation Measure
Existing inventories have significantly under-estimated total stockpiles, and post-project funding is inadequate to eliminate newly-found stockpiles.	M	Both the NIP and PDF-B inventories targeted provinces known to have been the location of large POPs pesticides historically. Government funding for treatment of chemical hotspots has been increasing in recent years
During project implementation,		The project will utilize independent monitors to ensure that international

<b>Risk</b>		<b>Risk Mitigation Measure</b>
standards specified by the project document are not adhered to.	M	standards for handling, re-packaging, transportation and destruction are adhered to
No acceptable bids are received for destruction of the POPs pesticides within Viet Nam, or bids are more expensive than budgeted.	L	Based on previous testing, it is believed that acceptable facilities exist, and that the costs likely to be quoted fall within the budget figures used. In the event that no acceptable facility is found, options for export of the POPs pesticides to a suitable hazardous wastes facility will be explored. In the event that the costs of export exceed the budget for Output 2.5, or acceptable bids quote substantially higher prices, project interventions under Outcome 3 will be down-scaled in order to move financial resources to Outcome 2. In this case, the Government of Vietnam will also be invited to reconsider its co-financing contributions.
Environmental and human health issues associated with transportation and destruction of POPs pesticides	M	Inevitably there are risks associated with excavation, transportation and destruction of POPs pesticides. These risks apply no matter what destruction technology is selected. The call for tenders following international accepted guidelines will minimize this risk, which is considered lower than the risk of future environmental and human health problems if the pesticides are left untreated.
Lack of stakeholder acceptance (local, national) for selected destruction technology	L	The Peoples Committee will handle the permit application officially and involve local experts and local people. They will also appoint stakeholders who must be involved in the entire process, including Central Government official and academia experts. The project will also involve the best international experts available, for technical feasibility approval, technical design criteria, supervision and reporting of the project. Output 1.9 will support a process of stakeholder communication to build support for the destruction of POPs pesticides
Reputational risk to UNDP and the GEF if the project fails	L	Project facilitates the final step on establishing national capacities for hazardous waste destruction according to international standards. This is one of the obligations under the Basle Convention, stating that if a sovereign nation has the capacity to destroy a toxic chemical within their national borders, they are obligated to do so. By the fulfilment of international standards, the project will set new national standards for other existing facilities and create strong incentives for these facilities to achieve the same standards
Novel bio-remediation technologies prove not to be fully effective in eliminating POPs pesticides.	L	Exchange of lessons learned with a team developing similar technologies in India will improve the quality of the novel technologies. The biochemical basis of bio-remediation is not inherently better suited to dioxins than to POPs pesticides
<b>Overall Rating</b>	<b>M</b>	

*Expected global, national and local benefits*

100. Vietnam is almost certainly the country with the greatest numbers and proportion of the population experiencing adverse health effects due to exposure to POPs. Thus the national benefits to Vietnam will be similar to those experienced globally, but more intense due to the location of the POPs pesticides and the historic load of POPs impacts on human health. Furthermore, agriculture employs more than two thirds of Vietnam's labour force and contributes one fourth of the country's GDP and a third of export earnings. The elimination of POPs pesticides will have an impact in terms of increased productivity in the agricultural sector due to reduced health impacts on agricultural workers.
101. This project will eliminate all known stockpiles of POPs pesticides in Vietnam. This will yield global benefits in eliminating at least 1140 tonnes of POPs pesticides. In terms of national and local benefits, the human health benefits will be very significant, as rural communities live in close proximity to all sites, and in some cases, on top of the stockpiles.
102. The project will demonstrate innovative bio-remediation technologies, developed in Vietnam originally for treatment of dioxin sites, but also applicable to DDT stocks and other sites. The project will facilitate south-south technology exchange, initially by promoting exchange of lessons

and experiences with a team in India that has been developing similar technologies. The resulting improved technologies will be widely applicable in other countries facing similar needs for bio-remediation.

*Country Ownership: Country Eligibility and Country Drivenness*

103. Vietnam ratified the Stockholm Convention on 22<sup>nd</sup> July 2002, and is eligible for technical assistance from UNDP.
104. The elimination of stockpiles of POPs pesticides is one of the top priority actions identified in Vietnam's National Implementation Plan (NIP).
105. During the implementation of the NIP, activities were specified related to the need to carry out pollutant analysis, assessment, classification and development of a road map for treatment of the POPs pesticides contaminated areas. Another area that was highlighted was the transfer and promotion of technology for the safe and full disposal of POPs Pesticides.
106. Several priority actions identified in the NIP relate to Outcomes to be secured under this project, including:

**NIP priority 2: Sound management, disposal and phase-out of POPs pesticides stockpiles**

Implementing Agencies: Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment

Collaborating Agencies: Ministry of Trade, General Department of Customs, PPCs

**NIP priority 5: Thorough treatment of PCBs and POPs pesticides contaminated hotspots**

Implementing Agency: Ministry of Natural Resources and Environment

Collaborating Agencies: Relevant Ministries, sectors and localities

107. Other priorities are listed in the NIP related to legislation, capacity building and awareness but these would only apply to this project as far as they are sector-specific for pesticides.
108. UNDP's Country Programme Action Plan (2006 to 2010) is designed to contribute to two of the three outcomes identified in the UNDAF, namely Outcome No. 1 on more equitable, inclusive and sustainable growth, and Outcome No. 3 on governance that effectively supports rights-based development. These are areas where UNDP has demonstrated comparative advantages, has learned useful lessons from past cooperation activities and can make a real difference.
109. Promotion of environmentally sustainable development includes assistance to develop policies that take into account environmental protection and rational use of natural resources. It also helps to ensure that resource allocation, utilization and mobilization decisions involve and are accountable to people and their representatives. Among six CP outputs to be achieved through UNDP assistance are:
  - Capacities and systems for enhanced oversight by national and local legislative bodies on the implementation of the Strategic Orientation on Sustainable Development (SD), National Strategy on Environmental Protection and various other national environmental laws and policies:
    - Strengthening legislation and oversight capacities of the National Assembly and People's Councils in selected provinces for the enforcement of the Law on Environmental Protection (LEP), Biodiversity Law and implementation of the Strategic Orientation for Sustainable Development in Viet Nam, Disaster Mitigation Strategy and other related national strategies which would include raising awareness on SD issues, improving access to environmental information/data, encouraging stakeholder consultations and piloting mechanisms that allow public monitoring of environmental issues;

- Designing and introducing oversight structures for SD at national, provincial and sectoral levels, and building capacities for strategic coordination which would include capacity building for overseeing the implementation of obligations under international environmental conventions.
- Sustainable development and environmental legal frameworks, strategies, policies and long-term plans developed with broad participation of local people and stakeholders and in line with international environmental conventions:
  - Supporting the formulation of strategic priorities, policies and legal instruments that encourage environmental protection and sustainable use of natural resources, support poverty reduction and improve equality, focusing on capacity building to implement the Stockholm Convention on POPs and other relevant conventions;
- Improved and publicly accessible environmental information for monitoring:
  - Improving access to data on SD, and specifically environmental information, for the public generally and officials at various levels particularly, including support to developing a strategy and channels for the dissemination of SD/environment information, publication/dissemination of lessons learned, and developing pilots/models into user-friendly extension materials;
  - Strengthening institutional capacities to monitor and report on environmentally SD indicators and outcomes, including new support to capacity strengthening for monitoring key indicators in selected sectors and provinces, for reporting by key departments and selected national NGOs.

*Coordination with other related initiatives*

110. The project builds on the GEF-supported NIP preparation process and is consistent with NIP priorities 2 and 5, as mentioned above. In this regard it will help Vietnam to meet its obligations under the Stockholm Convention. By promoting environmentally sound use of hazardous chemicals (and taking obsolete pesticides out of use) the project will also contribute to the objectives of the Rotterdam Convention. Activities under Outcome 3 will reduce transboundary movement of hazardous chemical, thus contributing to the objectives of the Basel Convention.
111. The project is part of a portfolio of GEF-funded interventions to address POPs in Vietnam. The portfolio is managed by VEA, even though other government and business sector agencies will be responsible for implementation of different projects. As such, this project will be coordinated with other GEF-funded projects, such that lessons can be shared and overall cost savings of the portfolio secured. These will include the ongoing Global Medical Waste Programme and the pipeline project on Agent Orange, to name just a few.
112. The project will also build links to the GTZ project "Sound Chemicals Management for a Healthier Environment in Vietnam". The project also builds on successful results from an FAO-IPM project implemented since the 1990s and a recent DANIDA-IPM funded project
113. UNDP is working with the Government to initiate a project funded by the Quickstart Programme as it relates to the Strategic Approach for Integrated Chemicals Management (SAICM). This would allow amongst other, a further mainstreaming of the specific GEF programmes within the National Vietnamese policies as they relate to chemical management. The Government is currently considering appointing a SAICM Focal Point, further to which this effort will be further pursued.

## *Sustainability*

114. Vietnam has already passed legislation banning the importation and use of POPs pesticides. Therefore, once existing stockpiles have been eliminated and contaminated sites treated, the global environmental benefits will be sustained, providing illegal importation can be prevented. The Government of Vietnam is fully committed to the elimination of POPs from the environment, as demonstrated by its early ratification of the Stockholm Convention and proactive role in passing the necessary legislation. This project will assist the government in building capacity for, and eliminating barriers that prevent the full implementation of the current legislative and regulatory instruments.
115. Government decision 64/2003/QĐ-TTg of April 22, 2003 seeks to address highly polluted establishments (including more than 4,295 enterprises) that are reported to cause serious environmental pollution problems. From this number 439 sites have been selected for priority action up to the year 2007.
116. Activities and Outputs leading to Outcome 1 will build capacity not only to eliminate all known stockpiles but also to detect, manage and eliminate stockpiles discovered in the future and to manage contaminated sites so as to contain human health risks. Key Outputs include

*Output 1.5. MONRE/VEA establishes an effective consultation and coordination mechanism to oversee management of POPs in Vietnam.*

*Output 1.6. A regular and systematic monitoring programme covers POPs pesticides inventories.*

*Output 1.7. Establishment of a POPs pesticide management information system.*

*Output 1.8. Specific activities associated with sound management, reduction and elimination of POPs incorporated in development strategies and programmes of key ministries and sectors.*

*Output 1.9. Communications strategy covering responsibilities of communities and the business sector.*

*Output 1.10. Awareness of the legal provisions governing importation and use of POPs pesticides among government officials and the general public supports efforts to prevent importation and use.*

*Output 1.11. Technical and managerial guidelines are prepared governing treatment of contaminated sites.*

117. The mainstreaming of POPs pesticides elimination into sound chemicals management will also contribute to sustainability.

## *Replicability*

118. As the project will eliminate all existing stockpiles of POPs pesticides in Vietnam, and associated contaminated sites, replication in Vietnam is not necessary. The efforts from the pilot programme for site-remediation however would be replicated to other sites within the country as it is expected that the benefits of the rehabilitated sites will attract other communities to emulate similar efforts.
119. In addition, lessons learned will be valuable in guiding others countries within the S.E. Asian region as they seek to implement similar measures.

## **PART III : Management Arrangements**

120. The project will be managed by the National Execution modality (NEX), with the following arrangements:
- *Implementing Partner:* As the national focal point for the project, MONRE is accountable to the Government and UNDP for ensuring (a) the substantive quality of the project, (b) the effective use of both national and UNDP resources allocated to it, (c) the availability and

- timeliness of national contributions to support project implementation and (d) the proper coordination among all project stakeholders, particularly national parties.
- For the GEF budget portion granted through UNDP, MONRE will be responsible for financial management and apply the NEX modality for project implementation.
  - For the GEF budget portion granted through FAO, the FAO's direct management modality will be applied, and FAO will be responsible for financial management and reporting as required legally.
- *Other Partner:* To ensure the maximum harmonization during the implementation, FAO is responsible for maintaining full coordination with the National Implementing Partner MONRE and its responsible party, VEA, in project planning, executing, and monitoring and evaluation and reporting. Exceptionally, FAO, as having the status of a GEF executing agency, will financially manage the GEF budget portion allocated to project activities executed by FAO. The FAO will be responsible to dealing directly with GEF on this budget portion. Also, FAO will be responsible for financial management and reporting according to the Vietnam legal requirements for this budget portion.
  - *Responsible Party:* As the day-to-day implementer(s) of project activities, VEA is responsible for mobilizing all national and international inputs to support project implementation, organizing project activities in accordance with the agreed work plan, and reporting to MONRE and UNDP on the progress as well as financial status of the project.
121. UNDP-CO will assist VEA in mobilization of international inputs, upon official request from the NPD.
122. The project implementation structure will be set up as below:
- The Project Executive Board (PEB)
  - The Project Management Unit (PMU)
123. *Project Executive Board (PEB):* The PEB will make all necessary decisions and provide guidance for implementation of project activities, including approval of the overall project work-plan, and budget revisions.
124. The National Steering Committee for Stockholm Convention on POPs (NSC) will provide overall supervision to the implementation of this project. To undertake this responsibility, the NSC will nominate its appropriate members representing MONRE, MARD and MPI to form the PEB together with a representative of UNDP-CO. The NSC member representing MONRE will be the chairperson of the PEB. The PEB will meet every six-months, or more often on an *ad-hoc* basis, if deemed necessary.
125. *National Project Director (NPD):* MONRE will appoint a senior official at directorial level of VEA to be the NPD. The NPD will be responsible to the PEB for overall management and implementation of the project.
126. *Project Management Unit (PMU):* The PMU will be responsible for the overall organization and implementation of all project activities and will be accountable to the NPD. The Project office will be located in the main building of VEA and equipped as needed by the project. The Project Office will consist of following positions:
- Project Manager (PM) (recruited, 48 months, full-time)
  - Project Assistant (PA) (recruited, 48 months, full-time);
  - Project Secretary/ Accountant (recruited, 48 months, full time).
127. **Public Information and Advocacy:** During its lifetime, the project may produce technical reports, education materials/publications, organize workshops and document experience/lessons learnt. UNDP will provide necessary support, upon official request from the NPD.

128. In order to accord proper acknowledgement to GEF and UNDP for providing funding and technical assistance, GEF and UNDP logos should appear on all relevant project publications, including among others, project hardware and vehicles purchased with the project funds. Any citation on publications should also accord proper acknowledgment to GEF and UNDP

129. **Country Office Support:** The UNDP CO will provide services for tendering of packages of activities, procurement of sub-contractors, recruitment of individual consultants, and contracting, upon the formal request of the NPD. UNDP prevailing cost recovery policies will apply to these services.

129a. **Project Financial Management:** The project will be financially managed according to the following arrangement:

- MONRE through the VEA/Project Management Unit will maintain overall accountability for the proper financial management of inputs that are directly managed by MONRE, and inputs delegated to other participating agencies (Responsible Parties ó RPs), as per the UNDP NEX guidelines.
- The VEA/Project Management Unit will be responsible for ensuring that an annual NEX audit of the project is carried out in line with guidance from UNDP/GACA. MONRE will be held accountable to follow up on recommendations by auditors.
- UNDP will be responsible for transferring project funds to a project account specially registered for the project according to NEX guidelines (i.e. current PPMG or future HPPMG for full details). Based on the quarterly work plan MONRE, through Project Management Unit, is responsible for timely transferring project funds to provincial project offices right after the quarterly work plan has been approved
- FAO will be responsible for making availability of the GEF budget portion for project activities executed by FAO in accordance with agreed project annual work plan and quarterly work plan.

#### **PART IV: Monitoring and Evaluation Plan and Budget**

130. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures, Decree 131/2006/ND-CP and Circular 04/2007/TT-BKH of the Government and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Section II, Part II provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

131. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

##### *Project Inception Phase*

132. **A Project Inception Workshop** will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

133. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

134. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF *expanded team* which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit (RCU) staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.
135. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

#### *Monitoring responsibilities and events*

136. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.
137. *Day to day monitoring of implementation progress* will be the responsibility of the Project Manager based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.
138. The Project Manager and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-Montreal Protocol Unit (MPU). Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.
139. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the Logical Framework matrix in Section II, Part II. The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the projects activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.
140. *Periodic monitoring of implementation progress* will be undertaken by the UNDP-CO through quarterly meetings with the Responsible Party, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.
141. The UNDP Country Office and UNDP-MPU as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon scheduled to be detailed in



the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

142. *Annual Monitoring* will occur through the ***Tripartite Review (TPR)***. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.
143. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

#### ***Terminal Tripartite Review (TTR)***

144. The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and RBAP-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation or formulation.
145. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

#### ***Project Monitoring Reporting***

146. The Project Manager in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

#### ***Inception Report (IR)***

147. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Montreal Protocol Unit (MPU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.
148. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In

addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

149. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

### ***Annual Project Report (APR)***

150. The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self -assessment report by project management to the CO and provides input to the country office reporting process, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

151. The format of the APR is flexible but should include the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP, CAE and other expenditure reports (ERP generated)
- Lessons learned
- Clear recommendations for future orientation in addressing key problems in lack of progress

### ***Project Implementation Review (PIR)***

152. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.

153. The individual PIRs are collected, reviewed and analysed by the Regional Technical Advisor of UNDP/GEF prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

154. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

155. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

### ***Quarterly Progress Reports***

156. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team.

### ***Project Terminal Report***

157. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

### ***Independent Evaluation***

158. The project will be subjected to at least two independent external evaluations as follows:-

### ***Mid-term Evaluation***

159. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

### ***Final Evaluation***

160. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

### ***Audit Clause***

161. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

### ***Learning and Knowledge Sharing***

162. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

163. The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics.

164. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned.

165. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

#### **PART V: Legal Context for project implementation of the UNDP funded project**

166. This project document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Socialist Republic of Viet Nam and the United Nations Development Programme signed by the parties on 21 March 1978. The host country executing agency shall, for the purpose of this Agreement, refer to the Government Cooperating Agency described in that Agreement.

167. The UNDP Resident Representative in Viet Nam is authorized to effect in writing the following types of revision to this project document, provided that s/he has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories of the project document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document

168. *National Professional Project Personnel:* The Government agrees to the recruitment of nationally recruited project professional personnel (NPPP) required for the implementation of this project, in accordance with UNDP policies and procedures established within the United Nations system for this purpose. These services constitute an addition to the regular personnel resources to be provided by the Government and will be available for the duration of UNDP participation in the project. The remuneration of NPPP will be determined on a case-by-case basis in accordance with the policies and procedures of UNDP; it should exceed neither the prevailing compensation for comparable functions in the host country nor remuneration levels applicable within the United Nations system.

## **SECTION II: Strategic Results Framework and GEF Increment**

### **PART I : Incremental Cost Analysis**

#### *A. Project Background*

Vietnam has suffered perhaps more than any other country from the effects of POPs. The import and use of all POPs pesticides is now banned in Vietnam. However, stockpiles that accumulated before the bans came into effect still exist. The Government of Vietnam has faced serious constraints in dealing with stockpiles of POPs pesticides, including constraints due to funding, access to appropriate technologies, and coordination among multiple ministries and agencies. Despite these constraints, the government at central and local level has made determined efforts to deal with stockpiles, and where government funding has not been forthcoming, local communities have taken action themselves.

While some stockpiles are housed in sheds or other buildings, in some communities with particularly large stockpiles, the lack of suitable infrastructure resulted in the burial of POPs pesticides stockpiles. An estimated 1032 tonnes of POPs pesticides have been located in five such sites, and again it is certain that there are more such sites in the country. The buried stockpiles are of far greater concern than above-ground stockpiles both because of their size and because there is far less control over storage conditions, resulting in much larger potential and actual human health problems. Also, while the locations of above-ground stockpiles are usually known, records concerning buried stockpiles are incomplete and sometimes missing completely. This results in farmers using the land for gardens and building houses above the buried stockpiles.

While many stockpiles date from before the banning of POPs pesticides in Vietnam, others are active, especially in border regions, where significant quantities of banned pesticides are captured and confiscated every month. For example, in Lang Son province, confiscated illegal pesticides in a Plant Protection Sub-Department storage facility were incinerated in December 2006, yet the 2m x 5m x 2m storage facility was filled again by June 2007. Even though illegal pesticides were known to be crossing the border, no further confiscations can be undertaken until the new stockpile is destroyed since there are no further storage facilities. It is estimated that, for the northern provinces bordering China, 5-7 tonnes of illegal pesticides are confiscated every month, and there are larger quantities which cross the border without being confiscated, either because they evade detection, or because the authorities do not have the capacity to confiscate them.

This project will eliminate all known stockpiles of POPs pesticides in Vietnam. However, the destruction of known stockpiles is an incomplete response for two reasons. Firstly, it is clear that there are a potentially large number of additional, as yet unknown stockpiles, meaning that a one-off destruction process will be inadequate in dealing with additional stockpiles as they are discovered. Secondly, there is a major continuing problem of illegal importation of pesticides which may contain substantial amounts of POPs.

Consequently, as important as the destruction of known stockpiles, is the need to build capacity both to destroy additional stockpiles as they are discovered, and to eliminate continued importation of illegal POPs pesticides. Capacity to eliminate continued importation is needed on both the demand side, to reduce and ultimately eliminate demand for such pesticides, and on the supply side, to eliminate the source of the pesticides. Supply-side management will require bilateral cooperation with neighbouring states, China, Lao PDR and Cambodia.

#### *B. Incremental Cost Assessment*

##### *Business-as-Usual*

In the absence of the project, the following activities would continue.

#### **Outcome 1: Improved capacity facilitates elimination of POPs pesticides stockpiles**

Capacity would remain low, resulting in stockpile destruction and management of contaminated sites at levels well below international standards. This, in turn, would result in greater impacts on human health, with local communities continuing to suffer ill-effects from buried stockpiles, and other communities being at risk due to dioxin emissions from incomplete combustion in incineration facilities.

### **Outcome 2: All known stockpiles are destroyed and impacts on human health relieved**

Above-ground stockpiles would continue to be destroyed, but using unsafe procedures resulting in incomplete combustion in sub-standard incineration facilities. Buried stockpiles would remain largely unmanaged, and deterioration of the original structures over time would increase the risk of future adverse human health impacts.

### **Outcome 3: Improved chemicals management prevents importation and use of POPs pesticides**

Illegal importation of pesticides, potentially including POPs pesticides, would continue, and Plant Protection and Customs officials would be unable to curb such importation effectively due to numerous constraints related to institutional capacity. Demand for cheap pesticides from farmers would remain high, in part due to their ignorance of the potential adverse impacts and risks of using POPs pesticides

#### *Global Environmental Benefits*

Global environmental benefits will result from the destruction of at least 1140 tonnes of POPs pesticides, with additional amounts being destroyed in future years due to the sustained capacity built by the project. Increased capacity to treat contaminated sites will result in the elimination of additional quantities of POPs pesticides from the global environment.

#### *Results Framework*

The proposed Results Framework is summarized in the Logical Framework Matrix in Section II Part II. The three Outcomes will ensure that:

- Systemic capacity is sufficiently developed through the introduction of international standards in destruction of stockpiles and management of contaminated sites, such that stockpiles are destroyed safely and in a timely fashion.
- Institutional capacity will be developed to mainstream the elimination of POPs pesticides into a national chemical safety system, and through empowering Customs and other agencies to prevent future illegal importation of pesticides.
- The individual capacity of staff in line agencies and other stakeholders will be improved through training and awareness raising so as to sustain government commitment to the elimination of obsolete pesticides and to safe chemicals management.
- The knowledge base is improved to the extent that the best available technologies and practices in destruction of obsolete pesticides and management of contaminated sites reduces future adverse impacts on human health.

#### *Incremental Reasoning*

In the absence of a GEF project, some POPs pesticides stockpiles would be destroyed, but, there would continue to be short-comings with this situation:

- Destruction procedures would not necessarily meet international standards, both in terms of handling and transportation of the pesticides, but also in terms of the quality of incineration, with poor technology and lax standards resulting in the production of significant quantities of dioxins from an incomplete combustion process
- Many stockpiles would remain untreated

Compounding these problems, the continued movement of illegal pesticides across borders from neighboring countries, which may include POPs components, will result in an on-going environmental and human health threat. With GEF funding, 1140 tonnes of POPs pesticides will be destroyed and the capacity established to destroy further stockpiles, treat contaminated sites, and prevent importation of illegal pesticides which may contain POPs

#### *Co-financing*

Co-financing will predominantly come from the Government of Vietnam, which is committed to providing \$2,170,109 in cash and \$4,220,000 in in-kind contributions over the course of the project. This is related to the government's commitment to contribute 1% of GDP to environmental protection and remediation. These substantial amounts of funding are mobilized through specific programmes and through the Vietnam Environment Fund. It should also be noted that private companies in Vietnam have invested many million USD in hazardous waste treatment facilities

Additional amounts of co-financing will be provided by UNDP and by FAO through support to training on international standards for pesticide management and destruction.

**PART II : Logical Framework Analysis**

RESULT	INDICATOR	BASELINE VALUE	TARGET	MEANS OF VERIFICATION	RISKS AND ASSUMPTION
<b>Goal</b>	To support sustainable development in Vietnam through the elimination of POPs from the environment.				
<b>Objective:</b> To remove capacity barriers to the sustainable elimination of POPs pesticides in Vietnam	Number of sites posing threat to human health	At least 6 sites with known or potential adverse human health impacts	By the end of the project the inventory of POPs pesticides sites in Vietnam contains no sites posing known or potential threats to human health	Project reports, field surveys	External changes do not affect the viability of selected technologies
<b>Outcome 1. Improved capacity facilitates elimination of POPs pesticides stockpiles</b>	International standards met in management of pesticide stockpiles  Government budget allocations adequate to destroy stockpiles and manage contaminated sites	Management and destruction of POPs pesticides follows no set standards  Government expenditure (2006) \$382,000; resulting in few stockpiles destroyed	Within 12 months of the start of project implementation, international standards have been adopted for management of pesticide stockpiles  From 2008 onwards, government expenditure on destruction of POPs pesticides is at least \$600,000 (until stockpiles destroyed)	Project reports; government policy papers  Project reports, government budgetary figures (MONRE)	Improved capacity addresses the demand-side dynamics for use of POPs pesticides  Government maintains Decision 64 funding
Output 1.1. Qualified agencies selected to provide excavation, re-packaging, temporary storage, transportation and sampling/testing services	Existence of qualified agency	No qualified agency	Within 6 months of the start of project implementation a qualified agency has been identified and selected	Project reports	There are agencies in Vietnam able to meet international standards
Output 1.2. Staff of government agencies trained in appropriate technologies and application of standards and guidelines.	Number of staff completing training courses	No staff trained	Within 12 months of the start of project, at least 20 staff of government agencies trained in international standards for handling and destruction of POPs pesticides	Training reports	Training by FAO can be mobilized in a timely fashion
Output 1.3. A monitoring plan for disposal of stockpiles.	Existence of a monitoring plan	No plan exists	Within 12 months of the start of project implementation a participatory monitoring plan to ensure application of international standards has been developed	Project reports and monitoring plan	Government is will to accept participatory and transparent monitoring system



Output 1.4. Testing and licensing of destruction facilities	Existence of license	No facility licensed	Within 9 months of the start of project implementation the selected destruction method (facility or other) has been determined to destroy POPs pesticides	Project report, license document	A facility or other destruction option can be selected that is able to meet licensing requirements
Output 1.5. MONRE/VEA establishes an effective consultation and coordination mechanism to oversee management of POPs in Vietnam.	Existence of consultation mechanism	Consultation on POPs pesticides is <i>ad hoc</i>	Within 9 months of the start of project implementation a formal inter-ministerial, multi-stakeholder consultation mechanism has been established and functions on a regular basis	Government reports; reports generated through the consultation mechanism	Commitment among all government agencies remains high; agencies are willing to cooperate
Output 1.6. A regular and systematic monitoring programme covers POPs pesticides inventories.	Adaptation of MONRE's chemicals monitoring system to incorporate POPs pesticides	Inventories are <i>ad hoc</i> and irregular	Within 12 months of the start of project MONRE procedures for annual chemical surveys have been adapted to explicitly record presence of POPs pesticides	MONRE chemical survey guidelines	MONRE commitment to annual chemical inventories continues
Output 1.7. Establishment of a POPs pesticide management information system.	FAO's management information system adopted for use in Vietnam	No management information system available	Within 12 months of the start of project FAO's management information system is adopted for use in Vietnam	MONRE reports and procedures	
Output 1.8. Specific activities associated with sound management, reduction and elimination of POPs incorporated in development strategies and programmes of key ministries and sectors.	Sectoral and ministerial plans addressing POPs pesticides	No sectoral or ministerial plans address POPs pesticides	By the end of 2010, at least 3 sectoral and ministerial plans address the need to eliminate POPs pesticides; by the end of the project this number is 5	Project reports; ministerial plans and strategy documents	Commitment among all government agencies remains high; agencies are willing to cooperate
Output 1.9. Communications strategy covering responsibilities of communities and the business sector.	Existence of communications strategy	No communications strategy exists	By the middle of 2011 a communications strategy covering responsibilities of communities and the business sector has been developed and implemented	Project reports; MONRE reports	Communications strategy is successful in building stakeholder support
Output 1.10. Awareness of the legal provisions governing importation and use of POPs pesticides among government officials and the general public	Survey assessment of level of awareness	To be established	By the end of the project the level of awareness among government officials and the general public has increased by 50% of the baseline value	Survey	Raised awareness translates into sustained commitment to eliminate POPs pesticides

supports efforts to prevent importation and use.					
Output 1.11. Technical and managerial guidelines are prepared governing treatment of contaminated sites.	Existence of guidelines	No guidelines exist	By the end of 2010 guidelines have been prepared, endorsed by the government and disseminated to all line agencies	Project reports, government reports, surveys	Guidelines are consistently applied
Output 1.12: Stakeholder commitment for a nation-wide empty container management programme	Detailed plans for empty container programme	No plans exist	By the end of the project a detailed, costed plan with firm milestones has been prepared for implementation of a nation-wide empty container programme	Project reports, empty container plan	Government commitment to implementation of empty container programme remains high
Outcome 2. All known stockpiles are destroyed and impacts on human health relieved	All known stockpiles, consisting of at least 1140 tonnes of POPs pesticides, eliminated	Stockpiles slowly destroyed, but not applying international standards	By the middle of 2011, all known stockpiles destroyed	Destruction certificates	Government maintains application of international standards to minimize potential impacts on human health
Output 2.1 Buried POPs pesticides are excavated, where needed separated from contaminated soil and deposited for repackaging					
Output 2.2. POPs pesticides in degraded containers are re-packaged on-site in preparation for transportation and disposal.	Volume re-packaged	No re-packaging	Within 9 months after licensing of the destruction facility, all pesticides requiring re-packaging have been re-packaged	Project reports; reports of monitoring plan (Output 1.3)	Monitoring plan is effective in ensuring international standards are maintained
Output 2.3. Stocks are tested for destruction.	Completion of tests	No tests	Within 12 months of the start of project implementation tests have been completed at the selected destruction facility	Project reports of tests	Tests reveal anticipated levels of POPs pesticides
Output 2.4. Stocks are transported to the destruction facility (ies)	Speed of delivery to destruction facility	No delivery	For all stockpiles, materials for destruction are delivered to the destruction facility within one month of completion of excavation and re-packaging	Project reports	Monitoring plan is effective in ensuring international standards are maintained
Output 2.5 Stocks are destroyed	Speed of destruction	No destruction applying international standards	For all materials, incineration occurs within 30 days of delivery to the destruction facility	destruction certificates	Monitoring plan is effective in ensuring international standards are maintained

Output 2.6. Related contaminated media will be treated using bio-remedial and phyto-remedial technologies	Initiation of remedial measures	No remediation	By the middle of 2010 remediation treatments have been initiated at all sites requiring remediation	Project reports; site visits	Local communities accept remediation technologies
<b>Outcome 3: Improved chemicals management prevents importation and use of POPs pesticides</b>	Volumes of pesticides illegally imported	At least 10 tonnes per month	By the end of the project, the volumes of illegal pesticides confiscated are no more than 2 tonnes per month (based on equal level of effort)	Project reports, surveys	Mainstreaming POPs pesticides into improved chemical management eliminates illegal importation
Output 3.1: National chemicals safety standards	Adoption of national chemical safety standards	No national chemical safety standards	By the end of 2010 national chemical safety standards have been adopted and staff of all line agencies trained in their application and enforcement	MONRE and other government reports	Safety standards are effectively implemented and cover importation of POPs pesticides
Output 3.2: Line agency staff trained in management of POPs pesticides.	Completion of training courses	No training in management of POPs pesticides	By the middle of 2011 staff of all line agencies trained in management of POPs pesticides	MONRE and other government reports, training reports	Staff are subsequently encouraged by management to apply skills learnt through training
Output 3.3: A compendium of legal documents on POPs pesticides management for use by Customs and other key agencies involved in management and destruction of POPs pesticides.	Dissemination of compendium	No compendium exists	By the end of 2010 a compendium of legal documents on POPs pesticides management has been disseminated to all Customs offices	Survey of Customs offices	Customs staff and staff from other agencies utilize compendium to improve scrutiny of imported chemicals
Output 3.4: Bilateral task forces between Vietnamese border provinces and their Chinese counterparts	Task forces functioning	No task forces exist	By the end of 2010 bilateral task forces with Chinese authorities have taken specific steps to reduce illegal importation of pesticides	Government reports; government statistics on illegal pesticide seizures; interviews with Vietnamese Customs personnel	Cooperation from Chinese officials is effective in addressing supply-side dynamics of illegally imported pesticides
Output 3.5: Facilities for handling and storage of illegal pesticides developed at key border sites	Volume of storage facilities at selected sites	Storage at Lang Son limited to 20m <sup>3</sup>	By the middle of 2011, storage facilities of at least 50 m <sup>3</sup> built at five or more key sites	Ground survey; project reports	Facilities remain committed for storage of confiscated pesticides and other hazardous chemicals

