

## PROJECT BRIEF

### IDENTIFIERS

<b>Project Number:</b>	<b>GEF ID 2546</b>
<b>Project Name:</b>	<i>Demonstration of Sustainable Alternatives to DDT and Strengthening of National Vector Control Capabilities in Middle East and North Africa</i>
<b>Duration:</b>	<b>5 years</b>
<b>Implementing Agency:</b>	<b>United Nations Environment Programme</b>
<b>Executing Agency:</b>	<b>World Health Organization</b>
<b>Requesting Countries:</b>	<i>Djibouti, Egypt, Islamic Republic of Iran, Jordan, Morocco, Sudan, Syrian Arab Republic and Republic of Yemen</i>
<b>Eligibility:</b>	<b>All the requesting countries have ratified the Stockholm Convention</b>
<b>GEF Focal Area:</b>	<b>Persistent Organic Pollutants</b>
<b>GEF Programming Framework:</b>	<b>Operational Programme 14 on Persistent Organic Pollutants (POPs)</b>
<b>GEF Strategic Priorities:</b>	<b>POP-4: Promote partnering in demonstration of innovative technologies and practices for POPs reduction</b>

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### SUMMARY

Countries of the Middle East and North Africa share a huge proportion of the global burden of vector-borne diseases. These diseases usually occur in the form of epidemics and a rapid public health response normally implies the use of insecticides. More intense transmission is found in those countries in the Region with least resources for vector control, making a return to DDT for routine in-door spraying – perceived as a very cheap intervention and an attractive option. In order to reduce the burden of vector-borne diseases without relying on DDT, and with a reduced reliance on other insecticides, countries have begun to introduce alternative products, methods and

strategies. These experiences tend to be *ad hoc*, unstructured and not integrated with other measures. Generally, the evidence base for the applicability, sustainability and cost-effectiveness of alternatives remains weak. This, together with the traditionally vertical structure and management practices of vector control programmes, limits the countries in the Region to design and implement effectively the application of combinations of alternatives that are best suited to local environmental, epidemiological and socio-economic settings. The lack of national capacity to support a transition to an integrated vector management (IVM) strategy, to analyse alternatives for their viability, to consider the use of well-tested alternatives within national public health policy, and to ensure the sound management of pesticides all hamper the sustainable reduction of reliance on DDT. This lack of capacity was also documented in the national vector control needs assessment (VCNA) reports during the PDF-B phase. Building on the existing efforts of the countries, supported by WHO and other international organizations, the project therefore aims to: (i) demonstrate viability, availability, sustainability and cost-effectiveness of the vector control alternatives to DDT, based on principles of IVM; (ii) strengthen national capacities for the planning, implementation and evaluation of the application of alternatives to DDT based on the principles of integrated vector management; (iii) to collect, repackage and dispose stockpiles of obsolete POPs; and (iv) disseminate good practices, demonstrated alternatives and lessons learned in the participating countries. The project will also share the demonstration project results with the countries in other WHO Regions. The project will benefit the local population with reduced vector-borne disease transmission levels and, consequently, with increased agricultural productivity and tourism. The project is consistent with the goals of the Stockholm Convention and will contribute to the GEF POPs target of reducing the stress caused by global POPs emissions and the development of sustainable alternatives to DDT. It will demonstrate the viability of new methods and technologies within the IVM context. The alternatives to be considered will mostly be non-chemical based and will include the following:

- biological control;
- environmental management (including water sanitation and irrigation management);
- insecticide treated nets; and
- combination of the above with supportive insecticide use.

The project will also contribute to the identification and safeguarding of POPs-containing pesticide wastes (mainly DDT) from the health and agricultural sector which are reportedly sometimes as the source of illegal POPs supplies for both public health and the agriculture sectors.

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<b>GEF:</b>	Project:	4,913,114
	PDF A	0

PDF-B:	650,000
SUB TOTAL GEF	5,563,114

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**CO-FINANCING:**

DJIBOUTI	1,038,912
JORDAN	631,892
MOROCCO	870,642
SUDAN	703,142
YEMEN	2,170,141
SYRIA (ARAB REPUBLIC)	685,141
EGYPT (REPUBLIC OF)	435,141
IRAN (ISLAMIC REPUBLIC OF)	675,891
Government co-funding in kind and cash:	7,210,902
World Health Organization:	1,205,500
SUB TOTAL CO-FINANCING:	8,416,402

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TOTAL PROJECT COSTS:	<b>13,979,516</b>
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OPERATIONAL FOCAL POINTS ENDORSEMENTS

COUNTRY	OPERATIONAL FOCAL POINT NAME	POSITION	DATE OF ENDORSEMENT
Djibouti	WAISS, Aboukaber Douale	Secretary General Ministry of Home, Urbanism, Environment and Land Planning	3 February 2007
Egypt	KHALIL, M.S.	Chief Executive Officer Egyptian Environmental Affairs Agency (EEAA) Ministry of State for Environmental Affairs	22 February 2007
Islamic Republic of Iran	ALHABIB, Eshagh	Director General for International Economic Affairs and Specialized Agencies Ministry of Foreign Affairs	26 February 2007
Jordan	AL-KHARABSHEH, Saleh	Director, Projects Department Ministry of Planning and International Cooperation	23 March 2007
Morocco	BALAFREJ, Taha	Directeur du Partenariat Ministere de l'Amenagement du Territoire, de l'Eau et de l'Environnement	7 March 2007
Sudan	IZZELDIN, Saadeldin	Secretary General, Higher Council for Environment and Natural Resources (HCENR)	3 March 2007
Syrian Arab Republic	HASSOUN, Imad	Deputy Minister Ministry of Local Administration and Environment	12 March 2007
Republic of Yemen	SHIDIWAH, Mahmoud M.	Chairman Environment Protection Authority (EPA)	10 March 2007

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## ACRONYMS/ABBREVIATIONS

ASP	Africa Stockpiles Program
COMBI	Communication for Behavioural Impact
DDT	3-5 Dichloro Diphenyl Trichloroethane, a POPs pesticide mentioned in Annex B of the Stockholm Convention
EMRO	Eastern Mediterranean Regional Office of the WHO
ExA	Executing Agency
FAO	Food and Agricultural Organization of the United Nations
GEF	Global Environmental Facility
GEFSEC	the Secretariat of the Global Environment Facility
GFATM	Global Fund for Aids, Tuberculosis and Malaria
HIA	Health Impact Assessment
IA	Implementing Agency
IRS	Indoor residual spraying
ITNs	Insecticide Treated Nets
IVM	Integrated Vector Management
LLINs	Long Lasting Insecticidal Nets
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
NIP	National Implementation Plan for the Stockholm Convention
NSC	National Steering Committee
OP	Operational Program
PEEM	Panel of Experts on Environmental Management
PDF	Project Development Facility
POPs	Persistent Organic Pollutants
PPG	Project Preparation Grant
STAC	(Regional) Scientific and Technical Advisory Committee
TOR	Terms of Reference
UNEP	United Nations Environment Program
UNIDO	United Nations Industrial Development Organization
VBDs	Vector-borne Diseases
VCNA	Vector Control Needs Assessment
WHO	World Health Organization

## LIST OF ANNEXES

Annex A:	Incremental Costs Analysis of the Project
Annex B:	Logical Framework Matrix
Annex C:	Project reviews and responses
Annex D:	Letters of Endorsement from GEF Operational Focal Points
Annex F:	Vector Control Needs Assessment Process

- Annex G: Project Activities and Costs to the GEF
- Annex J: Summaries of proposals of participating countries
- Annex K: Project Monitoring and Evaluation Plan
- Annex L: Work-plan and Timetable
- Annex M: Epidemiology of vector-borne diseases in the Region
- Annex N: Cost-effectiveness analysis in the project context
- Annex O: Terms of Reference of the Scientific and Technical Advisory Committee (STAC)

## TABLE OF CONTENTS

<b>SUMMARY .....</b>	<b>i</b>
<b>ACRONYMS/ABBREVIATIONS .....</b>	<b>ii</b>
<b>LIST OF ANNEXES.....</b>	<b>ii</b>
BACKGROUND AND CONTEXT (BASELINE COURSE OF ACTION).....	2
Vector-borne diseases and the potential to revert to DDT use .....	2
Potential to revert to the use of DDT in the Region .....	4
Experience in the use of DDT alternatives for the prevention and control of vector-borne diseases in the Region.....	5
Integrated Vector Management.....	7
GEF Programming Context .....	8
UNEP Programming Context.....	9
Executing Agency Context.....	11
LINKAGE WITH OTHER GEF AND NON GEF PROJECTS .....	12
DDT/ GEF Projects in Mexico and Central America and in Africa .....	12
Africa Stockpiles Programme .....	12
WHO/FAO collaboration on pesticide management and disposal of obsolete pesticides ..	13
PROJECT DEVELOPMENT PROCESS.....	13
RATIONAL AND OBJECTIVES.....	14
PROJECT COMPONENTS AND EXPECTED RESULTS .....	17
Outcome Component 1: Viability, availability, sustainability and cost effectiveness of alternatives to the use of DDT demonstrated.....	17
Outcome Component 2: Capacity built in each country to plan, implement and evaluate the application of alternatives based on the principles of IVM.....	21
Outcome Component 3: Collection, repackaging and disposal of POPs pesticides used in public health and agriculture completed.....	25
Outcome Component 4: Information on good practices and demonstrated cost-effective and sustainable alternatives are taken up by national institutions and in planning processes .....	26
Outcome Component 5: Transboundary coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting Integrated Vector Management without the use of DDT .....	27
RISKS AND SUSTAINABILITY.....	28
Risks .....	28
Sustainability.....	30
REPLICABILITY.....	31
INCREMENTALITY .....	33
Incremental Cost and Project Financing .....	37
Monitoring, Evaluation and Dissemination .....	44

## BACKGROUND AND CONTEXT (BASELINE COURSE OF ACTION)

### Vector-borne diseases and the potential to revert to DDT use

1. Vector-borne diseases (VBDs) are a significant source of morbidity and mortality in the countries of the Middle East and North Africa, which make up part of the WHO Eastern Mediterranean Region (EMR). Countries in this Region suffer a disproportionate share of the global burden of vector-borne diseases (Annex M). While less than 8% of the world's population lives in this Region, it accounts for almost 11% of the global burden of VBDs. Approximately 17% of the burden of all infectious diseases can be attributed to VBDs. The VBDs that occur in the EMR include malaria, leishmaniasis, lymphatic filariasis, African trypanosomiasis, onchocerciasis and several insect-borne viruses, notably Rift Valley fever, Crimean-Congo haemorrhagic fever, dengue, yellow fever, Chikungunya and West Nile fever. Insects (houseflies) also play a role in the epidemiology of other diseases with a high regional burden, such as diarrhea and trachoma. The dynamics of vector populations, the level of transmission risks and the disease incidence fluctuate geographically and seasonally and is likely to be influenced by predicted climate changes in the near future.

The baseline costs are the costs for related activities but without GEF support. These amounts were difficult to estimate for each individual project country despite the fact that countries should have these budgetary details available based on their national budget. However, in practice these figures are not easy or even impossible to obtain due to the fact that there are currently no specific vector control units in each country. As such, related budgets are spread over various sectors and institutions within each of the governments.

The provided baseline figures are a result of careful estimating the baseline costs on the basis of how much resources are currently used for vector control in relation to the relevant specific project activity. The difficulty in obtaining this baseline was made worse especially where vector control activities for different vector-borne diseases were undertaken by different disease control units and sometimes by different ministries, as mentioned above.

The participating countries provided estimates for current vector control related activities, as was mentioned in the individual country proposals (see annex J).

Although a general baseline of relevant indicators is provided in this document, the exact baseline for vector borne diseases and other relevant indicators will be established during the first year of implementation and they will form a basis for future monitoring and evaluation of project impacts.

2. Many countries in the Region have successfully reduced or even eliminated malaria during the WHO Global Malaria Eradication Campaign of the 1950s and 1960s. This campaign was based on the indoor residual spraying (IRS) with DDT. The regional diversity of vector species, each with their own ecological requirements, gave IRS a high



comparative advantage over other methods of intervention, i.e. environmental management, biological control or chemical larviciding, as it achieves transmission interruption anywhere where *Anopheles* mosquitoes bite humans and rest in-doors. In a number of areas, malaria endemicity persists until today - they tend to be countries that lack the resources to deliver an adequate control programme; remote areas where the demanding logistics of vector control campaigns become the limiting factor; areas where levels of transmission are so intense that it cannot be sustainably interrupted; areas where the managerial capacity for vector control campaigns does not exist; or areas where conflict and civil strife have led to a breakdown of services or a resurgence of disease transmission.

3. Like elsewhere, the EMR has faced its share of problems with the use of residual insecticides: DDT and, whenever resistance would develop in vectors, other organochlorine or organophosphate insecticides. Unsafe storage of DDT stockpiles, whether obsolete or not, continues to be a threat to human health and the environment. There have been reciprocally adverse effects between pesticide use in agriculture and for public health: indiscriminate use of pesticides in agriculture often has accelerated resistance induction in disease vectors, while the flow of DDT from the health sector to the agriculture sector (illegal in all countries with a ban on DDT use for plant protection) has been difficult to stem. Managerial and operational structures in support of nation-wide IRS campaigns have been hard to dismantle in the wake of elimination of malaria as a public health problem.

It should be noted that an exact baseline scenario of current DDT use and potential DDT use in future could not be established.

However, **several of the project countries have reported illegal or 'non-documented' use of DDT<sup>1</sup>**, sometimes -illegal- use of stockpiled DDT was reported. Morocco is reporting a yearly use of about 500 kg DDT per year for malaria control (NIP Morocco, May 2006). No data are available about the use of DDT in the other countries during outbreaks of vector borne diseases. Fact is that several countries reported about DDT use in the recent past as regular pest control measure and based on these data one can estimate that only a country like Morocco needs about 75-100 ton DDT on a yearly basis.

4. Currently, countries most affected by malaria are Sudan, Yemen and Islamic Republic of Iran. In Djibouti, the transmission of malaria has resurged after an absence, underscoring the risk of similar resurgences in other parts of the Region in the absence of surveillance, monitoring and control capacities - including the appropriate infrastructure.

5. The other VBDs occurring in the Region have benefited from the previous structured anti-malaria campaigns. There have never been similar campaigns aimed at

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<sup>1</sup> Djibouti, Egypt

any of the other VBDs, however, and their resurgence (particularly of leishmaniasis) has been observed in the wake of winding down IRS for malaria vector control. The current burden and potential threat of leishmaniasis and lymphatic filariasis must not be underestimated. Moreover, new arboviral diseases transmitted by vectors are introduced into the Region and are spreading rapidly: dengue, West Nile virus, Rift Valley fever, Chikungunya and Crimean-Congo haemorrhagic fever have all made inroads into the Region.

6. The main vector control measures in the countries of the Region continue to be indoor residual house spraying, space-spraying, larval control using insecticides, environmental management, and the use of larvivorous fish. Indoor residual spraying, in many cases, is the intervention of choice and DDT continues to be perceived as the most cost-effective option to apply in such campaigns. More recently, a regional strategy for the use of Insecticide-Treated Nets (ITNs) and Long Lasting Insecticidal nets (LLINs) is promoted for vector-borne disease control.

### **Potential to revert to the use of DDT in the Region**

7. The Stockholm Convention on Persistent Organic Pollutants (POPs) restricts countries that are parties to the Convention, to limit the production and use of DDT for disease vector control purposes only when no other viable and affordable alternatives are available. The viability of a successful transition to the use of such alternatives depends largely on epidemiological, ecological and socio-economic determinants, and on fundamental changes in the management infrastructure of control programmes. Currently all participating countries have ratified the Convention and therefore they are party to the Convention.

8. While most countries in the Region have stopped using DDT on a routine basis, several maintain stocks for use during outbreaks of VBDs. As of 1998, Morocco and Sudan formally reported the use of DDT for vector control; there is, however, anecdotal evidence that DDT is still being used to varying degrees in other countries as well. Whereas Morocco, the Sultanate of Oman, Saudi Arabia, Sudan and Republic of Yemen requested an exemption for DDT use under the Stockholm Convention, this is no longer required as its use for vector control is considered acceptable. Amount of DDT use and stockpiles is attached in Annex J for each participating country.

In case all participating countries decide to revert to the use of DDT, and based on the very limited figures from several countries concerning DDT use in the past as regular vector control measure, it is estimated that this will result in **an annual DDT use of at least 300 ton/year in malaria vector control only.**

It must be further noted that **none** of the project countries have an institutional framework in place allowing Integrated Vector Management as proposed in this project:

In case of vector borne disease outbreaks consequently the countries will revert back to the old habit of applying DDT.

9. There is evidence that a growing number of countries in the Region seriously consider reverting to DDT use. For example, in 2003, three of them communicated to WHO their intention to re-introduce DDT for vector control (Republic of Yemen, Libya and Tunisia), raising as arguments economic factors and the inability to support the sustained use of currently available alternatives. In particular, governments faced with increasing mortality and morbidity rates from vector-borne diseases are under pressure to revert to DDT. This is likely to set a regional trend and other countries will follow suit when they too perceive the need to revert to DDT as is the case for a number of African countries in WHO/AFRO.

10. Furthermore, many countries in the Region have DDT stocks and/or stocks of other public health pesticides, requiring urgent action, both in terms of ongoing management of these stocks, and their ultimate utilization or elimination. The WHO DDT Action Plan (1999) recommends combined efforts for the elimination of obsolete public health and agricultural pesticide stockpiles through interagency collaboration between WHO and FAO. For DDT stocks that have been independently verified and confirmed as still usable, shipment for use by countries that have decided to apply DDT for disease vector control was recommended as the first option, whenever feasible.

11. The development and testing of viable and cost-effective alternatives to DDT calls for urgent international assistance. Strategically pre-empting the re-introduction of DDT by strengthening national capacities for integrated vector management (IVM) and the sound management of pesticides is a key approach. This will guide vector control managers towards considering and implementing locally viable and environmentally sound alternative interventions, thus reducing the need for reliance on DDT in routine and emergency situations and promoting the judicious use of other pesticides.

### **Experience in the use of DDT alternatives for the prevention and control of vector-borne diseases in the Region**

12. The use of Insecticide Treated Nets (ITNs) or Long Lasting Insecticidal Nets (LLINs) is promoted in a number of countries because of its potential as a community protection intervention, its proven effectiveness in personal protection of members of vulnerable groups and its environmental safety. Moreover, ITNs/LLINs require small quantities of insecticides (pyrethroids). Some countries (Djibouti, Saudi Arabia, Sudan, and the Republic of Yemen) have developed national ITN strategic plans. There is a need to accelerate the use of ITNs/LLINs in the other countries of the Region, as an important component of an IVM approach.

13. Biological control methods are applied in a number of countries in the Region to address local problems of disease transmission in specific settings, with the use of larvivorous fish and of preparations like *Bacillus thuringiensis* most common. Generally, the deployment of biological control is not systematic and not well structured. It also lacks integration with other control methods towards achieving maximum benefits from the potential synergies of chemical and non-chemical interventions. While exemplary as methods that can be maintained through community involvement, little effort has been made to ensure active and sustained engagement with local communities.

14. Environmental management for vector control consists of either an engineering approach that leads to permanent environmental modifications reducing receptivity to vector breeding, or, often community-based, environmental manipulation that requires recurrent action such as land leveling, canal de-weeding etc. Capital investments required tend to be an obstacle for environmental engineering works for vector control *per se*, but such measures can be incorporated in water resources development projects (irrigation schemes and dams) at little extra costs. Policy and operational frameworks for the necessary inter-sectoral coordination are, however, weak or non-existent and effective institutional arrangements need to be promoted. The arid conditions in the EMR favour water management measures for the reduction of vector densities.

15. Good examples of successfully controlling malaria while shifting to vector control alternatives include those from the Sultanate of Oman and Saudi Arabia. Oman has successfully eliminated the use of DDT through effective application of alternatives. It therefore brings excellent experiences/lessons to the project. Saudi Arabia has also eliminated malaria, except at the border areas with Yemen. Saudi Arabia supports a cross-border malaria control programme with Yemen, which includes support for capacity building (infrastructure, training etc.), and provision of financial resources, tools and equipment (larvicides, four-wheel drive cars for field work etc.). Oman, Saudi Arabia and other Gulf countries provide significant co-financing and inter-country cooperation on vector control for malaria, dengue and rift valley fever.

16. Each country in the EMR currently makes efforts, to varying degrees, to reduce transmission of vector-borne diseases, particularly malaria. For the moment, these national efforts rely on chemical insecticides and other costly alternatives to DDT. Pyrethroids make up the main alternative insecticides currently applied for IRS in the Region. Generally, two spray cycles per year are required when pyrethroid insecticides are used for IRS, compared to the annual application required for DDT. This results in higher programme costs of pyrethroid spraying. Countries that have shifted from DDT to pyrethroids often are unable to apply both spray cycles required to adequately control malaria. They may also fail to obtain the additional benefits in terms of control of other VBDs.

17. Over-reliance on pyrethroids in agriculture, space spraying against nuisance insects, and their use as the active ingredient in household insecticide products have been shown to accelerate the development of resistance, especially among the mosquito vectors. Insecticide resistance is a major problem in the Region. A number of vector species have been reported resistant to more than one insecticide group. As of 1998, mosquito resistance to organochlorines, to which DDT belongs, was reported in many of the participating countries, while some have also reported resistance to organophosphates. Resistance to pyrethroids has been reported from Sudan for the first time in the Region. In many countries, national capacities to monitor and manage insecticide resistance are poorly developed.

18. Given the trends in the use of pyrethroids in agricultural production systems in the Region and the significant risk this carries for an accelerated induction of insecticide resistance, there is a need for intensified **inter-sectoral coordination** between plant protection and vector control programmes. Cross-resistance to DDT through the development of resistance to pyrethroids is well-documented. Hence, for countries considering the re-introduction of DDT for disease vector control, the reality is that while it may be effective in the short-term, the potential for substantial resistance exist, which may significantly reduce the effectiveness of the insecticide in the long-term.

19. With limited budgets, insufficient technical information on alternatives to DDT and limited national capacities to analyse, evaluate and apply the best mix of alternatives, the potential to revert to DDT is high: Participating countries still keep DDT stocks to be employed in case of outbreaks of vector born diseases and current Government structures do not allow for effective and national Integrated Vector Control activities. GEF funding will help to overcome these critical obstacles so countries can deploy the best products, application practices and vector control strategies under local eco-epidemiological settings.

### **Integrated Vector Management**

20. Integrated vector management (IVM) is defined as a process of evidence-based decision-making procedures aimed to plan, deliver, monitor and evaluate targeted, cost-effective and sustainable combinations of regulatory and operational vector control measures. Successful implementation of this approach is maximised by adhering to the principles of subsidiarity, inter-sectoral collaboration and partnership. It also provides an adaptive management approach that ensures optimal levels of effectiveness of vector control interventions in local settings for compliance with the requirements of the Stockholm Convention. Implementation of IVM will, *inter alia*, lead to reduced reliance on insecticides for public health applications. In addition, IVM promotes the sound management of pesticides, including their judicious use and strategies for insecticide resistance management. Linked to health impact assessment (HIA), IVM allows a proactive approach to vector-borne disease prevention through the incorporation of

environmental management measures in water resources development. The establishment and/or strengthening of intersectoral links are the most crucial of the various factors affecting the successful promotion of IVM.

21. IVM was endorsed as the Regional Strategic Approach by Member States of the WHO/EMRO through resolution EMR52/R.6. To facilitate the transition to IVM, Member States were supported to carry out a comprehensive vector control needs assessment (VCNA) during the GEF PDF-B phase which identified a number of constraints, including the general lack of capacities in participating countries to plan, implement, monitor and evaluate vector control in accordance with the principles of IVM. This lack of capacity prevents the countries in the Region to evaluate, transfer and demonstrate regionally existing knowledge on alternatives to DDT. In order to effectively incorporate the alternatives in the national and policy framework, sound knowledge and analysis of the options for alternatives as well as developed capacity to carry out such analysis will be necessary.

### **GEF Programming Context**

22. The proposed project is in accordance with the provisions of the Stockholm Convention POPs regarding DDT which states that Contracting Parties shall encourage (Annex B Part II): *“the parties, within their capabilities, to promote research and development of safe alternative chemical and non-chemical products, methods and strategies for parties using DDT, relevant to the conditions of those countries and with the goal of decreasing the human and economic burden of disease. Factors to be promoted when considering alternatives or combinations of alternatives shall include the human health risks and environmental implications of such alternatives. Viable alternatives to DDT shall pose less risk to human health and the environment, be suitable to disease control based on conditions in the parties in question and be supported with monitoring data.”*

23. This project meets the objectives of the GEF operational program on POPs (OP #14) to provide incremental assistance to developing countries and countries with economies in transition to reduce and/or eliminate the release of POPs into the environment. The expected outcomes and the proposed on-the-ground interventions, which include Integrated Pest and Vector Management, are consistent with OP # 14 and meet the GEF funding criteria under this operational program. This project contributes to the implementation of the GEF Strategic Priority POP-4: Promote partnering in demonstration of innovative technologies and practices for POPs reduction. The activities under this strategic priority include *“the use of DDT for vector control.”* It is expected at the end of the project that all involved countries will have institutional systems in place to promote effectively Integrated Vector Management approaches resulting in zero application of DDT for vector control while at the same time 100 tons of DDT stocks will have been eliminated.

24. The project also relates to the development and implementation of the National Implementation Plans (NIP) under the Stockholm Convention. The GEF is currently supporting the preparation of National Implementation Plans by developing countries and countries with economies in transition to meet the requirements of the Convention. Although this project specifically addresses DDT use, in that context it will also provide capacity-building and information relevant to the preparation of NIPs by the participating countries that are Contracting Parties to the Convention. Countries like Egypt, Jordan and Morocco have submitted their NIPs to the POPs Secretariat; the other countries have completed their priority setting and are still preparing the formulation of the NIPs. NIPs for Morocco and Jordan are available now for the public. Djibouti has a draft NIP available. Based on the NIPs already available as well as from previous contact with the countries and their focal points, the issue mentioned in this project should be seen as a logical follow-up on the priorities as identified during the NIP formulating processes.

The NIP for Morocco (May 2006) specifically mentions the use of DDT for malaria vector control and mentions that "the Ministry of Health regularly proceeds to the application of pesticides and DDT for the protection of citizens against disease vectors. However, this Department does not organise sensitizing programmes for the population on pesticides risks".

Furthermore, the NIP for Morocco mentions as policy objectives regarding POPs amongst others: "Appropriate elimination of [POP] obsolete stockpiles and sound management of wastes" and "Reduction to the strict minimum of DDT stockpiles, still necessary against disease vectors, in the framework of an integrated strategy".

The NIP for Jordan (June 2006) mentions as general recommendation, amongst others: "Develop a national program for control of vectors of human diseases that are borne by biological vectors, using the Integrated Vector Management (IVM) technique, including provision of support to such programs" and "provide support to programs, such as the Malaria control Program, in order to eliminate the need to resort to DDT or other insecticides from the POPs list".

As priority actions, the NIP of Jordan mentions, amongst others: "Define stockpiles of existing banned POPs pesticides, label and repack POPs pesticides properly, and store and dispose of [POPs]pesticides stockpiles."

The current proposal answers to needs and priorities as specified above and as mentioned in the currently available NIPs.

### **UNEP Programming Context**

25. On 11 June 2004, a meeting was held between WHO, UNEP and GEFSEC. The meeting outlined a strategy based on a series of demonstration projects with GEF "seed" co-financing sustained through replication and scaling-up supported by WHO mobilized resources (as the Roll Back Malaria program and the Global fund). The proposed concept fits into this strategy. UNEP is the Implementing Agency for a DDT related project in Mexico and Central America and is involved in developing a DDT/

IVM related project in African Region as well as in WHO Southeast Asia and Western Pacific Regions. These projects are part of this global programmatic approach aiming at promoting sustainable alternatives for DDT use in vector control. UNEP will therefore be in a position to facilitate and coordinate exchange of information and experience among the various WHO Regions and countries undertaking efforts to reduce the reliance on DDT for malaria control. UNEP will look for ways of bringing the respective DDT related project managers together to review progress, exchange experience and to find solutions to address common challenges related to project implementation. UNEP is well aware of the developments (but unfortunately not a member of the steering committee) of the GEF co-funded Africa Stockpiles Project, which involves the removal and destruction of POP pesticides in Africa.

Furthermore, UNEP, through its the Division of Technology, Industry and Economics (DTIE) and Chemicals Branch promotes and facilitates the implementation of appropriate environmentally sound technological, industrial and trade policies and strategies by Governments, the business community and industry partners (see UNEP Work Plan 2008-2009, sub programme 4, DTIE).

The strategy to achieve the above, DTIE's strategy includes –amongst others–:

- (a) To advance the sustainable management of chemicals by, among other things, supporting the Strategic Approach to International Chemicals Management;
- (c) To undertake and support the implementation of pilot and demonstration projects that can be replicated and taken up on a larger scale by, among others, development banks and agencies;
- (d) To emphasize partnerships that combine the values, priorities and strengths of UNEP with those of Governments, international agencies, non-governmental organizations and business and industry partners.

Additional to the above, UNEP is represented in various working bodies (like the Expert Panel on DDT in order to advise the Secretariat of the Stockholm Convention).

Seen the above, this project should be seen as an incremental element additional to the policy development activities as part of the regular Work Plan of UNEP.

UNEP's Division of Communication and Public Information (DCPI) has as objective to increase international awareness of environmental challenges and responses to them in order to promote environmentally friendly attitudes and actions throughout society at all levels.

26. UNEP is the implementing agency for several GEF NIPs projects in the WHO/EMRO. Component activities in the development of NIPs include the creation of POPs inventories, assessments of national infrastructure and capacity, priority assessment and objective setting. The current project coordination mechanism and implementation arrangements provide a forum to address DDT action plans in NIPs.



27. The following activities will be included in this project to contribute to the further preparation of the NIPs and execution of activities mentioned in the NIPs, specifically in relation to DDT:

- 1) The NIP coordinator of each participating country will participate in the National Steering Committee of the project. Correspondingly, the manager of the national vector control programme in the Ministry of Health was requested to participate in the development of NIPs.
- 2) Participating countries were requested to prepare only *preliminary and indicative* inventories of DDT and other POPs stockpiles and other obsolete public health pesticides in the country to assist in planning their safeguarding and, ultimate disposal. The project will pay more detailed attention to detailed inventories as preparation for POPs collection and disposal.
- 3) Outputs and products from the demonstration projects will be suggested for introduction of alternative interventions in non-project areas within the framework of integrated vector management, as such increasing the changes of replicability of project results.

28. The cost-effectiveness and local availability of alternatives to DDT for vector-borne disease control demonstrated in this project can serve as the basis for developing further refined action plans on DDT following the National Implementation Plans.

### **Executing Agency Context**

29. The executing agency for the project will be WHO. WHO takes full advantage of the opportunities available at global, regional and country levels to identify and allocate appropriate technical support for project implementation, monitoring and evaluation.

30. WHO's own institutional structures, coupled with the opportunities provided by its partnership at the international and country level, that support functions of advocacy, coordination, resource mobilization and technical support for planning, implementation, and the monitoring and evaluation of vector-borne disease control efforts, provide an ideal and perhaps unique context in which to address the constraints to DDT reduction and elimination. In addition, WHO country offices that are currently undergoing major strategic changes in the formulation and implementation of country cooperation strategies, will better articulate vector-borne disease prevention and control measures and country priorities. This will help in identifying and allocating the necessary human resources at national level for a proper technical support for project implementation, monitoring and evaluation. The WHO has the capacity to widely disseminate information and experiences gained from the project with all vector-borne disease endemic countries.

31. The WHO Regional Office for the Eastern Mediterranean is also providing programmatic and strategic support for the implementation of IVM and sound management of pesticides to Member States of the Region through capacity building, provision of technical guidelines and strengthening of vector control services. The IVM approach provides an excellent opportunity for strengthening national capacities for vector control and judicious use of pesticides, to reduce or prevent the application of POPs pesticides (such as DDT) or to minimize the risk of countries to revert to the use of these chemicals.

#### LINKAGE WITH OTHER GEF AND NON GEF PROJECTS

#### **DDT/ GEF Projects in Mexico and Central America and in Africa**

32. These projects provide a unique example of demonstrations of alternative interventions to DDT use for vector-borne disease control and prevention through improvement of personal and household protection and the use of environmental management practices to eliminate mosquito breeding sites. These combined approaches provide a good opportunity for gathering information and experiences on alternative malaria control approaches. Specifically, the experience in Mexico and Central America in utilizing sophisticated surveillance techniques and in designing innovative strategies for managing DDT stocks will be useful in Middle East and North Africa. However, due to the variability of the epidemiology of vector-borne diseases in the Region, it is inevitable that integrated vector and disease management approaches unique to the conditions and needs of the Region will be necessary to decrease the heavy burden imposed by such diseases. The World Health Organization (WHO) will ensure that information is shared between both Regions and will facilitate the testing of innovative control methods across Regions that show promising results and which can be appropriately utilized under local conditions.

#### **Africa Stockpiles Programme**

33. DDT stockpiles pose additional risks to the environment and human health if not managed properly. The "*Africa Stockpiles Programme*" (ASP) will address the issue of disposal of obsolete stockpiles in all African countries over a period of 10 years or so. The present project activities dealing with stocks will be fully coordinated with the work of the ASP, which is implemented by the World Bank in cooperation with FAO and in which UNEP is a partner. Coordination through information exchange with the ASP will be important, particularly for Morocco, Sudan, Egypt and Djibouti as ASP receiving countries. In principle, no collection, repackaging and disposal activities funded through this project will take place in these four African countries. The current project aims to address the safeguarding of DDT stockpiles and POPs containing pesticides wastes in the other participating EMR Member States, not

currently covered by ASP, and in close collaboration with FAO. It is expected that a FAO led regional initiative will start more or less at the same time as the current project and this initiative will include most likely the four Middle East countries, not subject to ASP.

It is foreseen that the project will contribute to this regional initiative allowing to have at least 100 tons of POPs from the four Middle East countries to be collected, repacked, and disposed. Seen the comparative advantage of FAO in this field, FAO will take the technical lead of this activity. Close coordination with FAO (as was started already during the PDF-B) will continue.

### **WHO/FAO collaboration on pesticide management and disposal of obsolete pesticides**

34. WHO and FAO have a unique position within the UN-system as they provide Member States with recommendations and advice on safe and judicious use of pesticides in health and agriculture, respectively. The two Organizations are in the process of development of a Memorandum of understanding (MoU) on development of a joint programme on pesticide management, in order to provide Member States, and other stakeholders, with unified, coordinated and consistent advice and support on sound management of pesticides. The revised version of the *International Code of Conduct on the Distribution and Use of Pesticides*, adopted in November 2002 by the FAO Conference, provides the framework for the sound management of all pesticides, and will be used as the guiding document. The Code of Conduct describes the shared responsibility of many sectors of society to work together so that the benefits to be derived from the necessary and acceptable use of pesticides are achieved without significant adverse effects on human health or the environment. It requires close collaboration between various sectors, in particular agriculture, health and the environment, in support of its implementation. The proposed project will not only benefit from close collaboration with the FAO programme on the promotion of the implementation of the Code of Conduct, but would also closely link with the programme dealing with management of obsolete pesticides.

35. Another important link between WHO and FAO, under another and already existing Memorandum of Understanding (MoU) on the prevention and control of water associated diseases will result in technical cooperation on environmental management measures in irrigated agricultural production areas, where the adaptation of hydraulic structures and the improvement of water management practices can contribute significantly to the reduction of vector breeding. Efforts in this area will receive the combined technical support of FAO's Water Resources, Development and Management Service, and the WHO Department of Public Health and the Environment.

### **PROJECT DEVELOPMENT PROCESS**

36. The preparatory phase of this project was supported by UNEP/GEF through the project development fund (PDF-B) in November 2004. Due to administrative issues, the implementation only began in January 2006. Countries were supported to develop national coordinating mechanisms. Tools and guidelines for vector control needs assessment were reviewed during the first regional meeting of project countries in Muscat, Oman in March 2006. After being finalized by the Project Steering Committee, countries were supported with resources and consultants to carry out and analyse the results of the assessment. Needs, gaps and opportunities for the implementation of IVM as a Regional strategic approach for the control and prevention of vector-borne diseases were identified. These gaps were in the areas of policy, institutional frameworks, vector control operations, inter-sectoral coordination and community mobilization. These were addressed through the development of national IVM plans of action and GEF resources were earmarked as one of the potential sources to fund the plans. The national plans, the VCNA reports and draft demonstration projects were reviewed by the Second Project Steering Committee and regional meetings in Damascus in November 2006. A drafting committee was identified to develop the Project Brief in Alexandria, Egypt in January 2007. The Expert drafting committee had representatives from FAO, UNEP and WHO. The draft was shared with members of the countries' inter-sectoral steering committees as well as the project steering committee. The Project Brief was finally reviewed and endorsed by the Project Steering Committee during its meeting in Damascus in March 2007. Letters of endorsement were received from all participating countries through their national GEF operational focal point.

37. The purpose of the proposed project is to ensure that the use of DDT for disease vector control and the potential for its re-introduction in the countries of the Middle East and North Africa are reduced or eliminated through the introduction of alternative products, methods and strategies of proven effectiveness within the ecological and socio-economic background in the Region. The introduction of these alternatives can be designed based on the good practices that already exist in the Region and through the capacity building activities for the participating countries. Further, the project will generate results of wider application of alternatives in selected localities that have varied ecological and socio-economic conditions, so that the application results on a demonstration basis can be easily replicated in other parts of the Region as well as outside the Region. The proposed project will be implemented based on and in addition to the current initiatives by the national governments, WHO Global Malaria Programme, WHO Neglected Tropical Diseases, WHO Environmental Health, WHO Emerging and Re-emerging Diseases and the Global Fund for HIV/AIDS, Tuberculosis and Malaria (GFATM).

#### **RATIONAL AND OBJECTIVES**

38. This project will demonstrate the viability of cost-effective, environmentally sound and locally appropriate alternatives to DDT, ensuring their sustainable use

through strengthened national and local capacity for the control of vector-borne diseases. The project aims to provide a solid basis for the introduction of more evidence-based decision-making in the selection of vector control interventions, reflecting the local epidemiology and vector ecology, as well as infrastructure and resources. This decision making will also take into account cost-effectiveness of intervention options and their sustainability. Interventions may be of a regulatory or operational value. Inter-sectoral collaboration, partnerships and community involvement will be crucial mechanisms considered in the planning and implementation of vector control activities.

39. Pesticide use in the Region is substantial, both for agriculture and for public health purposes. Countries in the Region generally lack, however, the regulatory framework, infrastructure and resources for the sound management of pesticides. Therefore, this project also will promote frameworks and best practices that minimise the human and environmental risk associated with pesticide use. This will help prevent the accumulation of DDT and other POPs pesticides in stockpiles and it will lead to the reduction of the development of resistance in the vector populations.

40. Many countries in the Region have been successful in reducing vector-borne disease burden, with vector control as a key intervention to achieve this. The environmental conditions remain prone to outbreaks and re-emergence of these diseases, and introduction of new ones, as evidenced in recent years for dengue, Rift Valley fever and other arboviral diseases. Indeed, the risk of malaria resurgence remains a threat in many countries of the region. In the event of such outbreaks, governments will be tempted to revert to the use of DDT, as a time-proven intervention that is perceived to be relatively cheap. The project therefore also aims to extend the evidence base for alternatives under such conditions.

41. There is ample experience in the Eastern Mediterranean Region with biological control (using larvivorous fish) and environmental management. Yet, often these have been applied in an unstructured, poorly designed and isolated way and not as part of a balanced combination measures. Also, the cost-effectiveness and the sustainability of these non-chemical alternatives need further study. The existing experience warrants a parallel implementation of demonstration projects and national capacity building for IVM, with effective cross-links between the two areas of activity.

42. The regional consultations during the PDF-B process unanimously pointed to inter-sectoral collaboration as an essential mechanism to achieve the full potential of integrated vector management and the sound management of pesticides. This issue was also highlighted by the 52<sup>nd</sup> WHO Regional Committee during its discussion on IVM. Inter-sectoral collaboration is at the heart of this project, as it aims to engage other sectors than health in vector control activities and the management of pesticides.

43. The development objective is to reduce reliance on DDT during vector borne diseases outbreaks and minimize the potential to revert to DDT for the prevention and control of vector-borne diseases in all countries, through the use of sustainable, cost-effective and environmentally friendly alternative interventions. To achieve this, the project objective is: to establish an IVM framework, criteria and procedures for the prevention and control of vector-borne diseases through optimized use of tools and resources, strengthened inter- and intra-sectoral coordination, partnerships and community empowerment, as the basis for a reduced reliance on DDT. Building national capacities for IVM and for the sound management of pesticides is a crucial prerequisite to successfully and sustainably comply with the obligations under the Stockholm Convention.

44. The activities contained in the present GEF project brief will add value to the ongoing and projected baseline activities of the national governments, by generating knowledge, skills and experiences on actual application of alternatives to DDT in a range of representative ecological, epidemiological and socio-economic settings. They will re-direct national vector control programmes by strengthening capacities, structures and procedures, thus optimizing the selection of the most cost-effective and sustainable combination of alternatives to DDT within the framework of the IVM. The unique environmental features of the EMR that determine the regional epidemiology of vector-borne diseases (Annex M) present a need for differentiated approaches unlike those applied in Africa or Central America where other GEF projects with similar goals are implemented or prepared. The economic analysis of vector control interventions planned in this project makes the project unique among other GEF-supported projects.

45. To achieve his project objective, the following outcomes are anticipated:

- (i) **Viability, availability, sustainability and cost effectiveness of alternatives to the use of DDT demonstrated;**
- (ii) **Capacity built in each country to plan, implement, monitor and evaluate the application of alternatives based on the principles of IVM;**
- (iii) **Collection, repackaging and disposal of POPs pesticides used in public health and agriculture completed;**
- (iv) **Information on good practices and demonstrated cost-effective and sustainable alternatives are taken up by national institutions and in planning processes**
- (v) **Transboundary & national coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting Integrated Vector Management without the use of DDT.**

A cross-cutting area to achieve the above specific objectives is programme coordination and management.

## PROJECT COMPONENTS AND EXPECTED RESULTS

### **Outcome Component 1: Viability, availability, sustainability and cost effectiveness of alternatives to the use of DDT demonstrated**

46. Currently, the evidence base concerning chemical and non-chemical alternatives to DDT is insufficient to allow for informed decision-making for their application in an IVM context. Reliance on DDT and other residual pesticides has hampered research on vector control interventions addressing the contextual determinants of transmission in specific settings (local solutions to local problems). In particular, the cost-effectiveness and sustainability of alternatives needs testing in a realistic setting.

47. The activities foreseen in this component build on the preparatory work carried out by the WHO Secretariat and the national stakeholders meeting that was held in each of the participating countries during the PDF- B phase. This generated eight country proposals for demonstration projects. The outcome of the demonstration projects will not only strengthen the evidence base in each country, but together they will provide enhanced regional knowledge about the cost-effectiveness and sustainability of alternatives in different settings representative for the entire region. A further six-month phase of protocol strengthening and completion is foreseen, followed by a 36-month implementation phase of the project. Analysis, consolidation and synthesis of the datasets generated are foreseen for the final 18 months. Time planning is as well based on experiences obtained in other related projects (like the Central America and Mexico DDT related project).

48. The demonstration sites for the project were chosen during the above-mentioned national stakeholders meeting. The main criteria used in selection of the demonstration sites were: (1) burden and the endemicity of vector-borne diseases and current vector control interventions; (2) representiveness of other affected areas of the country; (3) level of political commitment and support; (4) human resources and infrastructure, including intersectoral collaboration and community participation; and (5) accessibility to the area all year round. The following demonstration sites were selected:

- Djibouti: Djibouti town; Arta; and Tadjourah
- Egypt: Fayoum governorate, Aswan governorate, Cairo governorate
- Islamic Republic of Iran: Minab district; Kahnooj district; and Chabahar district
- Jordan: Ghor Safi; and South Shunah

- Morocco: Bab Berred; Rhafsai; Attaounia; and Moulay Yacoub
- Sudan: Managil; Galabat; Rashad; and Marawi
- Syria: Tarous, Karto and Al Safsafa villages; Idleb, maaret Al Noaaman area; and Hama, Taibet Al Emam and Soran areas
- Yemen: Tihama; Taiz; Shabwa; and Sayoun – Hadramawat

**Output 1.1: A protocol formulated by the National Steering committee, following guidance from the WHO Regional Office with on-site review by an international expert completed for each participating country**

49. **Rationale:** During the PDF-B phase all participating countries prepared proposals outlining objectives, expected outputs and selection criteria for demonstration projects. These proposals will now have to be translated into protocols that contain the detailed methodology and activities, the inter-sectoral composition of national teams, indicators and mechanisms for monitoring and evaluation, and review and reporting approaches.

The protocol will be developed by each of the National Steering Committees and following guidance from the WHO Regional Office, with on-site review by an international expert. The protocol includes a detailed and country specific methodology concerning the implementation of demonstration activities.

The various protocols differ due to the various geographic, epidemiological, ecological and socio cultural settings in each country. As such, the methodology for each country differs as well and affects the type and design of each required intervention.

The protocols will be established to specify the methods and activities in the greatest level of detail, based on what has been proposed in the general descriptions of the country proposals received. Once approved, they will provide the binding terms of reference for the implementation of the demonstration projects. By obliging countries to write up protocols for their demonstration projects, the process of harmonization between countries is also facilitated. The protocols are the basis for monitoring and evaluation of the demonstration projects.

50. **Activities:** Each National Steering Committee will formulate a protocol based on the proposal they developed and following guidance from the WHO Regional Office, with on-site review by an international expert.

**Indicator:** 8 protocols (1 for each country) completed and mechanisms in place for their implementation.



## **Output 1.2: Specific capacity building carried out that may be required for successful implementation of the protocol, based on the needs identified in the demonstration project proposal**

51. **Rationale:** The regional capacity-building activities (Component 2) do not necessarily address some of the demonstration project-specific capacity building needs, such as project-specific (country or ecosystem specific) requirements, technical and managerial needs, etc. These need to be addressed through targeted capacity building on site.

52. **Activities:** Carry out any project-specific capacity building that may be required for successful project implementation, based on the needs identified in relation to the demonstration project protocol.

*The types of capacity building activities under output 1.2 are not easy to define yet as they depend on the contents of the specific country protocols to be developed under 1.1.*

*However, a list of indicative activities could include the following:*

- *Training related to country and ecosystem specific requirements as mentioned the country protocol. As the characteristics of ecosystems, socio-cultural and epidemiological settings are different in each country, also the training needs will be different.*
- *Strengthening of institutional infrastructure. Infrastructural strengthening (including the capacity to plan and implement) depends on the already existing structure related to the required needs in each individual country.*
- *Ecosystem assessment and modelling, with a focus on the place of insect vectors in ecosystem food webs.*
- *Insect population sampling methods and techniques, including vector insects, their predators and their parasites.*
- *Environmental management and engineering methods for vector control*
- *Biological control methods.*
- *Sophisticated identifications techniques (PCR) and blood meal analysis.*
- *Insecticide resistance monitoring.*
- *Social assessment methods (including KAPB –knowledge, attitude, practice and beliefs-methodologies)*
- *Basic IPM techniques and their relevance to IVM.*
- *Development of IVM curricula for Farmer Field Schools.*

*Seen the above, no specific activities have been and can be incorporated at this moment in the Project Brief.*

**Indicator:** Number of cases from countries whose request for specific capacity building has been adequately dealt with.

**Output 1.3: Regional workshop for the harmonization of the country protocols with effective follow-up for the completion of the protocols, and final review by the STAC**

53. **Rationale:** In order to generate conclusions that are applicable for varying ecological and epidemiological settings present in the region, methodologies and approaches need to be standardized so that the results derived from the project are comparable. This requires the harmonization of approaches and methodologies of the individual projects. Harmonization includes identifying complementarities, applying uniform techniques and methods and identifying and filling gaps.

54. **Activities:** Organize a four-day regional workshop for the harmonization of country protocols with effective follow-up for the completion of the protocols, and final review by the Scientific and Technical Advisory Committee (STAC, see component 5 below). The workshop will also produce a harmonized template for reporting mechanisms and formats.

**Indicator:** Regional harmonization workshop conducted. Final protocols adapted. Eight regionally *harmonized* country protocols available

**Output 1.4: Assistance provided to the National Project coordinator for essential elements of demonstration projects implementation in line with agreed protocols**

55. **Rationale:** Country-specific activities will require support in terms of assistance in procurement, timely transfer of resources for their various activity phases, and the provision of technical experts in response to country requests.

56. **Activities:** Provide assistance to the National Project Coordinator for essential elements of demonstration project implementation in line with the agreed protocols. This may include the establishment of institutional arrangements, technical and managerial support and ensuring the resource base for the implementation of the protocols.

**Indicator:** 16 demonstration projects with significantly reduced vector borne disease outbreaks (while no DDT was applied) successfully completed.

**Output 1.5: Project activities monitored through screening of annual reports by the National Steering Committee and STAC and by on-site visits to demonstration projects by STAC members, and dissemination of observations and recommendations**

57. **Rationale:** Demonstration projects will need to be kept on track in terms of timelines and compliance with the protocol and agreed resource allocations. The value of the regional approach needs to be safeguarded and opportunities for synergies

recognized at an early stage. This calls for an on-going monitoring process, focusing on process indicators.

58. **Activities:** Monitoring of project activities, through screening of annual reports by the National Steering Committee and STAC and by on-site visits to demonstration projects by STAC members, and dissemination of observations and recommendations.

**Indicator:** Number of regional analysis carried out correctly as planned. Number of final reports produced.

**Output 1.6: Technical support (through consultancies) provided for the analysis of datasets, including cost effectiveness and sustainability analysis, and the production of the final report; STAC meeting organized to review the national reports and draft the consolidated regional report, including lessons learnt, for submission to relevant parties**

59. **Rationale:** The data generated by the demonstration projects need to be analysed and presented in information that will assist decision makers in the participating countries as well as in other countries in the region. The results need to be reviewed independently, and a synthesis of the information at the regional level will allow generic lessons learned to be extrapolated for use in relevant settings in the region. The demonstration projects will also lead to the identification of new gaps in our knowledge, and their outcome forms the basis for recommendations on follow-up action, in research capacity building and IVM programme development.

60. **Activities:** Provide technical support, through consultancies, for the analysis of datasets, including cost-effectiveness and sustainability analysis, and the preparation of the final report. Organize a STAC meeting to review the national reports and draft the consolidated regional report, including lessons learned, for submission to relevant parties.

**Indicator:** Consultancy reports and Consolidated Regional report produced in accordance with STAC terms of reference as indicated in Annex O.

**Outcome Component 2: Capacity built in each country to plan, implement and evaluate the application of alternatives based on the principles of IVM**

61. The transition from conventional, often still vertical vector control programmes to programs based on the principles of IVM is essential for the successful promotion of alternatives to DDT. This transition requires comprehensive capacity building that addresses the knowledge and skills of the human resource base and allows for the restructuring of the existing vector control program, the strengthening of institutional

arrangement to facilitate inter- and intra-sectoral collaboration and the creation of an enabling environment (policy and legal framework).

### **Output 2.1: National seminars organized for the review of policy and legal frameworks**

62. **Rationale:** Enabling environments, in the form of policy, legal and regulatory frameworks, are of the essence to facilitate the establishment of an IVM programme. Without this capacity building component, the impact of other components will be considerably below its potential. The national vector control needs assessments, carried out during the PDF-B phase, without exception point to the weak frameworks within which IVM has to operate. The improvements foreseen contribute to the overall goals of good governance and are essential for the enforcement of regulations (see annex F).

63. **Activities:** Organize national seminars for the review of policy, legal and regulatory framework, including sound management of public health pesticides. Such seminars will produce action plans for detailed policy formulation and adjustment, legal improvements and the creation of an IVM policy framework. To implement these action plans following the first seminar, to support the process through consultation services, and to conclude the process with a second seminar. This will require political backing and endorsement at the end of the process.

**Indicator:** 8 sets of inter-sectoral policy and legal frameworks seminars organised; Number of countries with an IVM policy framework and IVM legal arrangements in place.

### **Output 2.2: Promotional documents produced, country visits conducted and national seminars organized, provision of examples and case studies of successful institutional arrangements between the sectors completed; Existing local health services, agricultural extension services and farmer field schools are used to channel messages on IVM and the sound management of pesticides to rural communities.**

64. **Rationale:** Implementing vector control alternatives in an IVM context, and the sound management of pesticides, require inter-sectoral coordination and collaboration, with a focus on the health, environment and agriculture sectors. Clear agreements on the division of responsibilities and the sharing of resources, together with mechanisms to maintain a productive dialogue are main features of this collaboration. At the same time, communication channels and collaboration mechanisms within sectors need strengthening as well. The need for inter-sectoral action is greatest at the national level; at the other end of the spectrum, the involvement of local communities is a critical element in successful IVM and sound management of pesticides. The VCNA explicitly

identified lack of inter-sectoral collaboration and community involvement as major obstacles that needed addressing through capacity building.

65. **Activities:** With an emphasis on advocacy, the activities include: the production of promotional documents, country visits, the organization of national seminars and the provision of examples and case studies of successful institutional arrangements between the sectors. In connection with community involvement, existing local health services, agricultural extension services and farmer field schools will be used to channels messages on IVM and sound management of pesticides to rural communities.

**Indicator:** Number of inter-sectoral agreements concluded. Number of community-based IVM activities initiated. 8 countries have a restructured Vector Control Unit operating on the basis of IVM.

**Output 2.3: National vector control units are restructured to ensure that all essential IVM functions are performed well at all levels. Technical cooperation in the area of program management provided as needed.**

66. **Rationale:** The establishment of a national vector control unit creates the structure for an optimized use of resources for vector control and the implementation of essential IVM functions. Building on existing vector control structures, and taking into account the VCNA reports, the changes will need to be agreed through a national consultation process that brings on board all stakeholders. Eliminating current levels of fragmentation between entities performing vector control activities, and between the health and other sectors on matters of vector control and pesticide management will need to be overcome. Promoting this process is, in fact, mandated by Resolution EMR52/R.6 of the WHO Regional Committee on integrated vector management.

67. **Activities:** The WHO Regional Office informs national health authorities of the outcome and recommendations of the vector control needs assessments, in relation to IVM. Next, the National Steering committee starts a process of consultation leading to the restructuring of national vector control units, including vision and mission statements, clear terms of reference and a description of responsibilities, and the rationalization of posts to ensure all essential IVM functions are performed at all levels. Technical cooperation in the area of programme management is provided as required.

**Indicators:** 8 Vector Control Units in the participating countries are restructured and full technical cooperation is provided as needed.

**Output 2.4: Guidelines and training materials for vector control professionals are developed, updated and reviewed**

68. **Rationale:** Technical knowledge and skills will need to be developed for the effective implementation of IVM activities and the sound management of pesticides. These include technical strengthening and re-orientation in certain traditional area, and human resource development in new areas, such as principles and practice of IVM and economic evaluation. The capacity building in these areas is generic in nature and is therefore most efficiently carried out at the regional level for all participating countries. Such regional training events also provide opportunities for the exchange of experiences between the participants. In this context it should be understood that 'guidelines' from other areas in the world cannot simply be copied to the project region: there are ecological differences between malaria in Central America (three vector species in one zoogeographical zone, and one species of malaria parasite) and in the EMRO Region (three zoogeographical zones meet and more than ten Anopheles species show a wide range of ecological requirements transmitting all four species of parasite). Moreover, the guidelines foreseen do not just address the vector control techniques, but also the various managerial issues: cost-effectiveness analysis, IVM decision making criteria, how to develop inter-sectoral arrangements. Reference should be made as well to the planned WHO HQ activity aiming at compiling the experiences in the various regional projects into an environmental management toolkit, that will cover different species, settings and needs at a global level.

69. **Activities:** Developing, updating and/or reviewing of guidelines and training materials (e.g. the PEEM cost-effectiveness guidelines) for technical content and learning methodology; generation of relevant case study material (e.g. economic evaluations). Organizing regional workshops and training courses for vector control professionals.

Regional training activities on the following topics will be supported are, amongst others:

- Biological control and engineering approaches to vector control
- Principles and practice of integrated vector management
- Insecticide resistance monitoring and management
- Sound management and judicious use of public health pesticides
- Economic evaluation of vector control interventions
- Monitoring and evaluation of vector control operations (quality control)
- Epidemiological surveillance/laboratory support to prevent crisis application of DDT
- Diagnosis and treatment of vector-borne diseases at the primary health care level

**Indicator:** Number of up-dated, reviewed and developed guidelines and training materials available for vector control professionals in the region

### **Outcome Component 3: Collection, repackaging and disposal of POPs pesticides used in public health and agriculture completed**

70. The EMRO Consultations and the VCNA have recognized the need to deal with obsolete stocks of POPs pesticides used for public health and agriculture purposes. Guidelines and preventive measures to avoid new stocks of obsolete pesticides, including means and capacity for safeguarding and disposal/elimination are needed. It is expected that more or less at the same time of starting this project, a Regional Initiative led by FAO will start including at least the Middle East Countries with regards to collection and disposal of obsolete pesticides (including POPs pesticides). This project will contribute to this initiative, but only for the countries which will *not* be covered under the African Stockpile Program (ASP).

#### **Output 3.1: Obsolete POPs pesticides used in public health and agriculture are collected, repacked and disposed**

71. **Rationale:** All participating countries have identified the existence of obsolete public health pesticide stocks that include DDT and possibly other POPs pesticides. These POPs pesticides containing stocks pose health and environmental risks that increase with time. Prior to any action being taken to eliminate these stocks and remedy any environmental contamination that they may have caused, a detailed inventory of the quantities, locations and conditions of storage of these pesticides is required. It is imperative that such stocks are secured in order to prevent their further deterioration and leakage. Appropriate and timely action to safeguard POPs containing obsolete pesticides will immediately reduce the risks they pose and will prepare them for further action such as international shipment for destruction as envisaged in the Regional FAO led initiative.

72. **Activities:** Carry out a stakeholder analysis to determine which organizations should be informed and involved in the process of addressing POPs containing obsolete pesticides in the country; Training of personnel in safe and effective execution of updating the existing inventory of obsolete pesticides; Up-date the field inventories concerning public health pesticides and other POPs pesticides stocks; Compile & analyze data collected during the up-date of the field inventory data; Procure equipment and services required to safeguard obsolete pesticides; Carry out repackaging and centralization of obsolete stocks prioritized for action under expert supervision; Securely store repackaged obsolete pesticides until further action for their elimination can be taken. Export and final incineration in a dedicated hazardous waste incineration facility abroad.

Based on discussions and agreements with FAO, the countries prefer to leave the selection of detailed methods and activities to the specialists of the FAO.

However, it is anticipated that the FAO, in close collaboration with the project, will select and contract through an international and transparent bidding process an

international hazardous waste management company specialised in the collection, repackaging and disposal of hazardous wastes. Incineration will take place in a dedicated high temperature incineration facility in Europe. The current state of knowledge recognizes repackaging according to UN guidelines and with UN approved packaging materials and final disposal through high temperature incineration as the most cost effective and best environmental practice to dispose of obsolete stocks of hazardous pesticides of the kind to be dealt with in the project. Seen the above, no other disposal options have been and will be considered during the course of the project.

**Indicators:** Up-dating of the inventories of all POPs pesticides in the 8 participating countries completed.

Collection, repackaging and disposal of at least 100 tons POPs pesticides from 4 countries not covered under the Africa Stockpiles Program.

**Outcome Component 4: Information on good practices and demonstrated cost-effective and sustainable alternatives are taken up by national institutions and in planning processes**

73. Documentation of the outcomes of the demonstration projects will help establish a substantial regional information base. Dissemination of this information in the entire EM Region will lead to significant and sustainable reductions in the vector-borne disease burdens in all countries of the region and at the same time ensure the protection of the environment and human health by reducing the reliance on DDT.

**Output 4.1: Web pages in English, French and Arab created and at least two scientific publications produced and published in relevant science periodical**

74. **Rationale:** Consistent, region-wide analyses of the cost-effectiveness and sustainability of alternative vector control methods, products and strategies are practically non-existent. The crux of this project is its regional dimension, pulling together the experiences and results of projects in the participating countries. Analysis and reporting are therefore critical components in order to achieve the ultimate goal of the project: the reduction of reliance on DDT and of the tendency to revert to DDT.

75. **Activities:** Prepare and publish a report and/or article for peer-reviewed literature to give wide dissemination to the outcome of the national studies, the regional analysis, and lessons learnt through consultants' services. Reports will be translated into English, French and Arab. Provide support for the creation of dedicated web-pages (in English, French and Arab) to make information available through the internet.

**Indicator:** At least two scientific publications produced and published in relevant scientific periodical. Tri-lingual web pages created.



**Outcome Component 5: National & transboundary coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting Integrated Vector Management without the use of DDT**

76. Successful implementation of the project requires sufficient capacity at Regional and country levels for timely, coordinated and efficient implementation of the proposed activities. Strengthening the Regional coordination, transboundary and national coordination, information sharing, effective monitoring and evaluation and strengthening management capacity as well as designation and recruitment of national project coordinators and national steering committees are therefore necessary. Guiding the project will be facilitated through the establishment of Regional STAC.

WHO will make available (as part of its in-kind contribution) a full time (100 %) Project Coordinator for this purpose.

**Output 5.1: (full-time) Project Coordinator assigned by WHO; Assistant Project Coordinator recruited; 8 National Coordinators assigned, Mid-Term and Final Evaluations conducted**

77. **Rationale:** Successful implementation of the project requires a full-time assignment of a Project Coordinator and recruitment of a full time Assistant Technical Project Coordinator (a *technical* staff) to assist the Project Coordinator in his duties, especially for technical issues and to ensure harmonization and coordination of project activities between the Regional Office of WHO and the participating countries.

In order to enable both Coordinators to work properly, the provision of secretarial support is anticipated (budgeted through the Executing Agency fees budget-line).

78. **Activities:** Appointment of full-time Project Coordinator, appointment and recruitment of an Assistant Technical Project Coordinator; provision of secretarial support through the appointment of an office secretary, assignment of 8 National Project Coordinators.

Mid-Term and Final Evaluation through UNEP conducted.

**Indicator:** (full-time) Project Coordinator assigned, Assistant Technical Project Coordinator recruited and office secretary appointed; 8 National Project coordinators assigned. Mid-Term and Final Evaluation reports.

**Output 5.2: Establishment and operating of a National Steering committee in each participating country**

79. **Rationale:** Successful implementation of the project requires the establishment of National Steering Committees to oversee and guide the implementation, as well as monitoring and evaluation of the project on a national level.

80. **Activities:** Establishment of eight National Steering Committees (meeting once/twice a year)

**Indicator:** National Steering Committees in each participating country guide national processes and meet once/twice yearly.

### **Output 5.3: Establishment of a Regional Scientific and Technical Advisory Committee (STAC)**

81. **Rationale:** Successful implementation of the project requires the establishment of a Regional STAC, to oversee and guide the implementation, as well as monitoring and evaluation of the project on a regional level. Transboundary coordination of all project activities are ensured through the STAC.

82. **Activities:** Establishment of a regional STAC (with TOR including Monitoring and Evaluation as in annex O; meeting once/twice a year)

**Indicator:** Regional Scientific and Technical Advisory Committee (STAC) members appointed by the Regional Director WHO according to the related Terms of Reference (Annex N), STAC meeting held once/twice a year and meeting minutes made available.

## **RISKS AND SUSTAINABILITY**

### **Risks**

83. In those countries of the EM Region where malaria continues to be endemic and transmission is intense, there is potential risk of increased vector-borne disease transmission if the IVM strategy is not implemented correctly. There is a range of obstacles, both at the national institutional level and at the community level, that have to be overcome before vector control measures based on the IVM principles can be deployed. The risks involved do not only have a bearing on the health status of affected communities. Any failure to achieve at least the same level of protection through IVM as was achieved through conventional, vertical programmes will undermine the reputation of the new approach and limit the potential for its further extension.

84. In those countries of the Region where the focus is on other vector-borne diseases, similar risks exist but of a different magnitude. Moreover, the new approach may undermine the preparedness to deal with epidemic outbreaks. The reduction of POPs containing obsolete stockpiles should be accompanied by the storage of pesticides to deal with such outbreaks, strictly following the guidelines for the sound management of pesticides. Particular care should be taken in situations where there is a rapid change in environmental and social determinants of vector-borne disease transmission (such as

development projects), as they require the capacity to deal with vector-borne disease risks in a pre-emptive way.

85. A critical assumption of the project is that governments will maintain their political will towards scaling up the implementation of interventions that are proven to be effective. Industry and the Ministries of Finance and Trade as stakeholders in the project, will promote dialogue and facilitate appropriate changes in relevant policies. Additional resources channelled to the countries by the Global Fund for HIV/AIDS Tuberculosis and Malaria (GFATM), bilateral and by other donors aimed at lowering the costs of health interventions will also contribute to resource mobilization and to the reduce costs of alternative methodologies.

86. The experience gained through implementation of the project will result in operational experience for each of the various alternative interventions. This experience will not only include issues of logistics, but also ways to identify and address the problems, constraints and potentially weak links associated with each type of alternative intervention. Documentation of these potentially weak links as well as the constraints and problems experienced will allow an assessment of the risks associated with sustainability. DDT spraying is well understood in these terms, but the newer methods may not be. As yet, there is no comparable body of knowledge to characterise such risks, and therefore comprehensive anticipation of options for reducing them. The assessments of alternative interventions may reveal problems associated with adverse climatic conditions or difficulties of funding and retraining. These are all subjects that will be considered with respect to scaling up to wider areas and ensuring wider community acceptability and involvement.

87. Project risks are further linked to the potential event of outbreaks of Vector Borne Diseases in the participating countries. Such outbreaks will trigger local authorities to apply DDT (as is normal practice as has been reported by several individual countries). Such events might reduce the political commitment of the Governments to continue with the project.

Other project risks are related to the proposed and envisaged changes of the Vector control Units in the various Ministries of Health. Structural institutional changes directly effect the current staff and it is assumed that national and local governments agree to shift focus from DDT spraying to provision of an enabling/supportive environment for community based interventions.

The success of the project is as well linked to the timely availability of WHO, UNEP and FAO support and guidance.

The long term sustainability of the project is depending on the willingness of the participating governments (both national and district institutions) to mainstream sustainable, cost effective and environment friendly approaches for vector borne diseases control in their programs and activities by adopting integrated and inter-sectoral policies and approaches.

## Sustainability

88. The sustainability of the proposed project relies in great part on the safety, efficacy, affordability and acceptability of **and** the political will to accept the various alternatives to DDT and other insecticides, which will be assessed and implemented. Such alternatives should also contribute to minimize and/or prevent the development of vector resistance to insecticides, which is a problem of concern in the Region. Availability and utilization of alternatives will need to be guaranteed under the current fluctuating economic conditions, common to many vector-borne disease endemic countries in the Region. When this is feasible, countries of the Region will no longer have to depend on chemical methods to the extent they do presently that pose health risks to humans and to the environment. At the local level, the sustainability of the transition to alternatives will depend on fostering ownership at the community and at the national level. At national level, the establishing of a dedicated vector control unit is anticipated. Transition to alternatives in the demonstration sites during the project phase, will also depend on the effectiveness of safeguards to address any surges in vector-borne disease incidence. Linkages with local stakeholders in the project areas will be important in promoting and facilitating the sustainability of the outcomes of the project.

89. The objective of the project is to demonstrate alternatives to DDT under varied ecological, epidemiological and socio-economic conditions in the Region as well as strengthening the national capacity to choose and select appropriate alternative products, methods and strategies to DDT under the National Implementation Plans. With capacity building activities, the countries can effectively evaluate and adopt appropriate and sustainable alternatives to DDT under national policy framework. Setting up an appropriate national policy framework and national capacity eventually lead to sustained impacts of introduction of appropriate alternatives to DDT and other insecticides. WHO and other partners are accelerating technical support for sustainable implementation of integrated vector management by countries. This is being done through the creation of enabling institutional and policy environment, as well as the development of requisite technical and human resources for inter-sectoral action and the use of suitable multiple interventions.

90. Essential to the promotion of alternatives to DDT and the firm anchoring of national programmes for integrated vector management (IVM) are the affordability of the alternatives and the efficiency of their application compared to indoor residual spraying of DDT.

The definition of IVM, a process of evidence-based decision-making procedures aimed to plan, deliver, monitor and evaluate targeted, cost-effective and sustainable combinations of regulatory and operational vector control measures, highlights efficiency as one of the key criteria for the proper implementation of this approach.

The project will look in detail into the issue of 'cost effectiveness'. This will require the accelerated updating of existing cost-effectiveness guidelines and the development of tools that can be used in the demonstration projects. During the implementation phase, effective links will need to be established with academic institutes that can provide expertise in the area of economic evaluation. In two selected countries, cost-effectiveness studies will be performed in great detail and with a high level of accuracy. This type of activities has never been done in any DDT related GEF co-funded project before and as such it should be seen as a unique feature of this project.

91. Further, any proposed efforts based on the results of the project, will be incorporated into the NIP development and implementation process. In this way, reduction of reliance on DDT for vector control purposes can be appropriately incorporated into NIP implementation in a systematic and sustainable manner. By incorporating the DDT alternatives into the NIPs, the cost for continuously reducing reliance on DDT will be incorporated into the national and international financing mechanism for the implementation of NIPs. Additionally, the significant increases in financial and technical support to vector-borne disease endemic countries, within the broader programmes of WHO and Global Fund for AIDS Tuberculosis and Malaria (GFATM), which is aimed at improving the efficiency of national vector control programmes and lowering the costs of health interventions will assure continued resources to sustain project benefits and scale up the use of the alternatives. WHO is involved in a continued dialogue with countries for the enactment of appropriate legislation and policy, such as the elimination of import taxes on certain goods associated with vector control (e.g. ITNs/LLINs, insecticides and vector control equipment), which should assist the reduction of the cost of alternatives. WHO is also closely working with FAO and UNEP and other stakeholders in strengthening the capacity of the Member States in sound management of pesticides.

92. Active stakeholder consultation/involvement processes will be established during the PDF-B and consolidated during project implementation to ensure the participation of primary stakeholders such as relevant ministries of Health, Environment, Agriculture, Finance, Trade, and Local Municipalities, as well as the private sector, local and national NGOs, and communities. This will promote dialogue and consensus among stakeholders, and also foster ownership. Furthermore the use of COMBI (Communication for Behavioural Impact) approach on the alternative interventions will promote community awareness and empowerment in the adoption and utilization of the intervention in sustainable district- and community-based programmes.

#### **REPLICABILITY**

93. Based on the results of the vector control needs assessment (see Annex F), the demonstration activities will be developed for varying environmental, socio-economic

and epidemiological conditions. Replication of the results of the demonstration activities will be facilitated by the conditions for the application of the alternatives and by using the assessment results in determining if the conditions are met. The results of the demonstration projects will not only be of generic value for replication of activities in similar settings throughout the Region, but they are also expected to lead to scaling up in each individual country: Institutional reforms of the Vector Control Units with links to the national level will be beneficial for the whole country.

94. The project aims at the collection and analysis of already existing good practices from (for example) non GEF eligible and GEF eligible countries in the region for their systemic replication in other countries in the region. The results of replication of these practices as well as demonstration activities will be dissemination for replication purposes, and a regional replication strategy will be established towards the end of the project. This strategy will ensure the replication of the demonstrations, the lessons learnt and results achieved and needs to require a high level of flexibility and adaptation of the different replication mechanisms to be adequately refined and contextualised when used for other initiatives, other countries other areas/sites. Concretely, information and experiences gained from demonstration sites in each of the requesting and participating countries will be used not only in addressing relevant policy issues but also in replicating/expanding to other sites where malaria and/or other VBDs are also prevalent.

95. The project will include analyses of the results of the demonstration activities in terms of technical efficiency, cost-effectiveness and local acceptability. Through the STAC, the experience obtained through the demonstration interventions will be exchanged among the participating countries. At the initial stage of the project implementation, a detailed replication strategy will be devised and adopted by the National Steering Committee. At the national level, the NSC will review the experience obtained so that both within-country replication and the scaling up of successful demonstrations of alternatives to vector control using DDT will be realized. The National Steering Committee will be used as vehicle for resource mobilization for in-country replication and scaling up. Towards the end of the project, the project area coordinators will be given the opportunity to travel to other administrative areas to exchange knowledge and experience, including lessons learned. Stakeholders in other administrative areas will also be invited to visit the project demonstration areas to gain experience and to design replications of successfully demonstrated alternatives. It should be mentioned that a critical assumption of the project is that governments will maintain their political will towards scaling up the implementation of interventions that are proven to be effective.

96. The project will also aim at receiving information on the demonstration activities in Central America and Africa from the respective GEF projects, on the conditions and effectiveness for application of alternatives to DDT for vector control purposes. North

Africa and the Middle East region for this project is an area where three of the major world zoogeographical zones converge (Afrotropical, Palearctic and Oriental zones). Any data and experiences emerging from this project will be important for replication in Africa, Europe and Asia. As such, the envisaged results of this project will further support the UNEP/WHO global program of a range of demonstrative regional projects finally aiming at global elimination of DDT use for vector borne disease control. Specific activities include –amongst others- the publishing of scientific articles and the setting up of a web-page in several languages.

97. The project will devise a strategy in which information deriving from this project will be shared through country, inter-country and inter-regional meetings as well as training workshops at both national and international levels. Key individuals trained from the project areas and also those trained and participated in the execution of the project will form a core group of expertise to train others as the project expands in the country and beyond the current requesting/participating countries as well as in the other regions especially the Asian countries.

#### **INCREMENTALITY**

98. In the long run the activities contained in the present GEF project brief will benefit the global community by generating knowledge, skills and experiences on actual application of alternatives to DDT in a range of representative ecological, epidemiological and socio-economic settings. The current project will be implemented in a Region with three of the major global zoogeographical zones – representing Asia, Europe and Africa. Results from this project will provide sufficient evidence for suitability, replicability and applicability of alternative interventions for a wider audience. In combination with other DDT projects in Africa, Central America & Mexico, South East Asia & Pacific as well as initiatives in Eastern Europe and Central Asia, this project will therefore give documented evidence to the regional and global community on cost-effectiveness and sustainability of environmentally friendly interventions. Although reduction in the amount of DDT release and the resulting global benefit may not be significant in the short term, the project provides substantial amount of evidence in different eco-epidemiological and social settings for policy makers to scale up alternative interventions at country and regional level as appropriate.

Clearly, capacity building for the prevention of vector-borne diseases while reducing the potential to revert to the use of DDT for vector control has features of incrementality in providing global benefits while at the same time giving rise to significant domestic benefits (enhanced medical and health care services for the populations). It is therefore appropriate for government co-financing to be targeted on these aspects of capacity building as proposed under this project.

#### **STAKEHOLDERS INVOLVEMENT/ INTENDED BENEFICIARIES**

99. The project will be implemented in an inter-sectoral approach. The health, agriculture (e.g., irrigation schemes, plant protection activities), energy (dams) and public works (urban and rural infrastructure), and environment might, through their development activities, have an impact on the ecology of vectors, the local disease transmission and the use of DDT and other insecticides. This is very important in the proposed project areas where slight changes in the ecology affects the vector species dynamics relevant for disease transmission. Furthermore, VBDs burden is also impacted by the change in the behavior of vulnerable populations.

100. Vector Control Needs Assessment (VCNA) exercises were undertaken in the eight participating countries as the most important component of the PDF-B process (see Annex F). The VCNA exercise addressed the most critical aspects of vector control systems including policy frameworks, organization and resources, regulations and quality assurance. Multi-sectoral committees were formed to guide the process and national stakeholder meetings were organized to endorse the results of VCNA and to formulate recommendations regarding the way forward.

101. During the PDF-B, a National project Steering Committee was formed in each of the participating countries. The NSC is the nucleus of the broader stakeholders that participated in the national consensus workshop that have direct and indirect impact on disease transmission. The National Steering Committees are key players in malaria and take initiative as well as necessary preparation for implementation of IVM. However the process involved the participation of a wide range of national and international organizations. The Terms of reference of the National Steering Committee meeting were to:

- Review and endorse the national VCNA reports
- Review and endorse the national strategic plan of integrated vector management (IVM);
- Agree on the proposed draft plan for the full project proposal under GEF support
- Review and endorse the selection of the demonstration sites

With the exception of Sudan, none of the other countries have included other partners in their respective national steering committees. This is not intentional but rather a true reflection of what is currently available in the countries. Most of these countries come from a background in which vector control has been vertical and mainly implemented by the public sector. However, the point of including other stakeholders is very valid and will be appropriately accommodated as the situation gradually changes at country level.

Moreover at the start of the project the composition of the National Steering Committee will be reconfirmed. Also, under detailed protocol development for the demonstration projects, it should be added that the stakeholder involvement will be reviewed and updated to ensure the demonstration project will be all-inclusive. Finally, this is an issue to be addressed at the



harmonization meeting for the country protocols and should be mentioned among the objectives of that meeting

102. The VCNA exercise provided a unique opportunity for the eight countries to compile detailed information that has been useful to adequately plan for integrated disease management strategies. Additionally the VCNA exercise has enabled program managers and policy makers to consider establishing appropriate structures to strengthen vector control programs and pesticide management capabilities. For instance, some countries reported that they lacked national legislation to prevent the use of POPs pesticides in agriculture.

103. During the PDF-B phase stakeholders from the various sectors were identified as part of the VCNA process. These included Ministries of Health, Ministries of Agriculture, Land, Water and Environment, local governments/administration, research institutions, civil associations (e.g. youth, women and church groups etc.) involved in public health promotion, local and international NGOs, as well as the private sector. This provided opportunity to establish a strong basis for their continued involvement in the project. The composition of the national stakeholders in the different countries is as follows:

**Djibouti**

Ministries of Health, Agriculture, Water and Irrigation, Environment and Djibouti municipality

**Egypt**

Ministries of Health and Population, Agriculture, Irrigation, Environment, Municipalities, academic and research institutions

**Islamic Republic of Iran**

Ministries of Health and Medical Education, Agriculture, Water and Irrigation, Environmental Agency and academic and research institutions

**Jordan**

Ministries of Health, Agriculture, Environment, Water and Irrigation, the Jordan Valley, the Greater Amman municipalities and Ministry of Defence.

**Morocco**

Ministries of Health, Agriculture, Interior and Environment including research and academic institutions

**Sudan**

Federal Ministry of Health (National Malaria Control Program, Occupational Health Department and State Ministries of Health); Ministries of Agriculture,

Environment and Tourism, Irrigation and Water Management; Non-Governmental Organizations (NGOs), Community-based organizations (Sudanese Women Union (SWU) and the Private Sector e.g. ITNs; Academic and research institutions.

**Syria**

Ministries of Health, Agriculture, Environment, Water and Irrigation, Municipalities, academic institutions

**Yemen**

Ministry of Health and Population, Environment, Agriculture, Municipalities, Academic institutions

As mentioned in 101 above, with the exception of Sudan, none of the other countries have included other partners (like NGOs) in their respective national steering committees. This is not intentional but rather a true reflection of what is currently available in the countries. Most of these countries come from a background in which vector control has been vertical and mainly implemented by the public sector.

At the start of the project the composition of the National Steering Committee will be reconfirmed. Also, under detailed protocol development for the demonstration projects, it should be added that the stakeholder involvement will be reviewed and updated to ensure the demonstration project will be all-inclusive. Finally, this is an issue to be addressed at the harmonization meeting for the country protocols and will be mentioned among the objectives of that meeting.

104. One of the central requirements of a successful vector-borne disease control strategy is the move from vertical centralized programs to decentralized integrated strategies based on the empowerment of the affected local communities. The involvement of these communities, as well as linkages with national and local authorities is central to the success of this project. It is important that communities also appreciate the problem of POPs from the onset. This not being so easy would require specific community campaigns and awareness to adequately empower them. Such an approach will take into account local social conditions, which varies from country to country.

105. Besides the global population (which will benefit from the reduced POPs emissions in the global environment), the primary beneficiaries of the proposed project will be:

- a) Populations living in project districts where VBDs incidence will be reduced, the environment will be cleaner and they will be empowered for health choice decision-making through training and public awareness raising on the

alternative intervention as the result of the Communication for Behavioral Impact (COMBI);

b) Health workers at risk of exposure through mixing and handling of public health insecticide will be trained on the safe use and management of public health pesticides and therefore reduce health risks related to continued exposure to insecticides

c) Public health institutions that will participate in capacity development activities will strengthen their own capacities

d) Vector control personnel who will receive training on alternative vector control strategies such as IVM

106. They are mobilized through:

a) Establishment of a network based on a mailing list system between project staff and stakeholders at all levels (district, national and regional). This will enable information exchange and discussion of project implementation issues on a daily basis.

b) Organization of annual meetings of the participating countries in which non-project countries that have embarked on IVM implementation will be invited for information sharing on results and experiences. Opportunities for cross-border collaboration will be explored.

c) Production of annual reports with detailed progress on implementation with obtained outcomes and impact when and where applicable.

### **Incremental Cost and Project Financing**

107. Table 1 presents the baseline, alternative and incremental costs of the project. The incremental cost analysis and benefit is discussed in Annex A. Table 2 specifies project financing, including co-financing. Table 3 presents the entire project budget by component and activity showing baseline, total and incremental costs. It also shows the funding requested from the GEF and co-financing commitments to cover incremental costs. The amounts necessary for each country to develop the project was established based on a draft country proposal to implement alternative interventions at project sites. Governments also indicated expenses related to national activities as part of their programme budgets in the project areas. Significant co-financing is available from the countries. The estimated co-financing includes from national budgets for vector borne diseases control programmes specifically directed at the populations of the project areas. The budget includes in-kind contribution of US\$ 1,205,500 from WHO. WHO will provide a full time Project Coordinator. The total cost of the project (including PDF

costs) is US\$ 13,979,516 of which US\$ 4,913,114 is requested from the GEF. The remaining budget of US\$ 8,416,402 (100 %) will be provided through in-kind (US\$ 4,316,402 or 51 %) and cash (US\$ 4,100,000 or 49 %) funding from the involved governments. See the attached Commitment Letters of the participating countries. It should further be noted that the 8 % Executing Agency Fee is covering the institutional and overhead costs of the Executing Agency (WHO) and is not a duplication of costs already mentioned under component 5.

**Table 1**  
**Baseline, Alternative and Incremental Costs in US Dollars**

<b>Component</b>	<b>Baseline expenditures</b>	<b>Alternative</b>	<b>Total Increment</b>
<i>Outcome Component 1: Viability, availability, sustainability and cost-effectiveness of the alternatives to the use of DDT demonstrated</i>			
Output 1.1 National protocols formulated	-	94,000	94,000
Output 1.2 Capacity building for project implementation based on country protocol carried out	-	157,000	157,000
Output 1.3 Regional Workshop conducted for the harmonization the country protocols	-	55,880	55,880
Output 1.4 Assistance provided to the National Project Coordinators for implementing demo projects	10,340,013	17,411,383	7,071,370
Output 1.5 Project activities monitored through Steering Committees and STAC, project activities and on-site visits to demonstration projects	160,000	531,600	371,600
Output 1.6 Technical support provided for the analysis of datasets, including cost-effectiveness and sustainability analysis	-	120,000	120,000
Output 1.7 STAC meeting to review the national reports and draft consolidated regional report held	-	56,600	56,600
<b>Sub-total</b>	<b>10,500,013</b>	<b>18,426,463</b>	<b>7,926,450</b>
<i>Outcome Component 2 : Capacity in each country to plan, implement and evaluate the application of alternatives to DDT based on the principles of IVN strengthened</i>			
Output 2.1 National seminars organized to review of policy and legal frameworks	-	325,000	325,000
Output 2.2 Advocacy documents produced and dissemination of good practices has become normal practice	-	224,000	224,000

Output 2.3 National Vector Control units are restructured and technical management provided as needed	-	200,000	200,000
Output 2.4 Guidelines and training materials are developed, up-dated and reviewed	-	562,000	562,000
<b>Sub-total</b>	-	<b>1,311,000</b>	<b>1,311,000</b>

*Outcome Component 3 : Collection, repackaging and disposal of POPs pesticides used in public health and agriculture completed..*

Output 3.1 Obsolete POPs pesticides used in public health and agriculture are collected, repacked and disposed.	1,600,000	2,215,132	615,132
<b>Sub-total</b>	<b>1,600,000</b>	<b>2,215,132</b>	<b>615,132</b>

*Outcome Component 4 : Information on good practices and demonstrated cost-effective and sustainable alternatives taken up by national institutions and planning processes*

Output 4.1 Project report / articles published and web-page designed.	-	255,833	255,833
<b>Sub total</b>	-	<b>255,833</b>	<b>255,833</b>

*Component 5 : National & transboundary coordination, information sharing and monitoring and evaluation mechanisms operational and effective in promoting Integrated Vector Management without the use of DDT*

Output 5.1 1 Assistant Project Coordinator recruited and 8 National Coordinators assigned, national & transboundary project coordination & information sharing effective.	-	774,500	774,500
monitoring and evaluation (including UNEP Mid Term and Final)	-	200,000	200,000
50 % Project coordinator and office support	-	442,500	442,500
Output 5.2 Operation of National Steering Committees	-	366,667	366,667
Output 5.3 Establishment and	-	40,000	40,000

operation of Regional STAC Various reports produced	-	91,000	91,000
Project Management	-	500,000	500,000
50 % Project Coordinator and office support	-	442,500	442,500
<b>Sub-total</b>	-	<b>2,857,167</b>	<b>2,857,167</b>
<b>Total components 1-5</b>	<b>12,100,013</b>	<b>25,065,595</b>	<b>12,965,582</b>
Programme support costs (8% of 4,549,180)	-	363,934	363,934
<b>Grand Total</b>	<b>12,100,013</b>	<b>25,429,529</b>	<b>13,329,516</b>

**Table 2 Project Financing**

<b>Component</b>	<b>Incremental Cost</b>	<b>GEF</b>	<b>Governments</b>	<b>WHO</b>
Activity 1.1. Formulation of national protocols	94,000	59,000	7,000	28,000
Activity 1.2 Capacity building for project implementation based on country protocol	157,000	59,000	70,000	28,000
Activity 1.3 Organize a regional workshop for the harmonization the country protocols	55,880	48,880	7,000	-
Activity 1.4 Demo-Project implementation	7,071,370	1,311,600	5,681,770	50,000
Activity 1.5 Monitor project activities and on-site visits to demonstration projects	371,600	336,600	35,000	28,000
Activity 1.6 Analysis of datasets, including cost-effectiveness and sustainability analysis	120,000	48,000	35,000	37,000
Activity 1.7 Organize a STAC meeting to review the national reports	56,600	42,600		14,000
<b>Sub total</b>	<b>7,926,450</b>	<b>1,905,680</b>	<b>5,835,770</b>	<b>185,000</b>
Activity 2.1 Review of policy and legal frameworks.	325,000	176,000	112,000	37,000
Activity 2.2 Produce advocacy				-

and promotional documents and conduct national seminars and on site visits	224,000	160,000	64,000	
Activity 2.3 Restructuring of national vector control units	200,000	160,000	40,000	-
Activity 2.4 Developing guidelines and organization of training courses on vector control	562,000	450,000	112,000	-
<b>Sub total</b>	<b>1,311,000</b>	<b>946,000</b>	<b>328,000</b>	<b>37,000</b>
Activity 3.1 collection, repackaging and disposal of obsolete public health and agricultural POPs	615,132	400,000	215,132	-
<b>Sub total</b>	<b>615,132</b>	<b>400,000</b>	<b>215,132</b>	<b>-</b>
Activity 4.1. Publication of project report and formation of a web-page	255,833	166,500	80,000	9,333
<b>Sub total</b>	<b>255,833</b>	<b>166,500</b>	<b>80,000</b>	<b>9,333</b>
Activity 5.1. Recruitments of 1 Asst. Technical Project Coordinator and assignments of 8 national Coordinators, national & transboundary coordination, information sharing etc.	774,500	310,000	442,000	22,500
Monitoring and evaluation	200,000	100,000	80,000	20,000
50 % Project Coordinator & office support	442,500	-	-	442,500
Activity 5.2. Operating of 8 National Steering Committees	366,667	240,000	80,000	46,667
Activity 5.3. Operating of Regional STAC, production of various reports	40,000	40,000	-	-
	91,000	91,000	-	-
Project Management (excl. WHO Project Coordinator & office support)	500,000	350,000	150,000	-
50 % Project Coordinator & office support	442,500	-	-	442,500
<b>Sub total</b>	<b>2,857,167</b>	<b>1,131,000</b>	<b>752,000</b>	<b>974,167</b>
<b>Sub total for Component 1,2,3,4,5</b>	<b>12,965,582</b>	<b>4,549,180</b>	<b>7,210,902</b>	<b>1,205,500</b>
WHO Programme support costs (8%) (of 4,549,180)	363,934	363,934	-	-



<b>Grand Total</b>	<b>13,329,516</b>	<b>4,913,114</b>	<b>7,210,902</b>	<b>1,205,500</b>
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## Monitoring, Evaluation and Dissemination

107. A project administrative, technical and financial reporting framework will be established in a manner conforming to UNEP and GEF reporting protocols. A monitoring and evaluation plan has been prepared and is attached as Annex K. The executing agency will prepare, at project inception, work-plans and the terms of reference for project staff and consultants. These will be submitted to the first meeting of the STAC for review and approval.

108. The STAC will monitor the overall progress of the project through annual project evaluations in the context of the approved work-plan, which will be revised annually. The work-plan and evaluation will be based on the log-frame matrix (Annex B) and the implementation arrangements. The work-plan will have component activities subdivided into time-bound milestones or indicators and progress made against these milestones will be assessed annually.

109. Each NSC will review project implementation progress twice a year and will prepare a comprehensive annual report on the progress made to the executing agency for the preparation of annual reports. After the first two years of project implementation, a **mid-term** evaluation will be carried out to assess the level of attainment of project objectives. The conclusions and recommendations of this evaluation will be used as necessary to adjust project implementation and management plans. The project will also be subject to a **final evaluation**. Both mid-term and final evaluation will be carried out by or on behalf of UNEP.

110. WHO will provide UNEP with evaluation reports according to specific reporting requirements. The final report of the project will consist of an extensive review of project achievement/findings in the five project components. These will include detailed analyses of:

- a) viability, availability, sustainability and cost-effectiveness of the alternatives to DDT;
- b) strengthened national capacities for the planning, implementation and evaluation of the vector control alternatives to DDT, based on the principles of the IVM;
- c) strengthened national capacities for the sound management of DDT and other public health pesticides and safeguarding of POPs-containing pesticide wastes
- d) dissemination of good practices, demonstrated alternatives and lessons learned in the participating countries.

111. Lessons learned from the project will be disseminated through a wide range of media (e.g. reports, web-page, meetings and conferences) to a number of target audiences both within and outside of the project region. Target audiences will include project and non-project countries, regional and international developmental organizations, the Conference of Parties to the Stockholm Convention on POPs, as well as regional and international journals as well as scientific publications. Wide dissemination of project lessons will ensure that maximum benefit is obtained from the project at both the local, national, regional and global levels.