



Global Environment Facility

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March 24, 2008

Dear Council Member,

The UNEP as the Implementing Agency for the project entitled ***Regional: Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management*** has submitted the attached proposed project document for CEO endorsement prior to final Agency approval of the project document in accordance with the UNEP procedures.

The Secretariat has reviewed the project document. It is consistent with the project concept approved by the Council in June 2005 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the UNEP satisfactorily details how Council's comments and those of the STAP have been addressed.

If by April 21, 2008, I have not received requests from at least four Council Members to have the proposed project reviewed at a Council meeting because in the Member's view the project is not consistent with the Instrument or GEF policies and procedures, I will complete the Secretariat's assessment with a view to endorsing the proposed project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

A handwritten signature in black ink, appearing to read "Monique Barbut".

Monique Barbut
Chief Executive Officer and Chairperson

Attachment: Project Document

cc: Alternates, GEF Agencies, STAP, Trustee



REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project
THE GEF TRUST FUND

Submission Date: March 6, 2007

Re-submission Date: February 13, 2008

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID:

GEF AGENCY PROJECT ID:

COUNTRY(IES): Multi-country: Benin, Guinea, Mali, Mauritania, Niger and Senegal

PROJECT TITLE: Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management

GEF AGENCY(IES): UNEP, (select), (select)

OTHER EXECUTING PARTNER(S): FAO; Benin, Ministry of Agriculture; Guinea, Ministry of Agriculture and Environment; Mali, Ministries of Agriculture and Environment (joint); Mauritania, Ministry of Agriculture and Environment; Niger, Ministries of Agriculture and Environment (joint); Senegal, Ministry of Agriculture;

GEF FOCAL AREA(S): Persistent Organic Pollutants, International Waters, (select),

GEF-4 STRATEGIC PROGRAM(S): POPS-SP-3, IW-SP-4

NAME OF PARENT PROGRAM/UMBRELLA PROJECT: N/A

Expected Calendar	
Milestones	Dates
Work Program (for FSP)	June 2005
GEF Agency Approval	May 2008
Implementation Start	July 2008
Mid-term Review (if planned)	March 2010
Implementation Completion	June 2012

A. PROJECT FRAMEWORK (Expand table as necessary)

Project Objective: To protect transboundary waters in the Niger and Senegal River Basins through elimination of POPs pesticide-use and substantial reduction and elimination of other toxic pesticides used in agriculture; while augmenting agricultural productivity and net economic benefits to farmers								
Project Components	Indicate whether Investment, TA, or STA**	Expected Outcomes	Expected Outputs	GEF Financing*		Co-financing*		Total (\$)
				(\$)	%	(\$)	%	
1. Awareness raising and establishing baselines	STA	Stakeholder awareness raised through establishment of baselines on pesticide use and farm-level production statistics as well as through policy studies on pesticide use and current legislation at national and regional levels. Partnerships developed with	Overall picture of riverine contaminant levels, types and data on farmer pesticide practices provided by project to feedback to appropriate government structures and regional pesticide regulation structures (CILSS CSP and CPH/AOC);	805,076	53.2	706,930	46.8	1,512,006

		government structures, NGOs and Farmer Organizations (FOs) at local, national and regional levels	Baseline agronomic, economic and pesticide use data established for 30 communities; national policy studies and serve to generate at least two policy recommendations per country					
2. Assessment of freshwater contaminants	STA	Stakeholders are alerted to the type and level of threat to humans and environment from pesticide-contaminated waters through the first high-quality assessment of the two principal rivers and associated irrigation and drainage systems	<p>A clear picture of contaminant levels along the Senegal and Niger rivers provided by water and sediment samples in 30 locations in six countries;</p> <p>Overall project progress and outcomes provided to governments and others from project database including geo-referenced data (GIS) ;</p> <p>Relative risks to farmers and aquatic environment from exposure to pesticides estimated from at least three simple empirically based modelling approaches;</p> <p>Novel curriculum suitable for use in Farmer Field Schools in sub-region and beyond derived from contaminant analysis and modelling efforts;</p>	1,140,269	50.8	1,105,980	49.2	2,246,248
3. Developing Good Practices for Agricultural Production	TA	Toxic pesticide use is drastically curtailed, POPs pesticide-use is eliminated, and agricultural productivity and profitability are substantially increased in all three cropping systems (rice, vegetables, cotton) through participatory training and adoption of Best Practices for agriculture. Community-level pesticide-monitoring systems in place and examples of successful self-financed FFS seen	<p>Farmer Field School curricula expanded to include modules on ecosystem services, ecological functioning, community-based mapping and contamination risks to hydrological systems and aquatic environments.</p> <p>150 “technician” trainers and 300 farmer trainers trained. At least 30,000 farmers undergo season-long FFS training;</p> <p>Lessons learned and</p>	1,265,566	46.4	1,460,440	53.6	2,726,005

		in each country.	<p>curriculum developed during the course of the project shared across all six countries;</p> <p>Substantial participation by women in FFS assured: at least 50% in market gardening, 30% in rice and 20% in cotton;</p> <p>Community-based monitoring systems for pesticide use developed and used by all 30 target communities;</p> <p>At least two new FFS conducted by local farmer-facilitators in neighbouring communities by end of project. At least 3 self-financed FFS successfully up-and-running in each country by end of project.</p>					
4. Developing Community Networks	TA	Communities sharing the same river-basin hydrological resources communicate the results of Best Practices and contaminant reduction activities through inter-community communication and exchange networks	<p>Communities disseminate experiences and knowledge gained during project to neighbouring communities in the form of at least one “open door” (inter-community meeting) per location;</p> <p>Networks of IPPM farmer facilitators maintain quality and timeliness of information to farmers through exchanges at local, provincial, national and subregional levels.</p>	505,076	44.6	626,929	55.4	1,132,005
5. Project management				389,344	41.1	557,881	58.9	947,225
Total Project Costs				4,105,330	47.9	4,458,160	52.1	8,563,490

* List the \$ by project components. The percentage is the share of GEF and Co-financing respectively to the total amount for the component.

** TA = Technical Assistance; STA = Scientific & technical analysis.

B. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	<i>Project Preparation*</i>	<i>Project</i>	<i>Agency Fee</i>	<i>Total at CEO Endorsement</i>	<i>For the record: Total at PIF</i>
GEF	372,500	4,105,330	442,000	4,919,830	4,919,830
Co-financing	369,350	4,458,160		4,827,510	4,827,510
Total	741,850	8,563,490	442,000	9,305,340	9,305,340

* GEF funding is from GEF-3.

C. SOURCES OF CONFIRMED CO-FINANCING, including co-financing for project preparation for both the PDFs and PPG.

(expand the table line items as necessary)

<i>Name of co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Amount (\$)</i>	<i>%*</i>
Netherlands Trust Fund	Bilat. Agency	Grant	2,800,000	58.0
Swedish Trust Fund	Bilat. Agency	Grant	267,000	5.5
Governments	Nat'l Gov't	in-kind	999,732	20.7
FAO PDF-B	Exec. Agency	in-kind	369,350	7.7
FAO Full Project	Exec. Agency	in-kind	391,428	8.1
Total Co-financing			4,827,510	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

D. GEF RESOURCES REQUESTED BY FOCAL AREA(S), AGENCY(IES) OR COUNTRY(IES)

<i>GEF Agency</i>	<i>Focal Area</i>	<i>Country Name/ Global</i>	<i>(in \$)</i>			
			<i>Project Preparation</i>	<i>Project</i>	<i>Agency Fee</i>	<i>Total</i>
UNEP	POPs (select)	Multi-country: Benin, Guinea, Mali, Mauritania, Niger and Senegal		2,052,665	221,000	2,273,665
UNEP	IW	Multi-country: Benin, Guinea, Mali, Mauritania, Niger and Senegal	372,500	2,052,665	221,000	2,646,165
Total GEF Resources			372,500	4,104,330	442,000	4,919,830

* No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

E. PROJECT MANAGEMENT BUDGET/COST

<i>Cost Items</i>	<i>Total Estimated person weeks</i>	<i>GEF (\$)</i>	<i>Other sources (\$)</i>	<i>Project total (\$)</i>
<i>Local consultants*</i>	652.8	163,344	180,360	343,704
<i>International consultants*</i>	124.8	226,000	284,000	510,000
<i>Office facilities, equipment, vehicles and communications**</i>		0	21,200	21,200
<i>Travel**</i>		0	32,017	32,017
Total	777.6	389,334	517,577	906,921

* Provide detailed information regarding the consultants in Annex C.

** Provide detailed information and justification for these line items.

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

<i>Component</i>	<i>Estimated person weeks</i>	<i>GEF(\$)</i>	<i>Other sources (\$)</i>	<i>Project total (\$)</i>
<i>Local consultants*</i>	4569.6	1,069,040	1,072,283	2,141,323
<i>International consultants*</i>	1,030	884,593	947,807	1,832,400
Total	5,600	1,953,633	2,020,090	3,973,723

* Provide detailed information regarding the consultants in Annex C.

G. DESCRIBE THE BUDGETED M&E PLAN:

Evaluation of the project's success in achieving its outcomes will be monitored continuously throughout the project through semi-annual progress reports, annual summary progress reports, a mid-term and final evaluation, all of which will use the project logframe as a monitoring, evaluation, and reporting tool. The FAO project management officer will work closely together with the Regional Project Coordinator to complete this task.

An internal monitoring plan will census community behaviour and change at multiple points in time: (i) Baseline surveys in all target areas are part of the project strategy, by allowing the communities to see their own change over time. These data will also serve the larger M&E task (ii) Mid-season monitoring by provincial-level project focal points will allow farmers in FFS to give feedback on the performance of their facilitator to the National Coordination Unit, thereby providing an independent back-channel check on the performance of the facilitators, (iii) end of season FFS evaluations look at the performance of the FFS through measurements of yield measurements, economic costs/benefits, gender, etc., and (iv) longer-term adoption rates of alternative production methods and measurements of performance indicators will take place towards the end of the project, looking back to communities in which the training was introduced three-to-four years earlier. Spread (replicability) to neighbouring communities will also be

evaluated at this time, based on methods developed earlier in the IPPM/FFS program in collaboration with the Department of Agricultural Economics at the University of Hanover, Germany.

TABLE I-1: INDICATIVE MONITORING AND EVALUATION WORK PLAN AND CORRESPONDING BUDGET

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
Inception Workshop	<ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNEP ▪ FAO 	\$40,000 (including co-fi contribution)	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> ▪ Project Team ▪ UNEP ▪ FAO 	None	Immediately following IW
Measurement of Initial Community Baselines and Means of Verification for Project Purpose Indicators	<ul style="list-style-type: none"> ▪ Regional Project Coordinator will oversee the development of specific survey tools and execution of village-level surveys through contracts with regional NGO (ENDA Pronoat, Dakar). Each country will have one technical assistant responsible for national coordination of studies. Each community will elect a member to be trained and to jointly participate and act as liaison with survey teams. 	To be finalized in Inception Phase and Workshop. Indicative cost \$200,000 (including co-fi contributions). Note that this is an extensive field project that includes surveys not only of agronomic, economic and social data for 30,000 farm households, but also related data for representative samples from all participating communities	Over the course of the project as communities are brought into the project. To include at least a starting baseline survey and a final survey and evaluation.
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	<ul style="list-style-type: none"> ▪ Oversight by Project Chief Technical Advisor and Project Regional Coordinator ▪ Measurements by National Project Coordinators and technical assistants ▪ Measurements of village-level training by government participating agents (focal points for provincial-level training activities) 	To be determined as part of the Annual Work Plan's preparation. Indicative cost \$25,000 / year	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	<ul style="list-style-type: none"> ▪ Project Team ▪ UNEP ▪ FAO 	None	Annually
TPR and TPR report	<ul style="list-style-type: none"> ▪ Government Counterparts 	None	Every year, upon

	<ul style="list-style-type: none"> ▪ UNEP ▪ FAO ▪ Project Team 		receipt of APR
Reginal Steering Committee Meetings	<ul style="list-style-type: none"> ▪ Project Coordinator ▪ UNEP ▪ FAO 	Indicative cost at \$30,000 annually; 50% co-financed by Netherlands sister project.	Following Project IW and subsequently at least once a year
Periodic status reports	<ul style="list-style-type: none"> ▪ Project team 	none	Semi-annual project status reports and quarterly financial reports as agreed to with Netherlands.
Technical reports	<ul style="list-style-type: none"> ▪ Project team ▪ Partner institutions 	None or subsumed within collaborating agreements	To be determined by Project Team, UNEP and FAO
Mid-term External Evaluation	<ul style="list-style-type: none"> ▪ Project team ▪ UNEP ▪ FAO ▪ External Consultants (i.e. evaluation team) 	40,000 (includes rates, DSA and flights)	At the mid-point of project implementation.
Final External Evaluation	<ul style="list-style-type: none"> ▪ Project team, ▪ UNEP ▪ FAO ▪ External Consultants (i.e. evaluation team) 	40,000 (includes rates, DSA and flights)	At the end of project implementation
Terminal Report	<ul style="list-style-type: none"> ▪ Project team ▪ UNEP ▪ FAO ▪ External Consultant 	\$10,000	At least one month before the end of the project
Lessons learned	<ul style="list-style-type: none"> ▪ Project team ▪ UNEP ▪ FAO 	None (part of semi-annual reporting process)	Semi-annually
Audit	<ul style="list-style-type: none"> ▪ UNEP ▪ Project team 	4,000 (average \$1000 per year)	Yearly
Visits to field sites (UNEP staff travel costs to be charged to IA fees)	<ul style="list-style-type: none"> ▪ UNEP ▪ FAO ▪ Government representatives 	20,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST <i>Excluding project team staff time and UNEP staff and travel expenses</i>		USD\$534,000	

PART II: PROJECT JUSTIFICATION

A. DESCRIBE THE PROJECT RATIONALE AND THE EXPECTED MEASURABLE GLOBAL ENVIRONMENTAL BENEFITS:

The GEF alternative is intended to address the principal root causes underlying the existing agroecological and contaminant problems along the transboundary waterways in the six participating countries. The principal root causes (see full brief, Annex J) are related to lack of awareness at all stakeholder levels of the externalities associated with pesticide use, lack of monitoring and enforcement capabilities, a long-term history of vested commercial interests in the distribution and sale of pesticides, as well as lack of awareness of sustainable alternative “best practices” for agricultural production.

Building knowledge and technical capacity will be based on an expansion of the IPPM/FFS approach that has provided good results in other countries and that has been successfully applied in West Africa since 1999, and in Asia since the late 1980s. During the PDF-B phase, the process of informing and increasing the sensitivity of the local populations and authorities to the hazards and counter-productive outcomes associated with pesticide use was well received and had a positive influence on community perceptions and understanding. The communities showed much interest in committing themselves to finding alternative solutions. The experiences in Mali and Senegal during the Netherlands-funded IPPM project will serve to support and facilitate the establishment of improved agricultural management practices in the riparian habitats comprising the Senegal and Niger Rivers. The overall goal is to introduce a new form of agricultural training for farmers, through capacity building within government agencies, non-governmental organizations and especially community-based farmers’ organizations, which will engender major changes in farming practices and substantial reductions in the use of chemicals for pest control, while increasing production levels, profitability and sustainability. *By putting effective alternative methods at the disposal of grower communities through proven discovery learning methods, they will be able to optimise decision-making regarding the appropriate use of land and water resources and the selection of appropriate agricultural practices.*

The proposed GEF increment will expand on the existing IPPM/FFS programme in the sub-region with multiple objectives:

Promote understanding of a range of *environmental* knowledge and issues, particularly those relating to the range of benefits from various ecosystem services, deriving from the riverine habitats, plus the specific threats posed by pesticides to the riverine habitat and therefore also to the health and well-being of the communities. Data from the water-quality samples will be put into a “hands-on” adult-learning format for use in an FFS context to support this objective.

Demonstrate feasible, economically and environmentally advantageous alternative production models. *The main barrier to adoption of agricultural methods that prevent contamination of fields and waterways is lack of knowledge and skills in the communities.* The hands-on educational approach of the FFS will help the farming communities demonstrate for themselves the feasibility of alternative, non-polluting methods.

Develop a community-based pesticide-monitoring system. This principal objective of the project involves farming communities surveying, monitoring and keeping track of trends in pesticide use in their own communities through development of an appropriate system for accounting for pesticide use in the communities (type, quantities, points of sale origin, time of use, crop type, etc.). Adoption of the system will be motivated by enhanced understanding of

health, economic and environmental costs and risks associated with pesticide use and further motivated by a hands-on appreciation of a range of economically advantageous alternatives.

Create links among communities that share the same hydrological system flows (“upstream-downstream”) to enable farmer-to-farmer advocacy and the sharing of information and experience, particularly information on the impact of production models on the environment¹ and the health of communities working and living in downstream areas.

Disseminate tools for community-based action-oriented analysis and planning, for the future of the river basins.

The measurable global environmental benefits include large-scale reductions in toxic chemical use in the two principal watersheds in West Africa, which pass through some of the poorest countries on the planet and whose use (principally the POPs pesticide, dieldrin, results in long-term and long-distance (polar) dispersal and subsequent entry into global food chains. Regionally, the two river basins are home to upwards of 50% of the European migratory birds that move to and from Africa each year (project area encompasses 5 Ramsar sites). The long-term benefit to these populations is likely to be substantial and related to reduction of toxic pollutants in the hydrological systems that has direct effect on avian health and indirect effects through damaging aquatic foodwebs.

As mentioned above this full GEF project will contribute to the implementation of the Stockholm Convention on POPs through establishing direct links, and exchanging information with the national committees charged with development of the NIPs. The project will in effect be carrying out several of the operational goals specified in the NIPs (e.g., elimination of POPs pesticide use and development of local monitoring systems). It will also assist the participating countries to achieve the objectives set in UNCED Chapter 14, paragraph 21 (*i.e.*, sustainable agriculture) and the agriculture section of the Convention on Biological Diversity. It will promote movement away from the psychological dependence on agrochemicals, particularly on POPs, PTS and other highly toxic substances in the sub-region. It will also improve farmer yields and incomes while avoiding environmental contamination.

While the regional registration systems through CSP and CPH/AOC are currently fully operational, in practice this is only a part of the task of managing pesticides and there are still pesticides circulating in the countries that are not on the approved lists (including dieldrin). The proposed GEF project will be complementary to the activities of these two sub-regional structures by providing important feedback from the regional farming communities to the CSP and CPH/AOC in the form of annual reports based on the community-based surveys, community-based monitoring programs and laboratory water contaminant sampling data. In return, the project will receive current status on chemicals registered for use by the two regional structures, which will be used as part of the information and awareness raising efforts. A more active link may also be considered in which the structures request specific monitoring to be carried out within the framework of the GEF programme. *These important links will increase the likelihood of the project having regional policy-level outcomes, and also increase the likelihood that countries will seek support for follow-on activities based on the model of the GEF project.*

- B. **DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:** The project proposal adheres closely to the country priorities, as indicated in the POPs National Implementation

¹ Especially for market gardening and cotton that generally exhibit substantially higher pesticide loads.

Plans (NIPs) and various National Strategies for sustainable agriculture. For further discussion see Project document: “National and sub-regional context” (for further details see Project Document paragraphs 18-21)

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH [GEF STRATEGIES](#) AND STRATEGIC PROGRAMS :

The project will contribute to the achieving the International Waters Strategic Programme 4: Reducing Persistent Toxic Substances and Testing Adaptive Management of Waters with Melting Ice, and POPs Strategic Programme 3: Partnering in the Demonstration of Feasible, Innovative Technologies and Best Practices for POPs Reduction.

D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES :

There exist GEF interventions in the International Waters Focal Area that have direct relevance and potential connection with this proposed project. These include a regional project entitled “Reversing Land and Water Degradation Trends in the Niger River Basin”. This project involves *inter alia* integrated regional capacity building of the Niger River basin Authority (NBA) and local capacity building to manage local resources through community-based implementation of microgrant-supported interventions. Possible ties to the current proposal are evident from the statement in the Niger River Basin project: “The GEF project’s technical components, through the microgrant-supported demonstration activities, will develop an understanding of the inter-relationship of better land management practices in agriculture, forestry, and other relevant sectors; and define mechanisms to improve water quality while reducing degradation of the regional diversity and ecosystem. Offering possibilities for cumulative rural socio-economic benefits for communities that depend on the land and water resources for their livelihood.”

A second GEF project in the International Waters Focal Area is a regional project entitled “*Senegal River Basin Water and Environmental Management Program*”. The objective of this project is to provide a participatory strategic environmental framework for the environmentally sustainable development of the Senegal River basin and to launch a basin-wide cooperative program for transboundary land-water management. The three governments through OMVS have embarked on the implementation of a program called PASIE (*Plan d’Atténuation et de Suivi des Impacts sur l’Environnement*). Priority concerns include environmental health and pollution is mentioned, but no mechanisms are in place for monitoring contaminants or working with communities in this regard.

A third GEF project in the sub-region includes the Futa-Djallon project, which will include the eight riparian countries of Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, and Sierra Leone. The development objective of the Programme is to “ensure the rational use and the protection of natural resources existing in the Fouta Djallon Highlands and to help improving the living conditions of populations in the area as well as in areas irrigated by waters originating from the Highlands”.

Given that all three of these projects have some elements related to health of the riverine environments, but do not have specific pesticide monitoring capabilities at the community level, the proposed GEF project can therefore play a complementary role in this regard. These projects may wish to adopt aspects of the approach presented in this project. Formal contacts will be established during initial meetings among project coordinators during the initial stages of this project, which will assure information exchange through half-yearly reports sent to the three projects. Specifically, results from the current project will be transmitted directly to the GEF-financed OMVS “Observatoire Environnemental” as well as to the project coordination of the Niger Basin Authority (NBA). In addition, opportunities for further exchanges will be developed through participation of appropriate project staff, most likely at the Technical Steering Committee level, but perhaps for more technical staff, in workshops and meetings.

The project will provide important outcomes for each of the six countries in line with their respective National Biodiversity Strategy and Action Plans and Country Reports to the COP, as formulated as part of the Convention on Biological Diversity (CBD). Annual country reports will be sent to country focal points for the CBD.

Apart from GEF-supported POPs enabling activities in individual countries of the sub-region that have been referred to previously, there are two GEF initiatives in the POPs Focal Area that deserve reference. The first of these is the so-called 12 “*Country POPs Project*” (the project’s formal name is “*Development of National Implementation Plans for the Management of Persistent Organic Pollutants (POPs)*”). Guinea is a participating country in this project. The project, however, can be regarded as analogous to the GEF-supported individual country enabling activities for the National Implementation Plans (NIPs). *It was specifically recommended* during the second sub-regional stakeholders meeting (Bamako, March 7-8 2005) that the current project should develop formal linkages between the National Technical Steering Committees for this project and the national committees charged with the development and implementation of the POPs National Implementation Plans and that annual reports from the project be sent to the POPs committees. The project will contribute to the implementation of the NIPs by helping communities understand the risks of use, and the feasibility of alternatives to the use of black-market dieldrin.

The other POPs project is a regional project entitled “*African Stockpiles Program, Strategic Partnership I*”. Both Niger and Mali are participants in this project that is planned to enter its full project phase in the near future. The project is currently in its appraisal phase. The FAO will ensure annual reports and any intermediate important and relevant findings from the project are sent to the stockpiles project coordinator, once the stockpiles project commences.

Implementing Agency (UNEP) Programming Context

UNEP is the primary United Nations agency promoting the development of the *Strategic Approach to International Chemicals Management (SAICM)*. This initiative was proposed by UNEP in 2002 as an outgrowth of the IFCS *Bahia Declaration on Chemical Safety* that includes priorities for action beyond 2000. The purpose of SAICM is to promote enhanced coherence of international and national activities in the field of chemicals management and incorporate chemical safety issues into sustainable development. The initiative was endorsed by the World Summit on Sustainable Development (WSSD) in 2002. In the same year, an inter-organization steering committee for SAICM was formed comprising representatives of the seven agencies (*i.e.*, ILO, FAO, UNEP, UNIDO, OECD, WHO and UNITAR), the IFCS, UNDP and the World Bank) participating in the Inter-Organization Programme on the Sound Management of Chemicals (IOMC). SAICM is foreseen as a primary mechanism for enhancing human health and environmental protection from the effects of chemical exposures over the longer term and for meeting the WSSD target of improved chemicals management by 2020.

UNEP has many programmes and initiatives in relation to developing countries in Africa. UNEP is also the GEF implementing and executing agency for POPs Enabling Activities in three of the countries participating in this project, Benin, Mauritania and Senegal.

Executing Agency (FAO) Context

The Plant Protection Service of FAO includes the Global IPM Facility that will be executing this project. The Facility provides guidance on Integrated Production and Pest Management (IPPM) in South and South-east Asia, the Middle East, Eastern Europe, Africa and South America and the Caribbean. The IPPM/FFS approach has been shown to increase farmer productivity and reduce input costs through the substantial reduction of pesticide inputs. It improves sustainability of agroecosystems by focusing on improving the knowledge and skills of farmers to enable better management of resources, and reduces farmers' dependence on procured inputs. The approach addresses a full range of agronomic topics, and stresses economic planning and decision-making skills, thereby offering a starting point to improve the farming system as a whole. FAO has been compiling curricula for Farmer Field Schools world-wide, and this offers the project the opportunity to adapt and modify training materials from existing programs, rather than starting from zero.

Currently in West Africa three of the six project countries are involved in an FAO-executed IPPM program with the support of the Netherlands (GCP/RAF/009/NET). This \$9.5 million program provides

\$2.8 million cash co-financing to the GEF project. The four-year second phase programme began in June 2006 and will provide assistance in terms of redirected co-financing, trained personnel and the collective experience of sub-regional and technical coordinating units.

A Netherlands'-funded partnership programme with FAO (FNPP) is currently completing a second phase to last to June 2008. In this phase FAO has been asked to focus a cross-disciplinary effort in four countries world-wide. The countries chosen were India, Laos, Kenya and Mali. In Mali staff from 10 FAO services will be conducting small projects and case-studies on the theme of agricultural biodiversity. One sub-component will involve water resources in the Office du Niger, the assessment of the nature of aquatic biodiversity resources in use by rural populations, and the development of irrigated aquaculture, using a Farmer Field School approach. The rationale is that if rural people better recognize the extent of the benefits gained from aquatic resources, and also begin to benefit nutritionally and economically from aquaculture activities, they will be motivated to prevent further contamination of aquatic resources.

FAO has operated a programme for the prevention and elimination of obsolete pesticides since 1994. The GEF/World Bank/FAO "African Stockpiles Project" (ASP) is currently underway. The initial focus of the programme was Africa and the Near East. The new pesticide detection technologies being developed for the proposed project will also be of use to the ASP, enabling them to test waters in wells and even to test the air downwind adjacent to pesticide storehouses.

Consultation Coordination and Collaboration with ongoing and planned activities

Several related programmes have been developed within the participating countries, either through national initiatives or those of external agencies. These include the GEF-supported African Stockpiles Programme (ASP). As a further example, Mali is one of the participating countries that have developed several related initiatives. These include:

As previously mentioned, the sub-regional project GCP/RAF/009/NET oriented towards the extension of the IPPM methodology to rice farming, market gardening and cotton cropping as well as the development of information/raising awareness of IPPM and on the risks of using chemicals in pest control at a cost of about US\$ 9.5 million, of which \$2.8 million is slated as direct contribution to the GEF project;

The special initiative on integrated pest management, plant protection aspects and pesticide management under PASAOP financed by an annual World Bank fund estimated at 100 millions F CFA ;

IPM/IER project/Virginia University that involves research in integrated pest management in market gardening in the Koulikoro area estimated at \$144,000;

"National Action Plan on Soil Fertility Management", which is a project for improving crop management in the area administered by the Office of Niger costing approximately \$1 million

E. DESCRIBE THE INCREMENTAL REASONING OF THE PROJECT:

Global Benefits and Incremental Costs. The global benefits comprise: substantial reductions in the use of agricultural pesticides; assisting the participating West African countries to accelerate compliance with the goals of the Stockholm Convention; substantially reduced contaminant loadings on the transboundary Senegal and Niger Rivers; reduced degradation of soils and reduced contamination of foodstuffs, both agricultural and fisheries, derived from the sub-region and reduced anthropogenic stress on indigenous organisms in the two drainage basins, thereby reducing threats to biodiversity and improving human health. These benefits are reflected in the assignments of GEF alternative cost to project components in Table 2 below (Incremental Cost Matrix). A brief description of specific objectives, benefits and incremental cost associated with each project component are summarized below.

Component 1- Awareness Raising and Establishing Baselines: The activities under this component are designed to increase awareness within the 30 project sites and among national stakeholders of the risks

posed by pesticides to the environment and to human health. The approach used here is to provide an appreciation of local effects and adverse impacts on the health and livelihoods of the communities in the sub-region as well as awareness of the existence of feasible alternative agronomic methods reduce or eliminate toxic loads and increase yields and profitability. National-level pesticide socio-economic studies will provide support to national and regional policy initiatives. Links to the CILSS *Comité Sahélien des Pesticides* (CSP) for Senegal, Mauritania, Mali and Niger, and the *Comité Phytosanitaire des Pays de la zone Humide de l'Afrique de l'Ouest et du Centre* (CPH/AOC) for Benin and Guinea, will provide needed feedback from the community level to these regional pesticide review and registration services. The proposed incremental cost is US \$1,512,006 with GEF contribution of US \$805,076. Incremental co-financing costs represent counterpart government contributions of an estimated \$ 250,000 and contributions from existing FAO led initiatives (re-directed baseline for Netherlands IPPM project) in the sub-region totalling an estimated \$456,930.

Component 2 - Assessments of Freshwater Contaminants: This component will provide high-end scientific water-quality detection of toxic compounds in aquatic systems from the CERES/Locustox laboratory in Dakar, in collaboration with existing laboratories in those member countries that have established competencies to assist in the sampling and analytical work and with strong partnership with Oregon State University, who will lead the introduction and training for new field and laboratory techniques. New, so-called “passive sampling devices” (PSD) will be used to sample surface waters from the target communities from the six countries and the samples (light-weight, resistant plastic) will be shipped to the Dakar Locustox laboratory. Analytical results will be used together with baseline survey information related to community water use and contact, to calculate quantitative Human Health Risk (HHRA) estimates to be used further in simulation models coupled with satellite imagery to estimate short, medium and long-distance (transboundary) transport and fate of the chemical pollutants. The results formulated into reports and training materials appropriate for audiences at several levels (community, national and international). This component thus constitutes the first of two core project activities and is intended to provide what will be the first serious quantitative look at the risks posed by agro-chemicals to poor rural communities in West Africa. The outcomes will provide a measure by which the second core set of activities—Farmer Field Schools—will in part be evaluated for its ability to reduce the quantity and impact of agrochemical toxins in the environment. The estimated incremental cost is US \$ 2,246,248, with GEF contributions of US \$1,140,269. Incremental co-financing costs represent counterpart government contributions of an estimated \$100,000 and contributions from existing FAO led initiatives (re-directed baseline for Netherlands IPPM and Swedish environmental impact projects) in the sub-region totalling an estimated \$1,105,980.

Component 3 - Developing Good Practices for Agricultural Production: The incremental costs are aimed to extend demonstrations of the effectiveness and benefits of alternative agronomic systems, including pest control, to a target of 30 “clusters” of rural communities along the two river basins and to establish community-based pesticide monitoring systems. A “cluster” is defined to be a group of communities (villages and towns) that share the same water resources in fairly close proximity. The incremental nature of the GEF Farmer Field Schools relates to the emphasis and focus on an ecological view of farming in riparian habitats, with the goal of raising awareness among communities of the multiple free benefits derived from largely unknown or under-appreciated ecosystem services (clean water, aquatic foodwebs leading to consumable aquatic resources, natural pest control, pollination, etc.). The GEF increment also relates to an ecosystem approach of motivating changes in behaviour of multiple villages who share common hydrological resources (whereas prior FFS initiatives target a scattering of villages with no ecosystem-based strategy). Direct farmer involvement in hands-on learning through small-group based experimentation has proven to be the most effective way by which local communities can best appreciate the benefits of, and make the shift to alternative production methods. This component thus constitutes the second of two core project activities and is intended to foster the broader adoption of alternative agricultural practices throughout the sub-region. The estimated incremental project cost is US

\$ 2,726,005, with GEF contribution of US \$ 1,265,566. Incremental co-financing costs represent counterpart government contributions of an estimated \$250,000 and contributions from existing FAO led initiatives (re-directed baseline for Netherlands IPPM project) in the sub-region totalling an estimated \$1,460,440.

Component 4 - Developing Community Networks: This component has the purpose of disseminating the expertise and awareness gained by target communities in regard to the existence and risks due to agrochemicals in water, as well as the existence and benefits of alternative agronomic practices to members of neighbouring (up-stream/down-stream) communities. Community exchange will explore the existence and importance of the “free” ecosystem services provided by shared hydrological resources (clean water, fish, birds and a multitude of consumable aquatic resources). In order to capture a substantial environmental benefit, all communities sharing the same immediate catchment resources must adopt low-toxic-load practices. Once accomplished, further exchanges beyond the immediate catchment areas will help motivate “upstream-downstream” communities further along the paths of the two rivers. There have been only a very few activities involving exchanges of farmers between countries (during the Netherlands-funded IPPM project with exchanges between cotton-growing districts of Burkina Faso and Mali, among others); however, the outcomes have been encouraging. The estimated incremental cost is US \$ 1,132,005 of which US \$ 505,076 is GEF contribution. Incremental co-financing costs represent counterpart government contributions of an estimated \$250,000 and contributions from existing FAO led initiatives (re-directed baseline for Netherlands IPPM project) in the sub-region totalling an estimated US \$376,929.

Component 5 - Project Coordination and Management: The estimated incremental cost of coordination and management is US\$ 947,225, of which US\$ 389,344 is requested from the GEF to meet these costs. Incremental co-financing costs represent counterpart government contributions of an estimated \$149,683 and contributions from existing FAO led initiatives (re-directed baseline for Netherlands IPPM project) in the sub-region totalling an estimated US \$408,198. This represents contemporary costs of project coordination in the region.

Baseline and Incremental Costs

	Baseline	Alternate	Increment
	US \$	US \$	US \$
Global Environmental Benefits	98,922,000	108,227,340	9,305,340
PDF-B Phase		741,850	741,850
Component 1 - Awareness Raising and Establishing Baselines	16,126,000	17,638,006	1,512,006
Component 2 - Assessments of Freshwater Contaminants	1,096,000	3,342,248	2,246,248
Component 3 - Developing Best Practices	79,200,000	81,926,005	2,726,005
Component 4 - Developing Community Networks	2,400,000	3,532,005	1,132,005
Component 5 - Project Coordination and Management	100,000	1,047,225	947,225

INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES :

The project execution and expected outputs are at no real risk from climate change, but on the contrary, the project has several elements that will be a positive contribution to both climate change mitigation and adaptation. The anticipated reduction in the use of agrochemicals will play a direct role in reducing greenhouse gases as substantial greenhouse gases are released during both the production and use of fertilizers and pesticides (mitigation). Furthermore, reducing toxic substances and fragile aquatic systems will help remove one additional source of stress in ecosystems increasingly stressed by climate change.

The project will lead to wide-scale use of alternative agricultural methods, which will reduce vulnerability to climate change (adaptation). For example, an important element in the curriculum for farmer training involves the promotion of compost and other plant residues to increase the level of soil organic materials. One important benefit is increased retention of soil moisture over longer periods of time; hence, increased buffering against inconsistent rainfall patterns. Another important element in the farmer training curriculum will be the promotion of diversification of cropping patterns within typical farms in sub-Saharan West Africa. For example, the inclusion of maize, legume crops and alternative cash crops for rotation and interplanting within cotton farms will lead to increased ecological and economic resilience in these farming systems.

F. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:

Cost effectiveness here refers to the extent to which the proposed project (the GEF increment) achieves a least-cost outcome for the intended benefit. In this project the approach is difficult to compare with alternatives having the same intended outcome, as no project, to our knowledge, has taken on such a similar task. The nearest approach is that of the Netherlands Regional IPPM Programme, from which this project (through re-directed baseline funding) is receiving co-financing of \$2.8 million. The IPPM approach has shown itself to be “cost effective” in the sense that it obtains returns on investments in the form of substantially reduced pesticide use and enhanced yields. The GEF increment, as stated above, aims to extend the demonstrations of the effectiveness and benefits while also adding a significant emphasis on an ecological view of farming in riparian habitats, with the goal of raising awareness with regard to the multiple free benefits derived from largely unknown or under-appreciated ecosystem services (clean water, aquatic foodwebs leading to consumable aquatic resources, natural pest control, pollination, etc.). The second difference being also based on an ecosystem approach of motivating changes in behaviour of multiple villages who share common hydrological resources. And finally, the GEF increment encompasses a strategy of establishing community-based pesticide monitoring systems, whereby communities can monitor the types of chemicals being sold locally in kiosks or brought in from outside, with the intention of limiting access to the most highly toxic, inappropriate and unlabeled chemicals.

As has long been discussed in the ecological literature, it is difficult to calculate the economic value of the benefits related to reducing negative externalities. These benefits include, *inter alia*, clean water, more resilient ecosystems, conserved biological diversity and improved human health and well-being, not to mention the important aspects related to motivation deriving from an appropriate education. For health aspects certain rules of thumb have been proposed (e.g., one dollar savings for every dollar not spent on pesticides), but these are effectively still qualitative attempts to categorize the types of benefits.

With regard to this project, however, it can be said that these benefits are likely to be substantial, given the evidence from the PDF-B, particularly when compared with the incremental costs of achieving these additional benefits.

The two major project components are related to water quality assessment and participatory training for farmers. Currently there exists little or no laboratory capacity in the region, or in fact anywhere on the continent outside of South Africa, to enable the detection and monitoring of chemical pollutants in aquatic systems. For such work to be done would require large numbers of samples to be shipped to Europe or the United States. The project will enable the development in at least one local laboratory of state-of-the-art skills for detecting chemicals and evaluating their effects on human and environmental health. This capacity building effort has already begun through the use of co-financing to the project in anticipation of

GEF CEO endorsement. Four staff members from the CERES Locustox laboratory in Dakar have been sent to the United States (Oregon State University) for medium-term training in new technologies and general laboratory techniques. The laboratory in Dakar has been equipped with new, state-of-the-art equipment for chemical detection. Very soon, therefore, the laboratory will be in a position to provide high quality processing of environmental samples for a fraction of the price that it would cost to send such samples to Europe or the United States for analysis.

Over the past several years, the FAO farmer field school program in West Africa has been experimenting with new models for training trainers and farmers using season-long participatory methods. These new models have greatly reduced the per capita cost of training. As effective farmer training is seen by most as a key element in the development of the region's agricultural communities, these advancements constitute increased cost-effectiveness. Further work is currently underway with the introduction of self financed field schools (see project document Annex L: Self-financed Farmer Field Schools).

PART III: INSTITUTIONAL COORDINATION AND SUPPORT

A. PROJECT IMPLEMENTATION ARRANGEMENT:

Institutional Framework

FAO, as the Executing Agency, will be responsible for the implementation of the project in accordance with the objectives and activities outlined in Section 2 of this document. UNEP, as the GEF Implementing Agency, will be responsible for overall project supervision to ensure consistency with GEF and UNEP policies and procedures, and will provide guidance on linkages with related UNEP and GEF-funded activities. The UNEP/GEF Co-ordination will monitor implementation of the activities undertaken during the execution of the project. The UNEP/GEF Co-ordination will be responsible for clearance and transmission of financial and progress reports to the Global Environment Facility.

FAO, as executing agency, will cooperate with UNEP so as to allow the organization to fulfil its responsibility as Implementing Agency accountable to the GEF. To this end, free access to all relevant information will be provided by FAO.

Donors

GEF: The GEF's added value is to provide incentives and financial support for national and local institutions to address priority issues related to POPs reduction and pesticides in inland waters. The Project's regional approach, with GEF support, will make financial resources available to recipient countries, to meet the "incremental costs" to address trans-boundary issues. GEF funds will assist in providing linkages and harmonizing national and local actions with regional objectives.

Co-Financiers: Co-financing agencies are an essential partner to the Project. GEF resources are catalytic in nature and additional sources of financing and expertise are essential to achieving the identified project objectives and programme goal over the longer term. Sources of finance represent a mix of national and re-directed project funding.

Project Execution and Implementation Arrangements

United Nations Environment Programme (UNEP): As the GEF Implementing Agency, UNEP will be responsible for overall project supervision to ensure consistency with GEF and UNEP policies and procedures, and will provide guidance on linkages with related UNEP and GEF-funded activities. The UNEP/GEF Co-ordination will monitor implementation of the activities undertaken during the execution of the project. The UNEP/GEF Co-ordination will be responsible for clearance and transmission of financial and progress reports to the Global Environment Facility.

Food and Agriculture Organization of the United Nations (FAO): As the Executing Agency of the project, FAO will provide the overall co-ordination and technical backstopping of the Project. In this capacity, FAO will be responsible for, *inter alia*, the overall financial management of the project, ensuring the necessary human resources and equipment inputs are provided in a timely manner to ensure smooth implementation of the project and delivery of project outputs, the submission of project progress and financial reports to UNEP/GEF. In close consultation with UNEP/GEF and the participating countries, FAO will recruit an international Chief Technical Adviser, who will be under the overall responsibility and direct supervision of FAO. The CTA will be responsible for providing technical and administrative support as well as for the management of the GEF resources at the level of the Technical Coordination Unit (TCU). The CTA will work with the Regional Project Coordinator in the day-to-day management and coordination of the project. FAO will provide technical support to the project in a very broad sense, tapping into the expertise from its programmes on GIS, land and water, African Stockpiles Programme, extension, legal advice, etc.

Project Coordination Units

The Chief Technical Advisor (CTA) will organize the creation of a Regional Project Coordination Unit (RCU) to be set up in the FAO office in Dakar Senegal.

The RCU will comprise two FAO professional staff positions and one FAO General Service staff position. To include a:

- **Regional Project Coordinator (RPC).** Under the immediate supervision of the Chief Technical Officer in Rome (CTA), the officer will be responsible for overall operational activities and staff management of the Regional Project Management Unit (RPCU), as well as providing a strong technical role in guiding design and execution of the two projects. The RPC will liaise with the CTA on programmatic issues but will also maintain direct contact with partners, donors and countries in order to ensure that all technical issues are adequately addressed and technical inputs are suitably coordinated. In addition to ensuring the timely and efficient start-up and functioning of the two projects, the RPC will oversee budget design exercises, overall monitoring of project achievement of milestones and act as focal point for the synthesis of technical and financial reports from the field to be transmitted to the CTA for clearance before submitting to national governments and regional entities. Through oversight of the regional training and regional Monitoring and Evaluation officers the RPC will maintain oversight on training and M&E. Through direct links with CERES Locustox Foundation the RPC will provide frequent oversight on activities related to the water quality assessment work to be conducted under the GEF component #2.
- **Regional Project Administrative Assistant (RPAA)** will be hired by FAO to manage daily administrative and budgetary tasks of the RPCU and to monitor financial details among the seven countries, with guidance and support from the administrative assistant in the PCU Rome.

The FAO will establish in each a **National Project Coordination Unit (NCU)**. National Project Coordinators (NPC) will be chosen in the countries by FAO. Semi-annual meetings among the CTA, RPC and the NCs will be held. One of these meetings, each year, will take place immediately prior to the meetings of the Regional Technical Steering Committee (RTSC) as a means of preparing up-to-date synopses of information for presentation to the RTSC. Annual regional meetings for activity assessment and planning will also be convened involving a wider range of participants from the countries involved in the project. These latter meetings will be arranged to take place prior to individual regional consultation meetings among the national and regional project coordinators;

The Project Coordination Units will maintain records of project activities and project expenditures at all levels. Such records will be made available to the executing and implementing agency representatives on request. The project workplan and timetable is presented in Annex H.

The National Project Coordinator (NPC) will work under the direct supervision of Regional Project Coordinator (RPC) and the national Representation of the FAO. The NPC will work under the general supervision of the Chief Technical Advisor (CTA), the Geographic Information Systems Water Information Officer GIS/WIO and national institutional partners concerned with agriculture, community-level education, inland waters and environment. The NPC will share experiences and work in collaboration with NPCs in the other six countries. The general responsibility of the position will be to provide day-to-day management and supervision, guidance and quality assurance for all aspects of the national program.

Specific:

1. to provide technical and operational supervision for the training-of-trainers and training of farmers;
2. prepare the terms of reference and to supervise national consultants involved in the execution of the project;
3. supervise the administrative and financial aspects of all activities and operations related to the national project;
4. organize national workshops and, in collaboration with the RPCU and PCU, regional and international workshops;
5. develop and promote the principles of Integrated Production and Pest Management (IPPM), including standards and best practices, within the country;
6. collaborate closely with NPCs in the other project countries;
7. participate in meetings and other activities related to the project at the regional level;
8. address other tasks at the request of the RPC and CTA.

Policy and Advisory Bodies

A Regional Technical Steering Committee (RTSC) will be set up at the beginning of the project comprising a representative each from UNEP, FAO, the participating countries' NTSC and possibly relevant regional Agencies. The RTSC will be chaired on a rotating basis by the member countries; a representative of FAO will serve as Executive Secretary and the project coordinator will attend in an ex-officio capacity (see Annex K for details on overall and national coordinating structures);

The RTSC will first meet immediately following completion of the appraisal phase and signatures of the GEF CEO, to act as technical and policy advisor to the project and to assist in any required agreements and arrangements for project execution. The RTSC will subsequently meet one time per year including what will be termed a mid-term meeting and a meeting to be held 3-6 months prior to project completion. At the mid-term meeting, project and component progress will be reviewed, any delays or outstanding difficulties will be discussed and resolved, and forward planning for the subsequent period of project execution will be undertaken. The independent mid-term evaluation commissioned by UNEP in collaboration with FAO will also be reviewed during this meeting. The final RTSC meeting will check to see that all deliverables are completed and that arrangements have been made for sustaining of major consultative and informational components created by the project;

Six National Technical Steering Committees (NTSC) will be set up at the beginning of the project comprising a membership to be decided by each country's lead ministry (which may vary among countries)

Composition

As decided upon during the Stakeholders Meeting in Bamako, Mali, March 2005, the National Technical Steering Committees (NTSC) will comprise a maximum of 11 members from a diversity of Ministries and other entities. The specific composition will depend on the country, but the following was considered representative of a desirable mix.

As an example of the type of composition for National Technical Steering Committees:

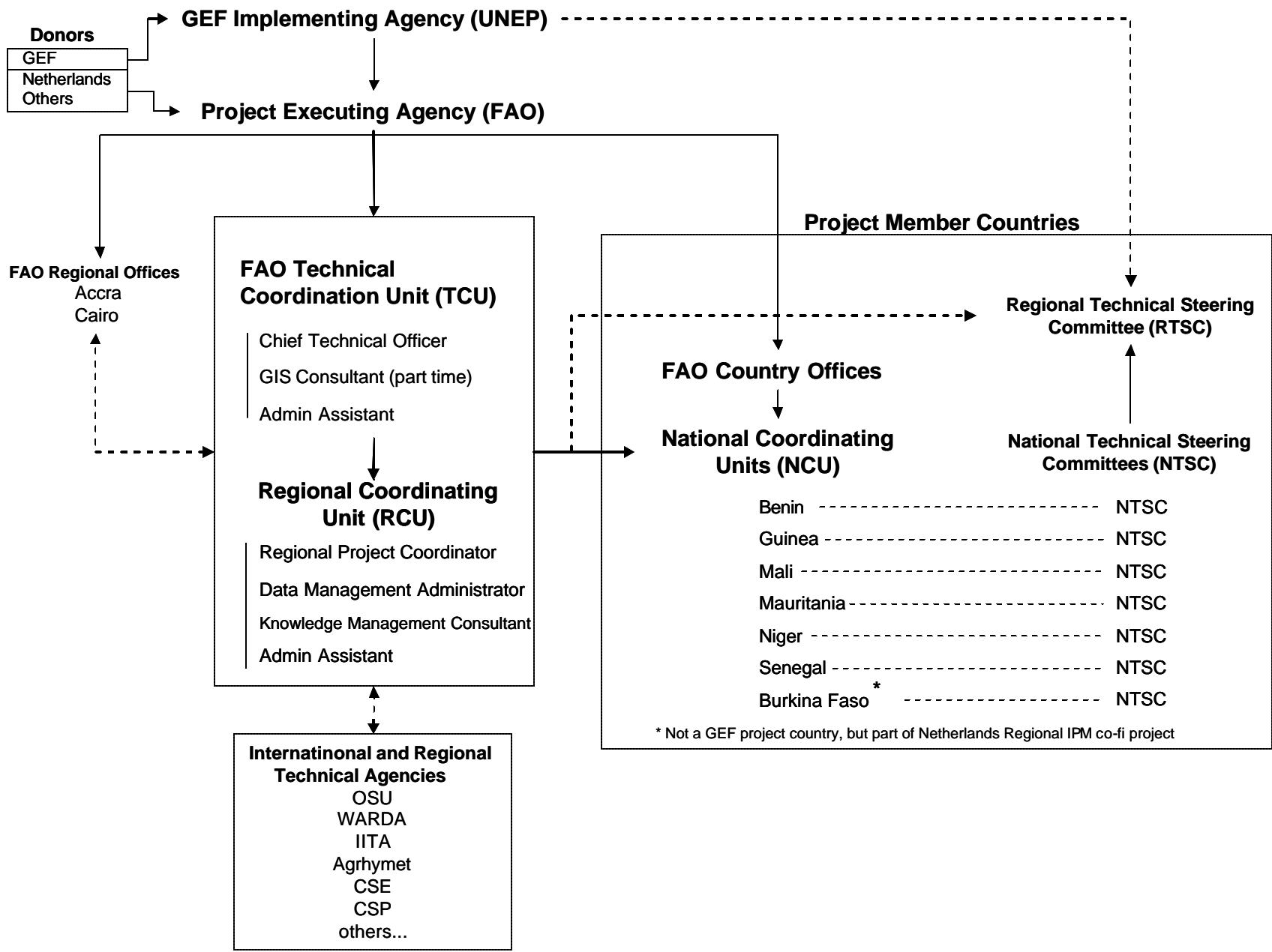
1. Ministry of Agriculture
2. Ministry of Environment
3. Ministry of Finance
4. Ministry of Water
5. Ministry of Fisheries
6. Ministry of Health
7. Ministry of Decentralization
8. Civil Society (NGO active in the fields of environment and agriculture)
9. Research (institute active in research in agriculture or environment)
10. The Operational Focal Point for GEF
11. Pesticide distributors association

Scope

The National Technical Steering Committee is responsible for guidance related to the overall orientation of the national program as well as Monitoring of the project execution to assure conformance to the project Logical Frameworks and overall project documents. The NTSCs will perform an especially important task in transmitting the results of the project back to the national decision-making bodies with the intent of influencing appropriate policy changes. The two principal projects in the portfolio of the NTSC are the GEF IW/POPs project: *Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management*, and the major co-financing project *GCP/INT/009/NET Sub-Regional Programme for IPPM through Farmer Field Schools: Benin, Burkina Faso, Mali and Senegal*. Of the seven countries involved in these two projects, six are GEF project countries and four are Netherlands regional project countries. Three of the four Netherlands-Regional project countries are also GEF project countries (Senegal, Mali and Benin). As the two projects share complementary objectives, it was decided for the three countries in which both projects are being executed to combine the two projects within a single National Technical Steering Committee structure.

Operational Procedures


Lead ministry and composition will be determined by the committee and will initially conform to structures suggested in the country reports presented in March 2004. Meetings will take place two times per year with the possibility of extraordinary sessions as circumstances warrant. These meetings will be scheduled to take place just prior to the Regional Technical Steering Committee meetings, if possible.



PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:

1. Objectives are unchanged
2. Netherlands: from the date of Work Program approval and submission of this document, the Netherlands IPM project was fully formulated and approved with additional funding approved at US \$2.8 million.
3. FAO/USAID funds: the original funds were part of a large grant (\$10 million) tied to work on the Desert Locust (DL) Emergency. Towards the end of the funding cycle the GEF project was awarded \$450,000 for working in communities affected by the DL. However, in 2005 the DL emergency quickly subsided and the funding that remained was withdrawn by the donor for use on other projects, notably the Avian Flu crisis.
4. Sweden: the GEF project received \$267,000 for capacity building for the Ecotoxicology Laboratory, CERES Locustox.
5. FAO in-kind contributions have been slightly increased based on new estimates.
6. Farmer participation (in-kind) and UNEP co-financing were able to be eliminated due to the additional cash contributions by the Netherlands and Sweden.
7. As result of most recent CEO comments, some shifts have been made between activities financed by co-financing and those financed by GEF (see CEO Endorsement Table Comments pg 39).

PART V: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.	
<p>Maryam Niamir-Fuller, Director, UNEP Division of Global Environment Facility Coordination.</p>  <p>GEF Agency Coordinator</p>	<p>Takehiro Nakamura Project Contact Person</p>
Date: <i>February 13, 2008</i>	Tel. and Email: +254-20-7623886
<p><i>Name & Signature</i> GEF Agency Coordinator</p>	<p>Project Contact Person</p>
Date: <i>(Month, Day, Year)</i>	Tel. and Email:

ANNEX A: PROJECT RESULTS FRAMEWORK

Logframe matrix

<p>Project Planning Matrix (PPM)</p>	<p>Project title: “Regional (Benin, Guinea, Mali, Mauritania, Niger, Senegal): Reducing Dependence on POPS and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management”</p>		<p>Phase: 03/2008 – 02/2012</p>
<p>Objectives</p>	<p>Objectively Verifiable Indicators</p>	<p>Means of Verification</p>	<p>Critical Assumptions & Risks</p>
<p><i>Development objective:</i> To protect transboundary waters in the Niger and Senegal River Basins through elimination of POPs pesticide-use and substantial reduction and elimination of other toxic pesticides used in agriculture; while augmenting agricultural productivity and net economic benefits to farmers</p>			
<p><i>Project Purpose (immediate objective):</i> To demonstrate best practices for contaminant prevention and increased agricultural productivity through participatory farmer-education approaches.</p>	<p>By end of project measurable outcomes will be documented within the broader communities, specifically:</p> <ul style="list-style-type: none"> Pesticide use reduced overall by at least 50% and POPs use entirely eliminated Yields of all target crops in participating communities up by at least 20% overall average Net income of participating farmers increased by at least 40% average Contaminant loads in irrigation and drainage systems reduced Community-based monitoring systems for pesticide use developed and used by all 30 target communities by 2012 Evidence of development of self-financed FFS National policy studies completed by the mid-term report and serve to generate at least two policy recommendations in the 	<p>Project monitoring and evaluation</p> <ul style="list-style-type: none"> Independent Impact Studies (University of Hanover) Reports from CERES/Locustox on pesticide loads in sediments and water along the two river basin systems Other project reports documenting adaptation, and adoption of project methods, yields and profitability 	

	four countries for which studies do not yet exist.		
<p>Outcome 1: <u>Awareness Raising and Establishing Community Baselines</u></p> <p>Stakeholder awareness is raised through establishment of baselines on pesticide use and farm-level production statistics as well as through policy studies on pesticide use and current legislation at national and regional levels. Partnerships developed with government structures, NGOs and Farmer Organizations (FOs) at local, national and regional levels</p>	<p>Appropriate government structures, NGOs and Farmers Organizations fully engaged in conducting participatory training for farmers in sustainable best practices by 2012;</p> <p>Overall picture of riverine contaminant levels, types and data on farmer pesticide practices provided by project feedback to appropriate national structures and regional pesticide regulation structures (CILSS CSP and CPH/AOC);</p> <p>Baselines established for 30 communities and results discussed. Data serves also as baseline for evaluation of project outcomes at mid-term and end of project (M&E);</p> <p>National policy studies completed by the mid-term report and serve to generate at least two policy recommendations in the four countries for which studies do not yet exist.</p>	<p>Project reports;</p> <p>Correspondence, reports;</p> <p>Surveys available and used by M&E and independent impact study;</p> <p>Study reports, workshops conducted and recommendations submitted ;</p>	Partnerships agreed to by governments and regional structures;
<p>Outcome 2: <u>Assessments of Freshwater Contaminants</u></p> <p>Stakeholders are alerted to the type and level of threat to humans and environment from pesticide-contaminated waters through the first high-quality assessment of the two principal rivers and associated irrigation and drainage systems</p>	<p>A clear picture of contaminant levels along the Senegal and Niger rivers provided by water and sediment samples in at least 30 locations in six countries;</p> <p>Overall project progress and outcomes provided to governments and others from project database including geo-referenced data (GIS) ;</p> <p>Relative risks to farmers and aquatic environment from exposure to pesticides estimated from at least three simple empirically based modelling approaches;</p> <p>Novel curriculum suitable for use in Farmer Field Schools in sub-region and beyond derived from contaminant analysis and modelling efforts;</p>	<p>CERES/Locustox sample reports;</p> <p>GIS project database;</p> <p>Modelling outputs and consultant reports;</p> <p>Curriculum available;</p>	Continued solvency of the CERES/Locustox Foundation
<p>Outcome 3: <u>Developing Best Practices</u>;</p> <p>Toxic pesticide use is drastically curtailed, POPs pesticide-use is eliminated, and agricultural productivity and profitability are substantially increased in all three cropping systems (rice, vegetables, cotton) through participatory training and adoption of Best Practices for agriculture. Community-level pesticide-monitoring systems in place</p>	<p>Farmer Field School curricula expanded to include modules on ecosystem services, ecological functioning, community-based mapping and contamination risks to hydrological systems and aquatic environments. Also expanded to include new modules on SRI and irrigated aquaculture by 2012;</p> <p>Regional capacity for participatory training augmented by total of 150 “technician” trainers and 300 farmer trainers by 2012;</p> <p>Lessons learned and curriculum developed during the course of the project shared across all six countries by 2012;</p> <p>Substantial participation by women in FFS assured: at least 50% in market gardening, 30% in rice and 20% in cotton by 2012;</p> <p>Community-based monitoring systems for pesticide use</p>	<p>curriculum available;</p> <p>National project reports and M&E;</p> <p>National project reports and M&E;</p> <p>National project reports and M&E;</p>	Limitations of capacity at a national level pose a certain risk in some countries.

and examples of successful self-financed FFS seen in each country.	<p>developed and used by all 30 target communities by 2012;</p> <p>At least two new FFS conducted by local farmer-facilitators in neighbouring communities by 2012. At least 3 self-financed FFS successfully up-and-running in each country by 2012.</p>	<p>National project reports and M&E;</p> <p>National project reports and M&E;</p>	
<p>Outcome 4: <u>Developing Networks</u>;</p> <p>Communities sharing the same river-basin hydrological resources communicate the results of Best Practices and contaminant reduction activities through inter-community communication and exchange networks</p>	<p>Communities disseminate experiences and knowledge gained during project to neighbouring communities in the form of at least one “open door” (inter-community meeting) per location;</p> <p>Networks of IPPM farmer facilitators maintain quality and timeliness of information to farmers through exchanges at local, provincial, national and subregional levels.</p>	<p>National project reports and M&E;</p> <p>National project reports and M&E;</p>	

ACTIVITES	
Outcome 1. Awareness Raising and Establishing Baselines	
<p>Conduct consultation and planning meetings at all levels:</p> <p>1.1 Conduct first regional planning meeting with Regional Technical Steering Committee (RTSC) to review details of project start-up plan;</p> <p>1.2 Conduct 6 National PSC meetings;</p> <p>1.3 Conduct site visits to meet with local governments, communities and other local stakeholders to inform them of the project;</p> <p>Meet with CILSS CSP and CPH/AOC structures to discuss information exchanges</p> <p>Conduct baseline community surveys at 5 project sites in 6 countries:</p> <p>3.1 Establish survey partners with local appropriate community-based organizations and seek community members to participate as additional surveyors ;</p> <p>3.2 Conduct joint training for survey and agree on survey form and content;</p> <p>3.3 Conduct survey and compile results;</p> <p>3.4 Conduct cholinesterase tests in collaboration with local health services;</p> <p>3.5 Bring overall results back to the communities for review and validation</p> <p>National policy studies completed and national workshops held to discuss outcomes:</p>	

- 4.1 Determine and hire local and international consultants to carry out studies;
- 4.2 Develop TOR for study;
- 4.3 Present and modify study TOR with National Project Steering Committee (NTSC);
- 4.4 Consultants to carry out policy study;
- 4.5 Study finalized and presented to NTSC and pesticide policy working group (PPWG);
- 4.6 PPWG formulates and presents brief set of policy recommendations to the governments, using study as supporting document

Outcome 2. Assessments of fresh-water contaminants

Sites specified for monitoring contamination in the Niger and Senegal Basins:

- 1.1 Sampling plan devised together with NCUs, RCU, FAO and CERES/Locustox staff;
- 1.2 Sampling consultant visits general target areas and meet with appropriate government services to gather water-flow and chemical-use data;
- 1.3 NCU and consultant presents sampling plan to NTSC for approval;

Water and sediment samples taken and analyzed in CERES/Locustox laboratory:

- 2.1 National teams trained on sampling methods by CERES/Locustox staff members in country-level workshops;
- 2.2 Samples taken from field, conserved and sent do CERES/Locustox;
- 2.3 Samples analyzed and results entered into project database;

At least three simple empirically based modelling approaches explored as means to estimate relative risks to farmers and aquatic biota using results from sample survey

Results translated into curriculum suitable for use in Farmer Field Schools for discussion of risks to humans and threats to ecosystems;

Outcome 3. Developing Best Practices

Hold first regional curriculum-development workshop:

- 1.1 Present and review existing curricula for the sub-region;
- 1.2 Create subject-matter sub-groups to address each of the following new topics:
 - 1.1 *Pesticide toxicity to humans and the aquatic environment;*
 - 1.2 *Economic implications of pesticide use;*
 - 1.3 *System of Rice Intensification (SRI);*
 - 1.4 *Irrigated Aquaculture;*
 - 1.5 *Water-borne and vector-borne Diseases;*
 - 1.6 *Development of Community-based Pesticide-monitoring system*

Conduct two full-season “*Training-of-Trainers*” (TOT) programmes in year one for participants from each country, for rice (Mali) and for vegetables (Senegal);

Conduct three full-season TOT programmes in year two for participants from each country, for rice (Mali), for cotton (Mali) and one for vegetables (Senegal);

Conduct Farmer Field Schools in each country;

Develop with target communities, through FFS alumni and village leaders, monitoring systems for pesticide used;

Conduct second curriculum development workshop in year 3 to share lessons learned and curriculum developed during the first two years of the project;

Outcome 4. Developing networks

Develop networks among villages in the same water-use areas (same, shared river, irrigation and drainage systems):

- 1.1 Conduct “Open door” days at the end of each FFS, in which neighbouring communities are invited to witness and discuss outcomes of FFS training, including the nature of toxic risks from pesticides, the existence and increased benefits from alternative methods, and establishment of community-based monitoring systems;
 - 1.2 Farmer-Trainers (FT) to work with Technician-Trainers (TT) in neighbouring villages in new FFS aimed at expanding scope of training to eventually include entirety of water-use area;
 - 1.3 Annual “Open door” meetings to be held at larger administrative levels for benefit of prefecture and department-level local government and communities;
 - 1.4 Representatives elected from target water-use areas meet to discuss possible outcomes of project on larger scales of the river basin;
 - 1.5 Some cross-country based exchanges, depending on strategic analysis of greatest likely outcome (most likely in cotton sector)
- Develop networks among facilitators at local, provincial and regional levels
- 2.1 Local workshops held at each level, beginning with the local levels, with representatives chosen to attend workshops next level up;
 - 2.2 Newsletter developed for benefit of facilitators and farming communities

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF)

Responses to GEF/SEC CEO endorsement comments:

GEF Project Title: Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management

GEF SECRETARIAT COMMENTS:	RESPONSE:
<p>Country Drivenness:</p> <p>Where are the national PCUs located? These institutions should be named as executing agencies, and care should be taken to ensure ownership of the project from these national level executing agencies in order to facilitate sustainability and replication.</p>	<p>The following are the project focal points and technical hosts of the national units in the participating countries, and the project focal points (institutions) are listed in the project document.</p> <p><u>Senegal</u>: the project focal point is the Office of the Direction of Agriculture. Operational oversight will be provided by the NGO, ENDA Tiers Monde, which has extensive and well-trained staff distributed at field level.</p> <p><u>Mali</u>: the project focal point, and operational host is the crop protection service (Office de la protection des Végétaux or OPV) within the Ministry of Agriculture. Political oversight of the project will be shared with the Ministry of Environment’s DNACPN (Direction Nationale de l’Assainissement du Contrôle des Pollutions et Nuisances), which is charged will issues related to environmental pollution but has no field presence.</p> <p><u>Benin</u>: the project focal point and operational host is within the</p>

Ministry of Agriculture's INRAB (Institut National de la Recherche Agricole du Bénin), which is the national agricultural research organization.

Niger: the project focal point and operational host will be the Ministry of Agriculture, DPV (Direction de la Protection des Végétaux) in partnership with the Ministry of Environment, CNDD (Commission Nationale de Développement Durable), which is the National Sustainable Development Commission.

Mauritania: the project focal point and operational host will be the DPV (Direction de la Protection des Végétaux), which is now under the recently united ministries of Agriculture and Environment;

Guinea: as with Mauritania, the project focal point and operational host will be the DPV (Direction de la Protection des Végétaux), which is now under the recently united ministries of Agriculture and Environment.

Experience to date with regard to countries taking "ownership" of the project is indicated by the governments previously involved in the Phase I Netherlands project (Mali, Senegal and Burkina Faso). These countries show adoption, to large degree of the novel extension approach represented in the Farmer Field School. For Mali, the Crop Protection Service has built the FFS approach into their annual budget and has plans to have the entirety of their field staff trained as trainers. In Senegal, the newly semi-privatized extension service, ANCAR, is decentralized along the lines of current policies being promoted by the World Bank. The service is short on actual experience in this new role and has expressed keen interest in working closely with the project. In Burkina, the newly "reinvented" extension service is based on Good Agricultural Practices (GAP) and is seeking guidance from the project on how to adopt a more ecological and community-based participatory

	<p>approach. The project anticipates similar positive responses from the remaining 3 countries once they are involved in the programme.</p>
<p>Endorsement :</p> <p>All participating countries have submitted their letters of endorsement, which also indicated the amount of in cash and in kind contribution. Guinea, however, is missing.</p>	<p>We have received a letter of support from Guinea, which is being submitted.</p>
<p>Program Designation and Conformity</p> <p>Conforms to GEF-4 IW strategic program # 4 and POPs SP3 PES: Adjust "estimated starting date". Add entries for expected mid-term evaluation and expected completion.</p>	<p>The programme designation section and the cover page have been adjusted according to the GEF-4 POPs and IW strategic objectives and programmes.. The estimated starting date has been adjusted and presented in the cover page of the CEO endorsement request document. The expected mid-term evaluation date has been added to the cover page of the CEO endorsement document. The terminal evaluation will be started six month before the project is completed..</p>
<p>Project Design</p>	
<p>Sustainability (including financial sustainability) The argument for sustainability is linked to cost-effectiveness, and is convincing.</p>	<p>No adjustment was needed.</p>
<p>Replicability: adequately addressed</p>	<p>No adjustment was needed.</p>

<p>Monitoring and Evaluation: appears appropriate and to conform to GEF M&E policy.</p>	<p>No adjustment was needed.</p>
<p>Financing Plan</p> <p>1. An overall table showing GEF financing and cofinancing would be helpful to understand the cost sharing with Dutch funding of "sister" project in particular.</p> <p>2. PES table (a): why is the GEF supporting a higher share of management costs?</p> <p>3. PES table (b): same question for office facilities etc.</p> <p>4. PES table (b): overhead costs should come out of the Agency fee.</p> <p>5. Not sure what note "a" refers to.</p> <p>6. PES table (c): it is counter-intuitive that the staff-week cost for "personnel" should be higher than for "local consultants".</p>	<p>1. A co-financing table has been prepared and attached below.</p> <p>2. The management cost has been re-visited, and reduced by 34% from the budget at the time of Council Approval. GEF-supported management costs are now at 9.5% of total GEF contribution and overall management costs are at 11.0% of overall project budget (to revisit this)t</p> <p>3. National and Regional office rental has been reduced to zero. Office maintenance is maintained at a modest level to cover initial preparation (donated office space usually requires some initial investment) plus a modest monthly allowance for electricity, water and cleaning.</p> <p>4. The line item on Project Support Costs has been removed</p> <p>5. The footnote has been deleted.</p> <p>6. The budget tables, including tables (b) and (c) have been revised to reflect amendments to the project document in light of GEFSEC comments. With respect to staff-week costs, FAO does not work</p>

<p>7. PES table (b) and (c): Staff-week costs for international consultants are significantly higher in table b than in table c. Again this is counter-intuitive.</p> <p>8. PES table (d): it's unclear to me how additional cash from the Netherlands and Sweden would replace in-kind farmer participation (or even UNEP cofinancing). Implementation related budget issues:</p> <p>9. There seems little justification for the GEF to support a full time CTA in Rome, with added expenses of travel to and from Rome, particularly when there is already funding for regional</p>	<p>with staff-weeks but, for project personnel, uses the Annual Proforma Costs of International Experts – UNDP and TF Projects, which is fairly standard for the UN system. In the case of international consultants, FAO recently provided detailed information on consultants costs to the GEF Secretariat. In preparing a project budget, an average rate of US\$350/day is frequently used as an estimation. The costs of the staff-weeks therefore may vary, depending on whether project staff or consultants would be recruited. In some cases, international consultants also include the cost of travel and DSA..</p> <p>7. See explanation under 6 above. The table has been modified.</p> <p>8. While an important factor overall, the per-farmer contribution to “cofinancing” has been removed as it does not count for real cash or in-kind contribution to the budget. Given the season-long participation of 30,000 farmers, such a calculation is substantial, but its addition into a strict budget exercise confounds the calculation of the <u>real cash resource needs</u> of the project. Nevertheless, the actual in-kind contributions by farmers and others (calculated as ½ a daily wage for a labourer) will be carefully noted and reported on over the course of the project.</p> <p>9. GEF funding has been shifted to support the regional coordinator in Dakar for which (20%) would be considered project management costs. The Netherlands has agreed to shift support to cover the CTA’s position in Rome. The revised budget reflects this. The</p>
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coordination and national level project management. The CTA should be supported from the fee, and/or cofinanced by FAO.

10. Why should the GIS officer be based in Rome?

11. As noted elsewhere, the Executing Agency overhead costs should be included in the fee, as per para 62 of the Joint Summary of the Chairs from the May 2001 Council meeting which explicitly states that "there should be no additional fee when an Implementing Agency and Executing Agency are collaborating on a project".

justification for the support of a CTA in Rome is that, instead of recruiting significant numbers of international consultants, a CTA will be in charge of much of the technical assistance to the project. The CTA is **not** a Regular Programme staff member, but a "long-term" consultant who has been recruited solely for the purposes of providing technical support to this programme.

10. The position has been down-graded to a local-hire consultancy and is being cost-shared with the GIS division in Rome. Basing this consultancy in Rome is justified because: i) benefits of close collaboration with the FAO Geonetwork group, which is a global leader in applied GIS work and currently doing major coordination of land-use mapping in this region in Africa. This group acts as a "hub" for, and has strong links with a full range of regional partners (e.g., CILSS, OMVS, NRA, WARDA, WFP). Therefore, the technical strength and regional outreach will actually be stronger, better integrated and more broadly distributed linking from Rome to the region rather than being limited to one of the many smaller regional partners;

11. The Project Support Cost line has been eliminated

Other budget considerations:	
<p>12. Why are the national coordinators' salaries not supported by the participating countries? Same question for the "assistants", "technical staff", and "casual labour".</p> <p>13. Local travel coming in addition to significant costs in vehicle purchase and maintenance appears excessive.</p> <p>14. What are, and what is the value of, "local exchange visits" and "subregional exchange visits"?</p>	<p>12. The project countries head the list of the world's poorest countries. Well trained local technicians and administrators are highly sought after by the growing number of donors seeking well-functioning projects in sub-Saharan Africa. National Coordinators play a pivotal role in the planning and execution of the project's highly demanding set of on-the-ground activities. Without <i>fair and competitive</i> compensation the best candidates will not be forthcoming. The technical assistants will be provided by the governments (in part to assure engagement and representation by ministries of environment) and a salary stipend will be paid by the project. The Netherlands' co-financing has already been established to pay for National Coordinators, assistants and technical assistants in 3 of 6 project countries. The GEF is being asked to support these positions for the remaining 3 countries.</p> <p>13. The cost for travel for management purposes, vehicles and their maintenance have been revisited and reduced by 66% from the GEF budget. However, this is a heavily field-based project for which extensive travel by vehicle in each country is required for farmer training (as described above, for the collection of samples for analysis in the 30 locations along the two river basins, as well as for critically important Monitoring and Evaluation functions. Half the vehicles have already been purchased by co-financing from the Netherlands project.</p> <p>14. Reason #1: The local exchange visits are aimed at promoting communication and knowledge sharing among farmers in the</p>

project training who share the same water sources; hence, sharing the same sources and sinks for highly toxic pollutants. By the nature of the physical layout of the sub-watersheds, these exchanges are over relatively short distances for which local transport can be organized and hired at minimal cost.

Reason #2: In some cases, the total number of “special topics” in the Farmer Field Schools are too numerous for every FFS to replicate every experiment. In this case, the entire cluster of FFS in a sub-watershed will divide the Special Topics among themselves. Exchange visits will thereby allow farmers from one community to see agricultural innovation being experimented on in an adjacent community and, at the same time, develop a sense of “solidarity” among project farmers across villages. Experience shows this to be an inexpensive way to promote organization (local networks), a sense of ownership and responsibility and pride among farmers.

The subregional exchange visits promote learning and regional networking through exchange of experiences among key leaders and innovators in communities. Trips will be limited to closely neighbouring countries involved in the same type of training in similar agro-climatic zones. Costs are limited by hiring local buses to ferry key farmers across borders. For example, Malian cotton farmers in the south of the country will travel across the border into Burkina Faso; Guinean rice farmers will travel across the border into Malian rice areas; Senegalese and Mauritanian rice and vegetable producers exchanging visits from either side of the Senegal River; Niger, Burkina and Benin vegetable producers exchanging visits across all three borders. Again, experience elsewhere shows this to be an inexpensive way to exchange knowledge, but, more importantly, to build awareness, pride and a larger sense of ownership and responsibility among

<p>15. What is the difference between a national coordination meeting and a steering committee meeting? Why is the GEF even requested to finance these? They should come at marginal costs that could be supported by the participating countries. (The same can be said of national technical workshops).</p>	<p>farmers.</p> <p>15. The <i>national coordination meetings</i> are operationally focused and provide critical feedback from the field from the cadre of trainers spread throughout far-flung parts of the countries. They are at the same time a forum for decentralized “bottom-up” formulation of budgets and work plans. Coordination meetings are also an essential component for a strong M&E component (rightfully insisted on by GEF and built as an integral part of the project). <i>For these reasons these are correctly considered and are maintained as reasonable project costs.</i></p> <p>The objective for the <i>national-level steering committees</i> goal is more general oversight and, more importantly, <u>assistance in the transformation of <i>outputs</i> into <i>policy outcomes</i></u> at national levels. As detailed in the project document, these meetings involve representatives from a range of ministries, agencies and research institutes, as well as representatives from principal NGOs and farmer organizations. During the last Stakeholder’s meeting an upper limit of 11 members was set. <i>The costs for such meetings have been shifted out of the GEF budget</i></p> <p>The regional steering committee, meeting once a year, has the same policy and general oversight objectives as that of the national committees; plus the added benefit of building regional partnerships among neighbouring countries and providing a low-key political forum for discussing transboundary pollution issues. By their nature, regional meetings such as these will not be able to be supported by the countries and <i>therefore the budget has been maintained as is.</i> These meetings will be held, to the extent possible, in conjunction with other meetings and training workshops to reduce costs.</p>
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<p>16. Costs for non-expendable equipment appear overall appropriate, but not for a desktop and printer in Rome.</p> <p>17. Why is national office space and maintenance not co-financed by the participating countries?</p> <p>18. Why is the GEF requested to finance \$91K for sub-regional office space and maintenance? This appears (1) excessive; and (2) something that should be covered by the fee or cofinanced by FAO.</p> <p>19. Please provide justification for the need to purchase vehicles, and for the high costs associated with their maintenance. Co-financing should be used for these line items where possible.</p>	<p>16. The desk top and printer in Rome will be covered by the co-financing from the Netherlands project.</p> <p>17. As noted above, the national offices will be funded by the national governments as in-kind contribution; however typically these offices require some initial clean up and possible minor restorations as well as support for electricity, phone, water and maintenance.</p> <p>18. Since the date of project approval, regional office space has been established in agreement with the FAO Representation in Dakar. The line item for rental has therefore been removed and other related costs are limited to cover only basic functioning and maintenance. These costs are shared equally with Netherlands co-financed project.</p> <p>19. As previously described in #13, the majority of activities in the project are carried out in the field. National coordination staff must visit sites to distribute materials, attend local planning meetings and conduct refresher courses; to conduct M&E activities and take water samples in a timely manner. A project vehicle in each country is absolutely essential. The cost for petrol, oil and repairs are based on a careful analysis of the Phase I Netherlands farmer training project and are not excessive. Vehicles for Phase I are still being maintained but all have over 400,000 km and are only safe for local duties. There is no alternative for these costs to be covered by national agencies. The alternative of renting or leasing vehicles is much more expensive compared with direct purchase. Vehicle costs and vehicle maintenance are being covered 50% by co-financing.</p>
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20. What is to be funded under "technical support missions"? Consultants or agency staff? If the latter please explain how this is additional to normal project supervision.

21. Who is involved in the training of Trainers activity (how many people?). The cost seems to be very high (\$157,000). Please clarify.

20. This line item has been eliminated as the CTA, Regional coordinator, and GIS expert, along with the water-quality contractors will provide the technical assistance required.

21. The UNEP budget format will demonstrate that the total costs for training trainers is actually \$US300,000. Full-season Training-of-Trainers (ToT) is an essential part of the project and FAO has 20 years experience with such training. The costs are in fact quite low for the amount of people trained for such an extensive time (season long). The total cost to train 450 trainers (150 government extension and 300 Farmer Trainers) works out to be \$US666 per trainer trained for a 4-month continuous training. This includes food, lodging, transport, per diems and the costs for master trainers. The costs have been lowered slightly based on calculations from actual support levels coming from The Netherlands project. GEF's contribution is now reduced to \$US120,000 or 40% of total costs.

Since the approval of the project, several new models for ToTs have been developed that are proving to be more cost effective and better suited to the goals of the project. These 450 trainers will train some 30,000 farmers in 1,200 season-long Field Schools. The cost of a season-long Field School for 25 farmers is around US\$715 at current exchange rates. This works out as \$US30/farmer/season or about \$US2/farmer/training-day

The GEF project is part of a much larger programme. The full programme (i.e., including the entire US\$9.5 million Netherlands project) **is targeting over 130,000 farm families in 5,000 villages** for training in the 4 years. It is sure that the GEF activities will have

	positive impacts on the nature and quality of training for this larger group; therefore the GEF funding will have a far larger outcome at no extra cost.
Implementing Agency Fees Council approved fee has to be shared between UNEP and FAO, with a view to reducing the overall management costs of this project.	The Project Support Cost line has been eliminated
Core Commitments and Linkages What is the nature of FAO's cofinancing?	The co-financing budget breakdown table is now attached.
Council Council comments responded to and addressed satisfactorily.	No adjustment was needed.
General Comments This project is an important and timely one. The budget needs to be revised in order to decrease the amount of GEF monies directed to fund agency staff and their travel and to increase local and national level ownership of the project.	The budget has been revised as per the responses to the comments above.
Summary Recommendations by Program Manager The project document and executive summary need revising according to the points raised in this review in order to increase the cost-effectiveness of the proposed project, as well as to ensure that most GEF resources are spent for activities on the ground.	The budget and documents were revised to accommodate the comments provided in the review sheet.
Further Processing Submission of a satisfactorily revised document.	

CEO Endorsement Response Table Annex

Comparison of Project Components from Council approval to current CEO submission
(GEF budget only)

	At Council Approval	Current Submission	Difference	% change in GEF budget
Component 1 - Awareness Raising and Establishing	778,439	805,076	26,637	3.4%
Component 2 - Assessments of Freshwater Contaminants	633,221	1,140,269	507,048	80.1%
Component 3 - Developing Best Practices	1,412,509	1,265,566	(146,943)	-10.4%
Component 4 - Developing Community Networks	685,671	505,076	(180,595)	-26.3%
Component 5 - Project Coordination and Management	595,490	389,344	(206,146)	-34.6%

Table 3. Co-financing Table

UNEP BUDGET LINE/OBJECT OF EXPENDITURE	Year 1	Year 2	Year 3	Year 4	Total GEF	Tot. net/meritians	Tot Other Co-fi	Grand Total	% GEF
	US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$	%
10 PROJECT PERSONNEL COMPONENT									
1100 Project Personnel w/m									
(Show title/grade)									
1101 Chief Technical Advisor (P5) / 48 w/m	0	0	0	0	0	748,000		748,000	0%
1102 Inter-Country Technical Coordinator (P4) / 48 w/m	170,000	170,000	170,000	170,000	680,000	0		680,000	100%
1103 Finance and Budget Officer (P3) / 12 w/m	22,500	22,500	22,500	22,500	90,000	180,000		270,000	33%
1199 Sub-Total	192,500	192,500	192,500	192,500	770,000	748,000	0	1,518,000	51%
1200 Consultants w/m									
(Give description of activity/service)									
1201 Data management administrator (regional)	0	0	0	0	0	0	96,000	96,000	0%
1202 Communications, knowledge platform construction and maintenance consultant	0	0	0	0	0	0	48,000	48,000	0%
1203 Geographic Information Systems Consultant (50% cost share) 24 w/m	30,000	30,000	30,000	30,000	120,000	0	0	120,000	100%
1204 National Coordinators (3 of 6 countries ***) / 144 w/m	79,200	79,200	79,200	79,200	316,800	316,800	0	633,600	50%
1205 National Assistants (3 of 6 countries ***) / 144 w/m	24,996	24,996	24,996	24,996	99,984	150,000	0	249,984	40%
1206 National Technical Staff 2 per country (3 of 6 countries ***) / 288 w/m	14,400	14,400	14,400	14,400	57,600	57,600	57,600	172,800	33%
1207 Drivers (3 of 6) 144 w/m	3,750	3,750	3,750	3,750	15,000	15,000		30,000	50%
1208 Local Travel (within country for National coordination)	20,781	20,781	20,781	20,781	83,125	83,125		166,250	50%
1299 Sub-Total	173,127	173,127	173,127	173,127	692,509	622,525	201,600	1,516,634	46%
1300 Administrative support w/m									
(Show title/grade)									
1301 Headquarters Admin Assistant (G3) / 48 w/m	0	0	0	0	0	134,400		134,400	0%
1302 Sub-regional Admin Assistant (G5) / 48 w/m	0	0	0	0	0		87,000	87,000	0%
1399 Sub-Total	0	0	0	0	0	134,400	87,000	221,400	0%
1400 Volunteers w/m									
1401									
1499 Sub-Total	0	0	0	0	0				
1600 Travel on official business (above staff)									
1601 International Travel	16,500	16,500	16,500	16,500	66,000	66,000	0	132,000	50%
1602 Sub-regional Travel	23,521	23,521	23,521	23,521	94,083	94,083	0	188,167	50%
1699 Sub-Total	40,021	40,021	40,021	40,021	160,083	160,083	0	320,167	50%
1999 Component Total	405,648	405,648	405,648	405,648	1,622,592	1,665,008	288,600	3,576,201	45%
20 SUB-CONTRACT COMPONENT									
2100 Sub-contracts (MoU's/LA's for UN cooperating agencies)									
2101									
2199 Sub-Total	0	0	0	0	0				
2200 Sub-contracts (MoU's/LA's for non-profit supporting organizations)									
2201 Capacity building for Regional Ecotoxicology Laboratories	148,084	98,723	59,234	34,553	340,593	0	349,407	690,000	49%
2202 Water chemical sampling and analysis: Field and Lab	78,581	78,581	78,581	77,258	313,000	0	244,643	557,643	56%
2203 ENDA-Pronat Village-level diagnostic surveys, and monitoring	115,714	77,143	38,571	38,571	270,000	80,000	0	350,000	77%
2204 National Publicity (Rural radio, TV, local newspapers)	0	5,000	5,000	5,000	15,000	0	75,000	90,000	17%
2205 Socio-economic Studies (pesticide-policy environment)	20,000	20,000	0	0	40,000	0	40,000	80,000	50%
2299 Sub-Total	362,379	279,446	181,386	155,382	978,593	80,000	709,050	1,767,643	55%
2300 Sub-contracts (commercial purposes)									
2301									
2399 Sub-Total	0	0	0	0	0				
2999 Component Total	362,379	279,446	181,386	155,382	978,593	80,000	709,050	1,767,643	55%

30	TRAINING COMPONENT												
3100	Fellowships (total stipend/fees, travel costs, etc)												
3101													
3199	Sub-Total	0	0	0	0								
3200	Group training (study tours, field trips, workshops, seminars, etc) (give title)												
3201	Training of the trainers	88,200	37,800	0	0	126,000	120,000	54,000	300,000	42%			
3202	Trainer Refresher Workshops	0	26,000	26,000	26,000	78,000	50,000	25,000	153,000	51%			
3203	Training of Farmers (FFS)	87,500	87,500	87,500	87,500	350,000	240,000	250,000	840,000	42%			
3204	Special Topics (IPVM, SRI, Int Aquaculture)	12,500	12,500	12,500	0	37,500	37,500	0	75,000	50%			
3205	Curriculum Development workshops	13,497	10,797	8,098	8,098	40,490	0	34,510	75,000	54%			
3206	Local exchange visits	0	13,333	13,333	13,333	40,000	20,000	30,000	90,000	44%			
3207	Sub-regional exchange visits	0	8,333	8,333	8,333	25,000	45,000	20,000	90,000	28%			
3208	Local Staff Training	0	0	0	0	0	24,000	0	24,000	0%			
3299	Sub-Total	201,697	196,264	155,765	143,265	696,990	536,500	413,510	1,647,000	42%			
3300	Meetings/conferences (give title)												
3301	National technical workshops	9,000	9,000	9,000	9,000	36,000	36,000	0	72,000	50%			
3302	Sub-regional Technical workshops	12,500	12,500	12,500	12,500	50,000	0	50,000	100,000	50%			
3303	Coordination Meetings (national)	5,250	5,250	5,250	5,250	21,000	36,000	15,000	72,000	29%			
3304	Steering Committee Meetings (national)	0	0	0	0	0	30,000	0	30,000	0%			
3305	Steering Committee Meetings (sub-regional)	15,000	15,000	15,000	15,000	60,000	30,000	30,000	120,000	50%			
3399	Sub-Total	41,750	41,750	41,750	41,750	167,000	132,000	95,000	394,000	42%			
3999	Component Total	243,447	238,014	197,515	185,015	863,990	668,500	508,510	2,041,000	42%			
40	EQUIPMENT & PREMISES COMPONENT												
4100	Expendable equipment (items under \$1,500 each, for example)												
4101	Office supplies	6,000	6,000	6,000	6,000	24,000	24,000	0	48,000	50%			
4102	Library acquisitions, mapping materials, computer software	5,000	5,000	5,000	5,000	20,000	20,000	0	40,000	50%			
4199	Total	11,000	11,000	11,000	11,000	44,000	24,000	20,000	88,000	50%			
4200	Non-expendable equipment (computers, office equip, etc)												
4201	Office furniture	6,000	0	3,000	0	9,000	9,000	0	18,000	50%			
4202	Vehicles (1 per country) **	90,000	0	0	0	90,000	90,000	0	180,000	50%			
4203	Desktop Computers (2 per country)	7,500	0	0	0	7,500	7,500	0	15,000	50%			
4204	Laptop Computers (1 per country)	4,500	0	0	0	4,500	4,500	0	9,000	50%			
4205	Printers (1 per country)	1,500	0	0	0	1,500	1,500	0	3,000	50%			
4206	Photocopy machines (1 per country)	4,500	0	0	0	4,500	4,500	0	9,000	50%			
4207	Portable PowerPoint projectors (1 per country)	4,500	0	0	0	4,500	4,500	0	9,000	50%			
4208	Universal Power Supplies (2 per country)	1,400	0	0	0	1,400	1,400	0	2,800	50%			
4209	Digital cameras (2 per country)	2,400	0	0	0	2,400	0	0	2,400	100%			
4210	GPS units (2 per country)	4,200	0	0	0	4,200	0	0	4,200	100%			
4299	Sub-Total	126,500	0	3,000	0	129,500	122,900	0	252,400	51%			
4300	Premises (office rent, maintenance of premises, etc)												
4301	National Maintenance (electricity, water, cleaning office equipment service contracts for 6 countries)	6,000	6,000	6,000	6,000	24,000	24,000	0	48,000	50%			
4302	National office space (in-kind contributions)	0	0	0	0	0	0	40,000	40,000	0%			
4303	Sub-regional PCU (in-kind FAO plus utilities, maintenance)	3,000	3,000	3,000	3,000	12,000	12,000	0	24,000	50%			
4399	Sub-Total	9,000	9,000	9,000	9,000	36,000	36,000	40,000	112,000	32%			
4999	Component Total	146,500	20,000	23,000	20,000	209,500	182,900	60,000	452,400	46%			
50	MISCELLANEOUS COMPONENT												
5100	Operation and maintenance of equip. (example shown below)												
5101	Operation and Maintenance of vehicles ***	50,249	47,250	47,250	47,250	192,000	106,092	92,000	390,092	49%			
5199	Sub-Total	50,249	47,250	47,250	47,250	192,000	106,092	92,000	390,092	49%			
5200	Reporting costs (publications, maps, newsletters, printing, etc)												
5201	Documentation and Publications	0	0	12,500	15,000	27,500	27,500	0	55,000	50%			
5299	Sub-Total	0	0	12,500	15,000	27,500	27,500	0	55,000	50%			
5300	Sundry (communications, postage, freight, clearance charges, etc)												
5301	National Communications	7,500	7,500	7,500	7,500	30,000	30,000	0	60,000	50%			
5399	Sub-Total	7,500	7,500	7,500	7,500	30,000	30,000	0	60,000	50%			
5400	Hospitality and entertainment												
5401													
5499	Sub-Total	0	0	0	0	0	0	0	0				
5500	Evaluation (consultants fees/travel/ DSA, admin support, etc, internal projects)												
5502	Project evaluation	0	20,000	0	20,000	40,000	40,000	0	80,000	50%			
5599	Sub-Total	0	20,000	0	20,000	40,000	40,000	0	80,000	50%			
	Contingencies	35,289	35,289	35,289	35,289	141,155	0	0	141,155	100%			
5999	Component Total	93,038	110,039	102,539	125,039	430,655	203,592	92,000	726,247	59%			
	TOTAL COSTS	1,251,011	1,053,147	910,088	891,084	4,105,330	2,800,000	1,658,160	8,563,490	48%			

** Project vehicles will be stationed at secure project office sites

*** FAO regulations which will be strictly followed to track vehicle mileage and fuel consumption

STAP Review

Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management

(a) STAP – INDEPENDENT TECHNICAL REVIEW AND RESPONSE OF THE PROJECT TEAM

The project team is grateful to the STAP reviewer for comments to strengthen the contents and presentation of this proposal. Presented below are the responses and/or actions taken, where required, taken in response to the STAP comments (in italic following the STAP comments).

Reviewer: Prof Henk Bouwman

IT IS WITH PLEASURE THAT I SUBMIT THIS EVALUATION. I FOLLOWED THE FOCAL AREA-SPECIFIC ANNOTATIONS (INTERNATIONAL WATERS) AS TERMS OF REFERENCE.

Key issues

Scientific and technical soundness of the project

1. Assess scientific basis of the project: is sufficient information and knowledge available on the dynamics, functioning and structure of the ecosystems covered?

The number of years that the institutional proponents of this project have been active in this region, as well as their close and inherent linkage with the FAO, provides them with probably the best basis of existing data, information and experience in hydrology, geography, agriculture and sociology to execute the project. Although there are likely to be gaps in knowledge and understanding of the two riverine systems, it is unlikely to be a major hurdle.

2. Appropriateness of approach to collect relevant information on sections of society and economy and on the different aspects of the environment, water management and ecosystem.

The Project Brief (PB) covers six countries, and therefore does not contain detailed information on the methodology that will be used for baseline community surveys (#55 and Annex D). It seems presumed that the same methodology will be used as presented in Annex D. It is however, conceivable that there might inherently be differences in how information will be collected in each country, but it would perhaps be appropriate to try and standardize the information gathering per catchment. From experience, as baseline community survey is normally the first field activity (Component 1.3), there seems to be little time available in the first year. Inception of project this size inevitably experience delays in the first year, reducing the time available. Since 1.3 apparently includes ACE tests, this might indeed be a bit ambitious, especially when considering report-back to communities in Component 1.3.5.

Response by the project team: *The team notes this is a valid concern, but feels we are (1) We will be working with a regional partner, ENDA Tiers Monde, who was responsible for the baseline surveys in Senegal during the PDF-B and who has a long history of similar work with communities in the sub-region; (2) the training of survey personnel is not a lengthy process; we have scheduled 9 months to conduct the work. The first FFS will take place during the same period, but these will be Field Schools attached to the Training-of-Trainers and limited in number and located in only Mali and Senegal. The baseline survey work in these TOT-associated FFS will take place as part of TOT training. We agree that it will be desirable to standardize the survey methods as much as possible, however leaving room for modification (learning from new experiences that arise during the course of the work). The sample size per location will be 100 farmers, or 500 farmers per country. The ACE testing will of course be a much smaller subset of this, the size to be decided on during early meetings with all stakeholders involved. The report-back to the communities, as with the PDF-B, will be at the end of the training for any particular group as part of an overall*

reflection by the communities on changes resulting from their involvement in the project (hence the term “baseline”). The report back should not, therefore, inflict a time constraint.

Nowhere in the PB could I find indications of target number of interviews for Component 1.3. This presumably is dependant on the conditions in the five different project sites, but It seems appropriate to provide some estimates in this regard.

Response by the project team: *As stated above, the target is 100 farmers per community, as per the PDF-B*

It is also not clear how Components 1.3 and 1.4 will interact, since 1.4 recruits consultants in each country in the second year (2007) to do the studies, while surveys are already planned for the first year (2006) – therefore, who will do 1.3?

Response by the project team: *Some confusion exists here as 1.4 refers to policy studies and not baseline surveys. The consultants for 1.4 are not the same as those in 1.3*

3. Does the project fully determine which sectoral changes are needed to achieve the goals of the OPs?

It seems appropriately addressed, taking the complexity of executing this project in six different countries into account (#53).

Response by the project team: *Agreed*

4. Has the issue of inter-comparability of data been addressed?

The inter-comparability of data is addressed for at least the pesticide analysis, since this will be done by one laboratory. The other data gathering activities seem to assume comparability, but experience again has taught me that complete comparability might not be achievable, and a measure of variation between countries could be allowed. However, specific components of comparable data gathering should be aimed for, especially at the beginning, placing a question mark again over the ambitious activities planned for the first year.

Response by the project team: *Agreed. The baseline data will seek to establish a minimum set of measurable indicators. Additional types of questions will be allowed for as each community will raise some different issues. The variation in this regard is part of the result sought (e.g., what are the range of issues and scope of pre-existing knowledge regarding contaminant pollution and existing alternative practices across all communities).*

The gathering of base-line data, against which the impact of the project will be measured, might need longer time than anticipated, since training is already anticipated in the first year (Component 2.2), which overlaps with Component 3.1.

Response by the project team: *Addressed above: first year’s training of farmers is only in the context of a limited number of FFS attached to TOTs*

Presumably, the RPCU, together with the NPCUs will manage comparability, and this task could be included in #76, and referred to in #55.

Response by the project team: *Agreed*

The development of a community-based pesticide-monitoring system will probably also need a measure of guidance from a regional level, to achieve comparability in philosophy, application, training and monitoring, to achieve some form of comparability.

Response by the project team: *Agreed, although again we will be seeking creative ideas from the communities themselves and some measure of variation must be allowed for—these will be their monitoring systems.*

5. Analysis of the interlinkages between water-related environmental issues and root causes behind different environmental problems.

This has been done adequately, and is based on a good history and body of knowledge acquired over the years (such as in Annexes E and F, as well as in a number of reports). This project therefore does not need to assume a problem, but already has data to describe its extent.

Response by the project team: *Agreed, although some questions still stand, such as the degree to which dieldrin contamination in water/sediments is due to recent applications compared with an amount due to leaching from prior depositions or leakage into river systems from obsolete stocks. To partition this will be a challenge. The experts agree there is strong evidence for recent applications having taken place. More broadly speaking, the root-cause analysis is a technique we intend to introduce, in an appropriate form, to the communities.*

6. Are the tools and methodologies for TDA and SAP clearly stated in the project?

As the PB format does not specify this explicitly, but rather implicitly, it is difficult to judge. Annex J addresses the Root Cause Analysis, and as far as I can judge, this is complete and sufficient. The transboundary issues are recognised, and although it might be implicit in the design, a stronger statement(s) on how these will be addressed could be included. Since it is likely that indications for transboundary transport of pesticides via the two rivers will be identified, the means of communicating these findings, as well as analysis of the implications thereof would also be appropriate. The possible role of the CSP and this project in this matter could perhaps be mentioned? (perhaps in # 33, 89, 90, 91 and or somewhere in Component 4 or 5 in)

Response by the project team: *Acknowledged. Changes made in paragraph 19,*

7. Does the project determine what type of measures is needed to ensure that the ecological carrying capacity is not exceeded?

The aim of the project is the eventual reduction in dependence on agro-chemicals. Although it could mean a reduction in the amounts (mass or volumes) of pesticides used, there might be three additional implications that need to be considered:

- More toxic pesticides could be used, which means less need to be applied, but the overall toxicity applied could remain the same or even increase.

Response by the project team: *The stated objective is to reduce total volume and toxicity of chemicals used. The argument for less amounts needed of more toxic pesticides doesn't come into the picture given that good non-toxic alternatives to virtually any situation have been proven to exist. Besides elimination of all POPs pesticides, the stated goal is to dramatically reduce or eliminate pesticide use of WHO category Ia, Ib and II.*

- Alternative Best Practices might have its own inherent impacts, such as the need to clear more lands or require more irrigation, and therefore impact on water quantities, or even quality, and may therefore not be “Best” practices.

Response by the project team: *Acknowledged as theoretically possible, but again experience shows that “real” best practices do exist. For rice culture, “biologically intensifying” production means farmers will likely use less water. As they should be gaining substantial yield increases we might even see a drop off in the amount of land cultivated as farmers may wish to reduce their scales of production to meet market realities.*

- The training of farmers to better apply pesticides might actually increase the demand for pesticides. This was the experience in South Africa, with farmer training in the safe use of pesticides. These, and possible other (even unintended) impacts need to be anticipated, measured where appropriate, and documented as part of each national activity.

Response by the project team: *The so-called “safe-use” campaigns are a promotion of umbrella groups for the pesticide industry, notably Crop Life International; therefore it’s not surprising to see that pesticide use could increase under their programs. However the GEF programme is not a “safe-use” program, rather a move towards drastic reduction or elimination of as many types of highly toxic synthetic pesticides as possible. The only pesticides anticipated to be used/promoted would be non-toxic biologicals (neem extract, Bacillus thuriengensis, metarhizium, etc.). We will not be promoting, for example, highly toxic biologicals (e.g., tobacco extracts) as these are equivalently dangerous for the handler, if not the environment.*

Again, experience in many other areas of the world has shown the feasibility of real reductions in chemical use.

8. Assessment of adequacy of the scope of the project.

This is an ambitious project, and needs to be, to address the needs of the region and reduce the impact of misuse. I am still concerned with the timetable (Annex H), especially the activities planned for in the first year. Extension of some of the activities into 2007 should be anticipated (such as 1.3 and 2.2, and by implication ors such as 3.2).

Response by the project team: *Agreed and modifications to time table have been made (extension into 2007 for 1.3). As noted above, however, the first TOTS will be held sub-regionally in two countries that already have capacity and experience in doing such training (3.2). The training of teams to take water samples in all 6 countries is more subject to possible uncertainties, although Locustox is currently undertaking similar sub-regional sampling work as part of a short-term (6 month) environmental analysis of pesticide residues from recent locust-control campaigns. They also have prior experience with these same countries for analysis of export vegetables and fruits. The sampling procedures are straight forward.*

The putting together of the National structures is a time consuming task, as it seems that many people will be involved. Nowhere (that I could see) is an indication or estimation given on the number of people directly involved, at the project sites.

Response by the project team: *First note that the “30 sites” will comprise more than one village each. Each site will be defined based on the hydrological construction of irrigation perimeters such that the communities involved share the same water resources. The number of villages will therefore vary somewhat depending on the size of the perimeter, although efforts will be made to ensure that small-to-moderate perimeters are chosen. The composition of on-site teams in the field will revolve principally around three activities: i) initial diagnostic surveys—including the NGO surveyors and cooperating community members who will be trained in survey techniques (2 per village), ii) training—which will involve 150 technician trainers (TT) (government, parastatal, NGO, Farmer Organizations) and 300 farmer trainers (FT). Each site therefore will have 5 TT and 10 FT and a total potential of 40 Field Schools over the four years of the project. This is an ample number to assure all villages are engaged and multiple cropping seasons (e.g., rice and then vegetable seasons), and iii) Monitoring and evaluation—which will entail periodic visits by senior trainers (focal points) and PCU personnel.*

9. Are the proposed technologies adequate to the regional socio-economic profile?

Yes.

Response by the project team: *Agreed*

10. Could the proposed technologies pose environmental threats?

The proposed project is most likely to reduce the level of threat, but care should be taken as mentioned in 7. Another possibility would be the improvement of the production capacity of some sites during good years, but this capacity might still be limited during drought years. This does however, not take away or reduce the need for this project.

Response by the project team: *Agreed*

➤ Question related to the use of technology

11. To what extent will technological innovations be used to support the project?

No development of new Best Practices seem to be envisaged, but the innovation is the combination of Farmer Field Schools with training, IPM and a community-based pesticide-monitoring system. Lastly is a new aspect worked into the PB, but seems not to be included in the Logframe (Annex B, unless 4.1.1 is meant), nor as a key performance indicator in Annex L. Since this is quite an innovation, I suggest its inclusion in both, and possibly elsewhere, where appropriate. Although this is an innovation, I could find little indication as to which level of organization will look after it, or provide guidance. This component might place a burden on the National groups, if they do not have the training or capacity.

Response by the project team: *The village-level pesticide monitoring sub-component is now taken into account in 3.5. As stated, it will be a broadly collaborative effort to design methods appropriate for each location. This is indeed a new (innovative) sub-component whose feasibility has yet to be proven. We are confident, however, that if the process of design is correct (i.e., a sufficient balance of external and internal expertise, along with a strong community participatory framework) that solutions will be found. Openness and the capacity to share information on successes and failures (in the spirit of adaptive management) at all spatial scales will ensure additional efficiency. Other innovative training components will include a locust biology and crop protection training component (added since the STAP review) and an SRI (System of Rice Intensification) component, which is new for the FFS curriculum. Otherwise, no single element is in itself entirely “innovative” as all have been tried before in our experience. What is unique is the combination of techniques, which is really what is being tested here.*

➤ Questions related to institutional arrangements

12. Assess institutional arrangements: the role of existing scientific institutions in the development and sustainability of regional mechanism is of paramount importance.

The institutions identified seem adequate, but it is likely that more will be need to be included, including NGO's (#53). This places a heavy organisational duty on the project managers at regional and national levels, and could take a significant amount of time to arrange.

Response by the project team: *Agreed, but experience in the sub-region gives us already a good list of potential partners. Experience also shows that good projects attract good partners and the overall effect is self-reinforcing.*

➤ Other questions

1. Is choice of demonstration sites representative and appropriate?

I am not able to judge from the materials at hand, but criteria for selection, or at least reasons for selection should be carefully documented, and presented in appropriate reports. The indicators for each should therefore be appropriate for each site.

Response by the project team: *The general site selections were made towards the end of the PDF-B phase by national technical working groups from each country. The specific villages chosen and detailed plan of action will depend on a closer look at the hydrological opportunities and constraints. While technical people will be engaged to assist, the community members of the FFS will be given training and tasked to conduct water-flow mapping exercises as part of the late FFS or post-FFS activities. The IPPM/FFS programmes have lengthy experience with community mapping exercises, and curricula exist to aid in the training.*

2. Have any problems been overlooked?

- Again, time in the first year might not be enough for all the envisaged activities.

Response by the project team: *Already noted*

- There might be educational materials already available through Crop Life or even AVCASA in South Africa, that could be incorporated into the curricula.

Response by the project team: *The FAO Global Facility is hub for a wide range of FFS-based curricula, and FAO is currently working on expanding this library in collaboration with Wageningen University in The Netherlands.*

- Criteria for appointments (or rules of conduct) at various levels should be drawn up, as conflict of interest might develop if committee members would also be recipients of grants through this project.

Response by the project team: *Terms of reference for National and Regional steering committees have already been drafted (Bamako validation workshop, March 7-8, 2005). Committee members would not be in line for grants and will be entitled to no more than standard FAO transportation and DSA allowances for meetings.*

3. Have issues of conflict been addressed?

See point 2 above.

Identification of the global environmental benefits

1. Does the project address issues that will result in global environmental benefits?

Yes, and adequately described.

Response by the project team: *Agreed*

2. Are any negative environmental effects anticipated?

See comments above.

How does the project fit within the context of the goals of GEF

1. Does the project fit within the overall strategic thrust of the GEF- funded IW activities to meet the incremental costs of: (a) assisting groups of countries to better understand the environmental concerns of their IWs and work collaboratively to address them; (b) build the capacity of existing institutions; and (c) implement measures that address the priority transboundary environmental concerns?

Yes on all accounts

Response by the project team: *Agreed*

Regional context

1. With few exceptions IWs projects are multi-country regional projects. Assess the regional scope of the project.

The project addresses the shared concerns of six countries, on a catchment basis, and covers a vast region. The number of people depending on, or the estimated hectares under cultivation associated with the two rivers is not mentioned, and could perhaps be included in the PB.

Response by the project team: *Acknowledged and adjustments made to main brief. Also, country reports with statistics on land use will be found on-line at www.enda.sn.*

Replicability of the project

1. Is there scope for replication of some of the approaches in other international water bodies?

Replication is possible but it is difficult to judge at this stage. The assessment at the end of the project will be a much better opportunity for this.

Response by the project team: *Agreed, although the question has received additional attention since the PB was submitted for STAP review and good arguments exist for high likelihood for replicability (see sections on replicability in PB and Executive Summary).*

Sustainability of the project

Sustainability is addressed in the project and all aspects seem to be covered and anticipated. Again a more detailed assessment would only become clearer later on in the project, as there are many factors involved, and the major ones have been identified. The crucial aspect is the willing adoption of alternative best practices and pesticide monitoring by the farmers, which will only happen if these are proven to be advantageous.

The major players have all been identified, and should be assumed to be supportive of this project. The arrangements for this project are also likely to stimulate collaboration and networking. There is already evidence from the PB, that such an effect is already happening through the PDF-B.

Response by the project team: *Agreed, and the sustainability question has received additional attention since the PB was submitted for STAP review.*

Secondary issues

Linkages to other focal areas

There are considerable linkages to the Stockholm Convention, Biodiversity, SAICM and many others that have been identified. No doubt, more could become apparent later.

Linkages to other programmes and action plans at regional or subregional levels

1. Have all relevant conventions been considered and taken into account in the project?

Yes, and more would probably become apparent. The project proponents are well placed in this regard.

Response by the project team: *agreed*

2. Is the proposed activity consistent with existing national plans?

I have no information on individual countries, but since most are signatories to the various conventions, and this PB is consistent with the various conventions, it follows that national concerns are being addressed. The endorsement letters from the individual countries will provide better proof of this.

Response by the project team: *The project is in line with multiple National Strategic Action Plans, e.g., soil-fertility action plan (Mali), national biodiversity action plans (all countries) and of course the NIPs. The “environmental friendly” and farmer-centric aspects of this project puts it in line to support most recent action plans.*

Other beneficial or damaging environmental effects

See above

Degree of involvement of Stakeholders in the project

1. Because of the area-wide interventions, community involvement and stakeholder participation are especially important in OP 9. Are the national and regional institutions likely to be able to contribute to the achievement of the objectives identified?

Yes, and clearly so.

Response by the project team: *Agreed*

2. Are all countries which have a stake in the IW body subject of the intervention by the project involved in it?

No, only Nigeria is not on the list. Since the question as to why Nigeria is not included could possibly arise during the project, and a statement on why it is not included, or how the findings of the project will be communicated, would be appropriate.

Response by the project team: *It was decided early on in the PDF-B planning stage, together with GEFSEC, that the population size and complexity of working in Nigeria warranted a separate project. Also, language differences were an issue. Adding Nigeria would have made this an overly ambitious project.*

Capacity building aspects

Capacity building is an important component in international waters projects. Institution building plays a crucial role, and specific capacity-strengthening measures are required to assist countries in finding the appropriate institutional and organizational matters.

Response by the project team: *Agreed. The project aims at capacity building at several levels, but principally at the field level (farmers and trainers or facilitators). Farmers' Organizations will play a critical role and as noted in the PB, the recent movements towards decentralized and semi-privatized service-support programs like the PASAOP offer an excellent opportunity for the project to be sustainable and replicable (scale up).*

Innovativeness of the project

The combination of activities, the scope of the project and the development of a community-based pesticide-monitoring system provide the innovativeness of this project. The success will also allow assessment of its replicability elsewhere.

Response by the project team: *Agreed*

Comments specific to the PB

Annex B, p 3. The outcomes of 1 and 2 are identical and should be corrected.

Response by the project team: *Acknowledged and corrected*

(b) **WORLD BANK COMMENTS AND RESPONSE BY PROJECT TEAM**

The project team is grateful to the World Bank reviewer for comments to strengthen the contents and presentation of this proposal. Presented below are the responses and/or actions taken, where required, taken in response to the comments (in italic following the WB comments).

Reviewer:

1. Development of Community-Based Pesticide Monitoring Systems. There is insufficient documentation that communities will have capacity and incentive to sustain these monitoring systems post-project.

Response by the project team: *The lack of documentation is a correct observation as this is, to our knowledge, the first time such a community-based pesticide monitoring system (CBPMS) will be attempted. The development of the capacity to do such monitoring is one of the objectives of the training and does not pose significant logistical or social challenges. The pre-training village “diagnostics” are participatory appraisals, coordinated by ENDA and tested during the PDF-B will be included in the full project. A new element was added to these appraisals in that community members were trained as part of the diagnostic team; hence, helping to build capacity for self-survey and record-keeping within the community. The motivation for carrying out the exercise and eventually the longer-term post-project maintenance of a CBPMS will depend on the degree to which the threats posed by pesticides are both understood to be a substantial and yet easily avoidable by communities and especially their leaders. If the project demonstrates the value of a CBPMS approach, integration and expansion to other regions can take place through adoption of the training by government structures and local NGOs working with grassroots organisations, including local Farmer Organizations.”*

2. There is conflicting discussion (and evidence) in the text that larger, i.e. industrial farms, are responsible for use of more dangerous pesticides and for a disproportionately higher percentage of pesticide use per acreage, yet Farmers Organizations and communities are targeted rather than commercial agriculture.

Response by the project team: *The team feels that the reviewer was misled by our the use of the term “industrial” with regard to agricultural systems along the Senegal River (paragraph #3 of the brief). In fact there is neither conflicting discussion nor conflicting data. In the six countries the vast majority of farming is done by small-holder family farms, or in the form of a union of small-holders who group together to gain access to credit, (e.g., the GIE system Groupement d’Interêt Economique in Senegal). The use of the term “industrial” was in reference to this arrangement, developed in the early 1980s, in which these groups of small farmers rent the use of large-scale equipment (tractors and combine harvesters) to prepare the plots and then to harvest the crop. After soil preparation the farmers broadcast seed (yet another sub-optimal method) and weed by hand like many small-scale farmers. The term also refers to the unquestioned use of chemical pesticides as a “necessity” for “modern” production. Actual large-scale industrial farming is rare and even these most often are based on the purchase of harvests from the fields of small farmers (e.g., the SOCAS factory along the Senegal river, which produces tomatoes for export). Small-holder farmers are without question the principal users of pesticides, both by number and by total volume of chemical, and therefore the appropriate target for this project.*

3. Similarly, there seem to be greater returns to strengthening national import policies, import monitoring and enforcement to curtail entry of pesticides, rather than community-level targeting once pesticides have entered the country/region. Why is there not a combined policy and change-in-use approach promoted here as a PDO?

Response by the project team: *The team does not agree with the first part of the reviewer’s statement. Pesticides are imported based on the demand expressed by the country. These pesticides are not illegal to import and working to create barriers to their importation, in the face of continued demand by farming communities, would not be*

successful. Furthermore, pesticides recommended or obliged by credit agreements for use in one crop (e.g., cotton) many times find their way into use in other crops (e.g., vegetables) where they are wholly inappropriate. Only education at the farmer level will be able to address these abuses. The strategy of the project is to first demonstrate the high health risks, the negative economic returns and the existence of better alternatives to pesticide use and thereby turn off flow by turning off the demand from the base.

With regard to a “combined policy and change-in-use approach”, note that one of the expected outputs of Component #1 includes policy studies, workshops and recommendations to governments: “National policy studies completed by the mid-term report and serve to generate at least two policy recommendations in the four countries for which studies do not yet exist.” The outcomes and recommendations of the policy studies will also be transmitted to the Regional PSC and the two regional pesticide-registration authorities, who will also be in a position to discuss strategies and to carry lessons-learned to the respective national policy levels.

4. Per these three comments above, Two recent GEF/IW projects under preparation targeting commercial agriculture to refer to are East Asia Livestock Waste Management Project (with FAO involved) and Serbia and Montenegro River Enterprise Nutrient Pollution Reduction Project. Both target livestock waste, but otherwise motivate targeting of commercial entities with financial incentives and have better outcome-oriented monitoring of water quality.

Response by the project team: *The team will study the two GEF/IW projects noted by the reviewer, but based on the above discussion the team believes that targeting commercial entities and employing financial incentives are clearly not the most effective targets and tools for the stated aims of this project. This does not preclude the possibility that significant industrial pollution might not be found, especially in the neighbourhood of the largest cities along the two rivers. While redressing the sources of these potential problems is beyond the purview of this project, the water-quality analyses might well trigger national and international action along these lines.*

5. Outcome One Design and Stakeholder Involvement. Some explicit mention of involvement of the Ministries of Agriculture in these countries should be here. The Ministries of Environment are the endorsers, but the Ministries of Agriculture usually are responsible for the subsidization, import, and distribution of agro-chemicals. Changes in working relationships should be through Ministry of Agricultural extension agents through to Farmers and Farmers Organizations, as facilitated by the Ministries of Environment (see Annex K).

Response by the project team: *Acknowledged and the text changed to reflect, explicitly, what is implicitly understood by all parties.*

6. The key indicators seem optimistic and the logframe (Annex B and Annex I, Table 2) does not give year-by-year targets for many of these KPIs.

Response by the project team: *The reviewer does not specify which of the key indicators seem optimistic. The indicators for reductions in pesticide use and increases in yields and net income are based on four years of experience with the sub-regional IPPM programme in West Africa, and supported by 15 years of similar work in a dozen countries in Asia and now the Caribbean. In fact these figures used for the key indicators were toned down to*

be rather more conservative than what the evidence would suggest. Targets for trainers-trained and farmers-trained were based on substantial experience in the region and are not felt to be particularly ambitious in number (recognizing this is a pilot or demonstration effort and not meant to substitute for a fully institutionalized national effort).

For year-to-year targets please see indications in Table 2 of the M&E (Annex I in full brief).

7. Under "Sustainability" in the Executive Summary, National monitoring capacities for water quality Section (and in para 59, Project Document. There are both national and regional guidelines for monitoring, compiling, and reporting on water quality. There is a recent Water Quality study focusing on harmonizing capacities across the Niger River Basin countries underway as facilitated by the Niger Basin Authority and financed alongside the Niger River Basin GEF project. The results of this study should feed into this component.

Response by the project team: *The team gratefully acknowledges this important suggestion and will seek out the findings of this study. The NBA is of course, along with OMVS, one of the more important stakeholders and every effort will be made to establish and maintain good lines of communication.*

8. Under "Sustainability" in the Project Document, there is no discussion of how use of and support to CERES/Locustox will contribute to post-project sustainability in lieu of working with and increasing capacity of national-level water quality monitoring institutions.

Response by the project team: *This point was the subject of discussion during the two stakeholders meetings and the countries have agreed that, for the sake of quality and conformity in the results, use of CERES/Locustox as the principal laboratory would be acceptable. This is the sole laboratory in the sub-region with the necessary equipment, training and internationally accepted level of certification (see Annex E). It was agreed among the stakeholders that the goal of the project was not to build similar capacities in all the countries, but if the results of the project should illuminate similarly high levels of chemical contamination in the waters of the respective countries, that this result could then be used to leverage governmental and inter-governmental support for building such capacity. In other words the idea of building national capacity in every country was felt to be premature given that the need was not yet proven to exist and the transformation of national laboratories to an equivalent level will involve expensive equipment and substantial training.*

9. The important, and recent, role of pesticides in locust control is mentioned in the Project Document but not in the Executive Summary. The institutional specificities of locust control v-a-v agricultural production in each country has not been elucidated. Often pesticides related to locust control enter countries under different policies than do agricultural-use pesticides, and sometimes a Ministry other than Ministry of Agriculture has the chapeau for locust control.

Response by the project team: *The first suggestion is noted and the executive summary has been so modified. The team feels that the institutional specifics of how pesticides enter the countries is not of particular relevance, given that our target is communities and farmer education. What is important is that, since the submission of this project document for review, the locust populations have proven unlikely to reappear in the Sahel in significant numbers. While good news, this fact nevertheless leaves some 1.2 million litres of highly concentrated ULV pesticides sitting in these West African countries, with the majority (900,000 L) sitting in Senegal. History has shown that stockpiling*

these chemicals in warehouses does not ensure their being kept out of the hands of farmers. Furthermore, in the past these formulations included substantial amounts of Emulsifiable Concentrates and dusts (formulations farmers are familiar with handling), whereas current locust formulations are almost entirely ULV for use in aircraft. This latter formulation is oil-based and extremely concentrated and therefore has a high dermal as well as oral toxicity. The high dermal toxicity is not something farmers are used to dealing with. Interest in co-financing for the project has recently been expressed by USAID/FAO using redirected finances originally slated for locust operations in the sub-region. To address the issue the project will develop a new curriculum that specifically deals with the nature and threat of ULV pesticides, the biology and ecology of locusts and recommended actions in the event of locusts being found in the vicinity of crops.

10. With regards to Core Commitments and Linkages, there is expository text explaining the Niger, Senegal, and Futa-Djallon GEF/IW projects, but there is not given any explanation of specific points of possible engagements between project objectives. In the Consultation Section between IAs, formal contacts should be initiated directly with these GEF Project Management Units, as they are actively under implementation. As the PMUs are close to or sit within existing regional institutions, ties then to other non-GEF projects as well as post-project capacities will be more evident.

Response by the project team: *The team acknowledges the valuable suggestion and the appropriate changes have been made to the text. These suggestions will be noted in the first meetings of the regional and national PMUs*

11. Farmer Field Schools (para. 63, Project Document, and Annex L). The distinction should be made everywhere that the project refers to self-financing FFSs. There are also state-supported Farmer Field Schools elsewhere in Africa, with financial support for them by regional and national financing mechanisms is waning rather than growing.

Response by the project team: *The team acknowledges this observation and reference is being made elsewhere in the text. However, it is the intention that only a certain fraction of FFS will follow this model as the first experiment in the sub-region, especially during the early part of the project implementation. While the team acknowledges the clear benefit of a scenario in which “extension” is entirely decentralized and self-financed through farmer organizations, we feel it is premature to depend heavily on this approach without first testing. In this regard the self-financing mechanisms will take advantage of initiatives in large part financed by the World Bank (e.g., ANCAR in Senegal and the PASAOP in Mali and Senegal), which are themselves experimental.*

The team is puzzled by the statement of the reviewer that national and regional support for FFS elsewhere in Africa is waning. FAO’s experience has been quite the contrary; the FFS approach in Africa has only just started in most places during the last five years and FAO is receiving increasing demand for FFS programs to be established in Africa and elsewhere (most recently in Madagascar and the Western Indian Ocean). More generally it seems clear that the paradigm for extension has fundamentally shifted away from the more conventional forms of the past and towards some form of participatory, decentralized farmer education approach of which the FFS model is just one of several. Such participatory models are proving highly flexible and variations are being seen in which they are being adapted for use for a larger diversity of crops, fisheries, livestock, soil-fertility and zero-till farming systems, and more radically, for situations related to HIV/AIDS and recovery of agriculture in post-conflict areas. Conventional extension approaches have been around for at least four decades and have benefited from billions of dollars in loans and grants while generally criticized for not being effective. This next generation of extension methodologies should be given an adequate opportunity to prove themselves.

(c) **GEF SECRETARIAT COMMENTS AT WORK PROGRAM ENTRY AND RESPONSE OF THE PROJECT TEAM**

Program Designation and Conformity: The full project proposal will expand on what is possibly the main objective of the project: introduce environmental components (protection of freshwater ecosystem services and resources) into the regular work of the IPM Facility, presently essentially focused on the elimination of chemical pesticides while maintaining/increasing productivity.

The presence of high levels of dieldrin in the project area waterways most probably reflects current usage of dieldrin. The proposal is therefore eligible under POPs OP14, Strategic Priority #3: Demonstration of technologies and practices. The proposal has strong relevance to OP10.

Response by the project team: Agreed

Project Design: The Executive Summary could provide a stronger rationale for the intervention by referring to pesticides monitoring undertaken during the PDF-B. Furthermore, the rationale section should provide background on the type of agriculture addressed in the demonstration areas (also in response to concern raised by WB), as well as a brief overview of successes and failures of IPPM in West Africa so far (thereby addressing the question "why the need for this project?"). Finally, it would be useful to provide the reader with some grasp for the magnitude of the demonstration / total cultivated land in the region. We are told of demonstrations involving 30 communities in the region. What percent of the communities / cultivated areas are we targeting. In this regard, I note that Annex G showing site maps for the demonstration areas only shows maps for Niger, Guinea and Benin).

Response by the project team: Acknowledged and adjustments have been made to the Executive Summary.

Component 1 will produce 'policy recommendations'. To whom? How do we ensure that these are acted on?

Response by the project team: The partner countries are undergoing a process of decentralization and a movement towards private or semi-private agricultural support services in which local communities are being increasingly charged with the decision-making power to manage their agricultural resources and given the financial resources to realize this goal. This move towards decentralization is increasingly reflected in various national strategies and action plans, which are being formulated along sectoral lines (soils, water, biodiversity, etc.). Even though this political changes are only in their infancy, this movement towards decentralization can already be seen in the "common framework of political harmonization" expressed in the CEDEAO (Communauté économique des Etats de l'Afrique de l'Ouest). This change in policy has been mirrored by an explosion of increasingly dynamic and powerful producer organizations, which are potentially at the base of influencing the content and direction of this new political atmosphere, from the "bottom-up". As was expressed in the PDF-B stakeholders' meetings, the governments, in principle, would like to see feedback and proposals coming up from the base and being made by

these communities. The communities and local Farmers' Organizations involved in the GEF project are in a position, therefore, to make their wishes known to the national and regional political structures as no other time in the history of the sub-region. In short, if the project proves itself of substantial value to a significant and growing number of local communities and farmer-based groups, those communities will be in a position to make their approval for changes known to higher political structures, with some likelihood of being listened to.

Note that the brief refers to country background reports prepared during the PDF-B and available on file at FAO. Such documentation should be part of the bibliography for the proposal and available on line on someone's website.

Response by the project team: *Acknowledged. A website will be set up in collaboration with ENDA Tiers Monde, one of the principal partners, where the country reports can be found (go to www.enda.sn and look for reference to the GEF project).*

Replicability: The full project proposal will indicate IPM's commitment to permanently integrate environmental components into its regular work.

Response by the project team: *Acknowledged and reflected in the document in the context of dissemination at a global level through FAO Global IPM Facility's network of activities and partners world-wide. Given the participatory and diverse nature of the network, the extent to which the lessons-learned and especially the novel curricula developed during the programme are actually integrated into other programmes will depend entirely on the nature and quality of the outputs and outcomes.*

The project includes provisions for replication locally and nationally. It is not at all clear how UNEP and FAO will seek to promote potential positive outcomes of the project internationally.

Response by the project team: *Acknowledged and the following text was added to the Executive Summary:*

"Finally, local national and international awareness will be raised as project results are presented over the course of the project and afterwards, in the form of newsletters, professional publications and presentations presented in a diversity of national and international forums. A website will be set up in conjunction with either the executing agency or one of the regional partners."

Monitoring and Evaluation: The full proposal will include provisions for establishing indicators of environmental status, and for monitoring project performance. The proposal includes in annex a draft M&E plan that appears appropriate at this stage. It should be referred to in the Executive Summary.

Response by the project team: *Agreed and modifications made*

Financing Plan: Budget and co-financing appears adequate. Documentation of expression of interest from co-financiers is expected at this stage.

Response by the project team: Agreed and letters have been received

In the Executive Summary, need to have a discussion of "Cost- Effectiveness".

Response by the project team: Acknowledged and additions have been made to the Executive Summary

Core Commitments and Linkages: The proposal builds on the considerable experience of the GIF in promoting IPPM in the region and globally. Conversely, the Global IPM Facility can act as a sounding board for the global dissemination of lessons learned during the project.

Response by the project team: Agreed

Consultation, Coordination, Collaboration between IAs, and IAs and EAs, if appropriate:

Collaboration will be sought with the regional IW projects under implementation or preparation in the region. In addition, collaboration should be sought with UNIDO where UNIDO is the lead NIP agency, as well as with the ASP units at the national level - particularly regarding the prevention component of the ASP.

Response by the project team: Acknowledged and this suggestion will be transmitted to the regional and national PMUs

General Comments: The proposal will both provide evidence of and raise awareness of the risk of POPs and toxic chemicals based agricultural production and will promote and demonstrate the efficacy of alternative Integrated Pest and Production Management through demonstrations in some of the poorest rural areas in the world.

Response by the project team: Agreed

Please add the responses to the first round of comments by GEFSEC on our first submission. We can also submit the same in a separate file to highlight it.

Responses to Council Comments

COMMENTS FROM SWITZERLAND	
General Comments	
<i>Council Comments</i>	<i>Response</i>
<p>The extensive use of agro-chemicals in irrigated agriculture is a big concern in West Africa. It has contributed to a decline in long-term agricultural productivity, damaged aquatic ecosystems, and degraded human and environmental health. Alternative agronomic systems turn out to be essential to reduce the use of pesticide and the health hazards. The expansion of the Integrated Production and Protection management program (IPPM) in West Africa is consequently very important to develop the knowledge of sustainable and more profitable alternative production models.</p>	<p>We concur and appreciate the Council member's comments</p>
<p>Some of the pesticides to be eliminated with the support of this project are persistent organic pollutants (POPs) or substances with a similar profile, including dieldrin, which is one of the most toxic substances. The project benefits from synergies with the African Stockpiles Program (ASP), which is intended to eliminate all obsolete pesticides and which is already supported by GEF. Furthermore we support this important project because it improves the transboundary collaboration between all countries in the Niger and Senegal River Basin. The IPPM program has already proven to be the most effective way to shift to alternative production methods. The objective and induced benefits of the project can only be achieved by educating and training the local farmers. Therefore, we trust in the IPPM program.</p>	<p>We concur and appreciate the Council member's comments</p>

<p>We are supportive to the elimination of POPs pesticide-use and related substances in agriculture in a way that can lead not only to an increase of the agricultural productivity and economic benefits to farmers, but also improves organizational and decision-making capacities within and among stakeholders and communities in the six countries involved. The project also supports the development of studies on national pesticide use patterns.</p>	<p>We concur and appreciate the Council member's comments</p>
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Conclusions and Recommendations

<p>The project is consistent with the objectives of the Stockholm Convention on POP and we believe that the GEF contribution of 4.5 Million USD can greatly contribute to the elimination of POPs pesticide-use and to the implementation of effective actions to protect human health and the environment from POPs at local, national and sub-regional levels of West Africa. In conclusion, we strongly support this project.</p>	<p>We appreciate the Council member's support</p>
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Comments from the United States

<p>Again, this is a good project worth supporting. USAID and FAO are co-financers (\$450,000). The project builds on the success of a small pilot. The log-frame has strong, quantifiable indicators. However, we also want to clarify in this project that reductions are permanent and that all beneficiaries are signatories of the POPs convention, and therefore <u>request that the project be recirculated to the Council prior to CEO endorsement.</u></p>	
<p>Non-Parties—Guinea, Mauritania, and Niger are all signatories but non-Parties. In general, we have supported enabling activities even for non-Parties to facilitate their efforts to join the agreement. However, this proposal goes beyond enabling activities.</p>	<p>Mauritania and Niger have subsequently ratified the convention. Ratification has also taken place in Guinea (22 November, 2005) as per attached document, and we understand that Guinea is transmitting the instrument to New York as per the provisions in the Stockholm Convention.. [see paragraph 25]</p>
<p>Cost Effectiveness – This is very difficult to assess, particularly in the context of POPs. The project cost</p>	<p>The project document does in fact point out figures</p>

is \$4.5 million, but there appears to be no estimate of the amount of any of the POPs pesticides being used either on the aggregate scale in the countries or by those involved in the project. One of the objectives of the project is to develop some sort of baseline levels. However, it's not clear whether this is cost-effective. Please provide greater information on this in the project document prior to CEO endorsement.

from a PDF-B financed socio-economic study on pesticides in Senegal for the POPs pesticide dieldrin [see Paragraph 8]. Estimates from the market study suggest some 30,000 liters of dieldrin are on the black market. The lack of figures for the other countries is due to lack of equivalent studies, which are planned for the project.

Pesticide figures are notoriously difficult to obtain given that industries consider pesticide import and sales statistics as "privileged" information. Despite the difficulties one important outcome from the project will be a vastly better baseline data set on POPs and other pesticides derived from market studies and detailed village-level diagnostic surveys. These surveys will cover a wide-range of socio-economic and agronomic practices and form the baseline picture by which the success of the project will be measured. The NGO partner ENDA Pronat has a long respected reputation for conducting these types of village surveys in a sensitive and thorough manner. Community members trained as part of the diagnostic team will continue to play a role during the project by forming the core capacity for the community-based pesticide management teams. These teams will assure long-term surveillance and reporting of local pesticide market and use patterns.

Overall cost effectiveness of the project (in contrast to that accrued strictly from POPs reduction) is certain to accrue within a short time as demonstrated by the positive economic returns to farmers from changes in agricultural practices associated with Farmer Field Schools (see Annex F). In strict dollar terms an equivalent sum to the GEF contribution of approximately \$4.5 million will be earned when each of the 120,000 farmers trained in the overall programme benefit a total of less than \$40 from project-related activities. Prior experience shows this should take place easily within the first season of active participation from reductions in input costs and increases in yields.

Other positive economic benefits are likely to obtain during the course of the project, including:

- i) Lowered pesticide residues on export-bound crops;
- ii) Improved economic returns in rice systems from introduction of rice-fish and aquaculture techniques;
- iii) Decreased health costs from reduced purchases of medicines and fewer days lost

	<p>to pesticide-related illnesses;</p> <p>iv) A host of environmental and long-term human health benefits (cleaner water, more abundant consumable wild species, fewer environmental toxins causing long-term health effects, etc.).</p>
<p>Focal Area – The project envisions the phasing out of non-POPs pesticides. Given that the project is in both the POPs and the international waters focal areas, this isn't a problem. We should be careful to ensure any projects only in the POPs focal area do not take on non-POPs problems.</p>	<p>No Action Necessary</p>
<p>Sustainability – It isn't clear whether these activities will result in permanent long-term reductions of use.</p>	<p>Sustainability is discussed in detail in paragraphs 57-to-64. The text has been updated based on Council comments.</p> <p>Permanent long-term reduction in the use of the most toxic chemicals is likely to be a function of three factors: i) adoption of “Better practices” by farmers exposed to the IPPM training, ii) institutionalization of the IPPM training approach within the appropriate national structures, and iii) policy developments that recognize the real costs and benefits of pesticide use in the developing country context.</p> <p>With regard to the adoption of “better practices” by farmers, past experience with IPPM in more than 20 countries overwhelmingly demonstrates that reduction or elimination of pesticides in the major tropical agriculture systems (rice, vegetables, cotton) results in yield loss only in very rare instances. On the other hand the broad scope of IPPM training (improved soil, water, seeds and pest management) leads on average to yield increases. This lack of “trade offs” with pesticide reduction suggests a “win-win” scenario for participating farmers with gains in yields, reductions in input costs and benefits to a host of social, human health and environmental variables. The evidence supports the logic that farmers experiencing the benefits of the IPPM approach tend not to return to “old habits”.</p> <p>With regard to institutionalization of the training approach, evidence from Benin and Mali demonstrate that the donor and NGO communities, along with national institutions, are increasingly moving in the direction of decentralized, participatory community-based educational approaches such as the FFS. Experience in Asia shows that agencies who have income tied to pesticide sales are not often open to the IPPM approach. Fortunately, in Africa, government</p>

	<p>agencies related to agriculture do not generally garner support for the functioning of their service through the sale of pesticides (the exception is the cotton sector in some countries). Institutionalization is a critical outcome for the project if sustainability is to be ensured and therefore be a major focus of attention for the project.</p> <p>The project will forge strong linkages with key national, regional and international agencies as part of the awareness-raising component. Discussions with the two regional partners involved in pesticide legislation (<i>Comité Sahélien des Pesticides</i> and <i>Comité Phytosanitaire des Pays de la zone Humide de l’Afrique de l’Ouest et du Centre</i>) indicated clearly that the countries lack is a means of monitoring the reality of pesticide use at the field level. They therefore strongly support the project goals related to water-quality monitoring and community-based pesticide management, as these efforts, besides providing local benefit, will provide “feed-back” from the field that will support further policy initiatives.</p> <p>In order to measure progress towards the goal of sustainability there needs first to be good baseline data and a feasible, robust monitoring mechanism. The project has a well-thought out and thorough M&E component that provides assessment of and by farm communities, by farmer trainers and by independent parties during, immediately after and several years after training. The project will clearly document the baseline point of departure for communities and the degree of change over time.</p> <p>Sustainability has capacity building as the sine qua non for sustainability and is a primary activity of the project. Capacity building for the regional ecotoxicology laboratory in Dakar will help ensure the ability of governments in the region to monitor agrochemicals in water resources. Capacity building for staff within NGOs, Farmers Organizations and government agencies will help ensure a long-term ability to both monitor pesticides in the environment and to train farmers to adopt sustainable alternative approaches.</p>
<p>Import Policies – Presumably the Parties to the Convention at least have banned imports of the POPs chemicals. There does not appear to be anything in the project description on this. Would be good to confirm this point for all 6 countries. Also, should there be some sort of clearer linkage here between efforts to help these farmers use less toxic pesticides while at the same ensuring import is prohibited save for exempted uses (and I don’t think these farming</p>	<p>[updated in paragraph #26]</p> <p>Once having ratified the Stockholm Convention, the Parties to the Convention are bound legally to ban imports on all POPs chemicals, except where exemptions apply (such as with some DDT for health-related purposes). Such exemptions do not hold for agricultural uses in these countries. However, a very reasonable concern, if not</p>

uses would qualify for these countries).	certainty, will be that DDT, if exempt for public health purposes, will find its way into agricultural systems. This is commonly seen for example by illegal cotton pesticides showing up in vegetable gardening systems. This underlines the importance of practical training and education at all levels, from farmers to national and regional policy makers.
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ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT

<i>Position Titles</i>	<i>US\$ per person week</i>	<i>Estimated person weeks</i>	<i>Tasks to be performed</i> (see Project Document Annex T for full description).
For Project Management			
Local			
National Project Coordinators (6) @ 20%	550	230	Provide administrative oversight for the training-of-trainers and training of farmers; Prepare the terms of reference and to supervise national consultants involved in the execution of the project; Supervise the administrative and financial aspects of all activities and operations related to the national project.
National Admin Assistants (6) @ 100%	217	1152	Assist National Coordinator in administration, financial management, accounting and program activities; Prepare and finalize documentation, notes and reports on the program; Keep the secretariat of the programme; maintain an inventory of equipment; Hold regular accounts; contribute to the organization of workshops and meetings, including travel of participants in the host country and in the countries of the sub-region;
Regional Admin Assistant (1) @ 100%	453	192	Regional Administrative Assistant (SRPAA) will be hired by FAO in Dakar to oversee monitoring and reporting of financial details among the 7 countries, with guidance and support from the Admin Clerk and Budget and Finance Officer.
International			
Chief Technical Advisor (CTA) (1) @ 20%	3,896	38.4	Provide overall administrative oversight of the Regional Coordination Unit (RCU) as well as project staff in all project countries. Liaise with relevant Departments providing administrative services and promoting synergies with related FAO projects and activities (see Project

			Document Annex T for full description)
Regional Project Coordinator (1) @ 20%	3,542	38.4	Act as focal point for communications to and from the NPCUs. Develop work plans and critical time flow analyses for integrated project activities; Provide administrative oversight and guidance to ensure the effective start up of the national IPPM projects and provide advice to national authorities; Ensure adequate monitoring and evaluation of administrative work in the participating countries. Monitor expenditures at all country levels; Ensure timely compilation, synthesis and interpretation of country data and periodic reports deriving from the projects as well as transmission of these periodic reports to the CTA;
Admin Clerk/secretary @ 100%	700	192	Receive, screen, maintain control of and route correspondence, reports and other material; assemble data, correspondence and reports from field operations units, particularly from the Regional Office in Dakar; organize recruitment and payment requests for settlement of honorarium of consultants, purchasing of equipment and supplies, prepare Personal Services Agreements (PSAs), raise Letters of Agreement (LOA); update project related databases containing information on staff, consultants, etc, receive and reply to telephone calls and e-mails; type correspondence and documents, including finalization of project reports using word processing equipment.
Budget & Finance Officer (1) 25% paid by GEF resources	1,875	48	To oversee monitoring and reporting of financial details; initiate administrative transactions in the computerized financial and travel systems, and purchases (i.e. Field Budget Authorizations, Field Disbursement Authorizations, Purchase Requisitions, and Local Orders) as well as preparation of Travel Authorizations (TAs) and processing of travel expense claims (TECs); assist with budget revisions and financial reports
For Technical Assistance			
Local			
National Project Coordinators (6) @ 80%	550	922	Provide technical and operational supervision for the training-of-trainers and training of farmers; prepare the terms of reference and to supervise national consultants involved in the execution of the project; organize national workshops and, in collaboration with the RPCU and PCU, regional and international workshops; develop and promote the principles of Integrated Production and Pest Management (IPPM), including standards and best practices, within the country; collaborate closely with NPCs in the other project countries; participate in meetings and other activities related to the project at the regional level;

National Project Technical Assistants (9) @ 100%	100	1,728	Assist the NPC in the development of Farmer Field Schools (FFS) curricula and execution of training by project personnel related to the full range of topics for non-formal education; to assist in the diagnosis of the organisational constraints of Farmers Organizations (FO) and development of a plan for building capacity in these organizations in relation to their needs in the domain of non-formal education; to ensure coordination between the technical content as it evolves during the course of the programme and the training materials developed; to prepare in collaboration with the NPC and national structures.
Data management administrator (1) @ 100%	500	192	Based at the RCU. Lead the project in the elaboration of a system to effectively and efficiently assure data harmonization, entry, security and analysis and national and regional levels; Monitor the outcomes and quality of the program activities; Oversee the country-level technical assistants responsible for the national-level execution of the M&E activities; Provide reports to the ICPC on the level of quality in the execution of the training programmes over all 6 countries; Compile and keep accurate and up-to-date records of national figures and develop templates for use by the overall program; Contribute to the development of tools for measurement of agronomic, socio-economic and environmental impacts resulting from the FFS; Contribute to the Training-of-Trainers (ToT) in collaboration with national and regional partner institutions.
Communications, knowledge platform construction and maintenance consultant (1) @ 50%	500	96	Based at the RCU. Provide part-time assistance to the Regional Coordination Unit and National Coordination Units to construct, monitor and maintain the project's Content Management System (CMS), including forum, wiki, document exchange and website; Liaise with GIS consultant and RDMA to bring interactive maps containing project data to the CMS for use by national decision makers and an international audience; Assure coherent reciprocal translation of web content in two languages (French and English)
International			
Chief Technical Advisor (1) @ 80%	3,896	154	Provide overall technical oversight of the Regional Coordination Unit (RCU) as well as project staff in all project countries; liaise with relevant Departments providing technical services and promoting synergies with related FAO projects and activities; liaise at national, regional and international levels with universities, research institutes, government and regional agencies and non-governmental organizations (NGOs) involved in river basin management, as well as Farmer

			Field School (FFS) and pesticide risk reduction projects.
Regional Project Coordinator (1) @ 80%	3,542	154	Oversee overall technical execution of project components, including planning and execution of activities related to awareness-raising, water-quality analysis for pesticide residues, training of trainers and farmers through farmer field school programs, development of networks among participating communities; Assure assignment of tasks, coordination and monitoring of activities and Regional Project Coordination Unit (RPCU) staff involved in project-related activities; Provide technical oversight and guidance to ensure the effective start up of the national IPPM projects and provide advice to national authorities; Participate in the Regional Technical Steering Committee (RTSC) meetings; Assist in the development and refinement of community-level survey tools to act as baseline data for the projects; Oversee curriculum development for Farmer Field School Training in the projects; Liaise with technical institutions and governments throughout the region; Communicate with regional and national government agencies in the context of public awareness and discussions related to policy.
Geographic Information Systems Consultant (50% cost share)	1,250	96	Provide technical and scientific support through Geographic Information System (GIS) and other information technologies to the water-quality assessment component, involving FAO, the regional ecotoxicology laboratory in Dakar Senegal and the technical team from Oregon State University involved in river-basin pollution monitoring. The GIS/WIO will support the information needs of the collaborative research effort through the compilation and management of relevant water quality, ecotoxicology, socioeconomic, and environmental data and information, including spatially-explicit data deriving from project activities as well as from a wide array of existing data sources;

ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS

A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES

UNDERTAKEN. The objectives were achieved

B. DESCRIBE IF ANY FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON

PROJECT IMPLEMENTATION. Additional attention needs to be given to capacity building in the Locustox laboratory in Dakar. Equipment, laboratory skills needed to be upgraded before full project can get underway (as of 01.08 this has been accomplished through substantial counterpart contributions)

C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:

<i>Project Preparation Activities Approved</i>	<i>Implementation Status</i>	<i>GEF Amount (\$)</i>				<i>Co-financing (\$)</i>
		<i>Amount Approved</i>	<i>Amount Spent To-date</i>	<i>Amount Committed</i>	<i>Uncommitted Amount*</i>	
Coordination and management	Completed	60,000	48,007			50,000
Pesticide monitoring system	Completed	150,000	174,630			
Laboratory research	Completed	35,000	55,243			
workshops communities	Completed	25,000	25,000			
Local participatory case studies	Completed	35,000	35,000			15,000
Participatory evaluation	Completed	12,500	12,500			
National pesticide policy workshop	Not done	5,000				
study tour 20 persons	Not done	35,000				
develop GEF project brief	Completed	15,000	21,030			39,000
Preparation PDF-B	Completed	0				55,350
Total		<u>372,500</u>	<u>371,410</u>		1,090	159,350

* Uncommitted amount should be returned to the GEF Trust Fund. Please indicate expected date of refund transaction to Trustee.

**UNITED NATIONS ENVIRONMENT PROGRAMME
GLOBAL ENVIRONMENT FACILITY
PROJECT DOCUMENT
SECTION 1 - PROJECT IDENTIFICATION**

- 1.1 Sub-Programme Title:** International Waters – OP#10: Contaminants
OP#14 – POPs
- 1.2 Project Title:** Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through Integrated Production, Pest and Pollution Management
- 1.3 Project Number:** IMIS: GFL / 2328 – 2732 -
PMS: GF/ 4030 – 06 –
- 1.4 Geographical Scope:** Multi-country: Benin, Guinea, Mali, Mauritania, Niger and Senegal
- 1.5 Implementation:** FAO
Viale delle Terme di Caracalla
00100 Rome, Italy
Tel: (+39) 06-57052725
Fax: (+39) 06-57054657
- 1.6 Duration of the Project:** 48 months
Commencing: 01 July 2008
Completion: 30 June 2012
- 1.7 Cost of the Project:¹**

COSTS AND FINANCING (MILLION US\$)

GEF	Project:	\$ 4,105,330
	PDF A:	\$
	PDF B:	\$ 372,500
	SUBTOTAL GEF	\$ 4,477,830

Co-financing:	Bilateral—Netherlands:	\$ 2,800,000
	Sweden:	\$ 267,000
	Governments :	
	in kind:	\$ 666,488
	cash:	\$ 333,244
	FAO (in-kind):	\$ 391,428
	PDF B Co-Financing:	\$ 369,350
	Sub-Total Co-Financing:	\$ 4,827,510
<hr/>		
Total Project Cost:		\$ 9,305,340
<hr/>		

¹ **Regarding differences in Co-financing between “At Work Program” and “At CEO Endorsement”**

1. Netherlands: since Work Program approval the Netherlands IPM project was fully formulated and approved with additional funding for the GEF “sister” project approved at US \$2.8 million.
2. FAO/USAID funds: the original funds were part of a large grant (\$10 million) tied to work on the Desert Locust Emergency. Towards the end of the funding cycle the GEF project was awarded \$450,000 for working in communities affected by the DL. However, in 2005 the DL emergency quickly subsided and the funding that remained was withdrawn by the donor for use on other projects, notably the Avian Flu crisis.
3. Sweden: the GEF project received \$267,000 for capacity building for the Ecotoxicology Laboratory, CERES Locustox.
4. FAO in-kind contributions have been slightly increased based on new estimates
5. Farmer participation (in-kind) and UNEP co-financing were eliminated due to the additional cash contributions by the Netherlands and Sweden.

1.8 Project Summary:

The project is focused on the two principal river basins in the West African sub-region, the Niger and Senegal River Basins, and addresses riverine contamination issues related mostly to irrigated-farming activities. Trends in all six countries are towards increased use and dependence on agro-chemicals, which has, ironically, contributed to declining long-term agricultural productivity, environmental quality and human well-being, through toxic contamination of food-chains and disruption of ecosystem services, such as natural pest suppression and pollination. Explosive outbreaks of pest problems are often triggered by insecticide use (insecticide-induced pest resurgence). Other negative trends include decreasing soil fertility, contamination of waterways, detrimental shifts in aquatic ecosystems, and overall degradation of human and environmental health. The social and economic drivers leading to current unsustainable agricultural practices include a lack of awareness among communities regarding both the impacts and negative externalities associated with pesticide use, as well as a lack of awareness of feasible, sustainable and more profitable alternatives.

Riverine areas support the highest proportions of natural biodiversity and it is also these areas where people concentrate to collect water for cooking and drinking, where they bathe and where domesticated animals are watered. The project objectives are to raise awareness of problems and alternatives, determine baseline values for agricultural practices and water quality; then begin first efforts to monitor the aquatic systems, develop and extend feasible and sustainable alternatives, and help improve organizational and decision-making capacities within and among stakeholders and communities in six riparian countries of the Senegal and Niger Rivers.

The project addresses both OP#10—International Waters Contaminants and OP#14—POPs reduction. It will develop local and national-level awareness-raising activities; policy studies on national pesticide use patterns, and create links with national and regional pesticide legislative bodies. It will build capacity in a regional ecotoxicology laboratory, execute water-quality assessment studies in six countries, run simulations on likely movement and fate of toxic chemicals in aquatic systems and estimate quantifiable risks to human health; at the same time help communities adopt improved, alternative production methods and community-based pesticide-monitoring systems and, finally, promote develop local, national and regional networks of stakeholders interested in improving the current situation. The outcomes will provide national and regional-level decision-makers with solid examples for addressing integrated development objectives and satisfying international treaty commitments. Outcomes will include substantially lowered pesticide use in the riverine communities—particularly the most toxic types, while at the same time substantially increasing yields and net revenues for farmers.

The current project proposal adheres closely to the country priorities, as indicated in the POPs National Implementation Plans (NIPs) and various National Strategies for sustainable agriculture.

Signatures

For FAO:

For UNEP:

José M. Sumpsi
Assistant Director-General
Technical Cooperation Department
UNFAO

David Hastie, Chief,
Budget and Financial Management
Service, UNON.

Date: _____

Date: _____

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SECTION 2 - BACKGROUND AND PROJECT CONTRIBUTION TO OVERALL SUB-PROGRAMME IMPLEMENTATION PROJECT DESCRIPTION

Background and Context

1. The **Senegal and Niger River** basins that are the focus of this project are both transboundary areas. Both rivers have their sources in the mountains of Guinea and flow northwards. The Senegal River forms a natural border between Senegal, Mali and Mauritania. The Niger River crosses Mali and Niger and forms the border between Niger and Benin. For decades, the Senegal River has been subject to significant large-scale development, principally the establishment of the Diama dam in 1986 and the Manantali dam in 1988. Benefits from the operation of these dams include, in addition to increased electricity production (Manantali only), the increased availability of freshwater throughout the entire year. This leads to opportunities for enhanced multiple use of water, including increased crop irrigation and improved continuity of drinking water supplies. The adverse effects of the dams include increased incidence of water-borne diseases, changes in the seasonal downstream flow and sediment impoverishment in downstream areas.

2. The inland delta of the Niger River (in Mali) encompasses some 40,000 hectares of surface waters at peak annual flood periods, making it the largest floodplain zone in Africa. In comparison to the Senegal River, the inland delta of the Niger River has been subject to less hydrological modification and is also less contaminated. The delta of the Senegal River and the inland delta of the Niger River have both been declared natural common heritage sites by UNESCO and contain a total of five Ramsar Convention sites. In combination, the two rivers serve as refuge for more than 130 species of water animals (including fish, hippopotamus, alligator and manatee) and 350 bird species, of which 108 are long-distance migrants from Europe. The expansion of intensive irrigated agriculture in the sub-region has been coupled with the introduction and overuse of agro-chemicals, particularly pesticides.

3. Agriculture in the six countries is dominated by small-holder plots on the order of a mean size of approximately 0.5 ha. The project will target small-holders working with high-value crops (rice, vegetables and cotton), most of which are under irrigation by surface waters from the two major rivers in the region. The rationale for this choice being that these populations comprise the principal source of pesticide use in these countries and these communities are the principal populations and ecosystems at risk from water contamination. Recognizing this is a demonstration project, nevertheless the total agricultural land area targeted by the project is significant. The project has as its target the training over four years of 30,000 farmers in six countries, with an estimated land under cultivation of approximately 15,000 hectares. The project is part of a larger programme of farmer training for which an additional 100,000 farmers are targeted for season-long training; hence, the project will have outcomes that reach a much wider audience. The extent that farmers will transfer the lessons learned from the Farmer Field Schools to their own land holdings is an outcome that will be measured as part of the planned monitoring of project impact. A rough estimate of the surface areas of interest are as follows:
 - **Benin:** The total amount of land irrigated under cultivation in the project zones of action is estimated at 19,700 ha, of which 1,266 ha are under controlled irrigation (the remaining is cultivated as recession agriculture and “bas fonds”. All three cropping systems are included with rice, vegetables and cotton. The amount of cotton grown in the project zone represents 35% of the total area under cultivation in the country.
 - **Guinea:** The area under partial or total irrigation in the project zones of action is estimated at less than 15,000 ha.

- **Mali:** the total area under controlled irrigation in the project zone is around 83,500 ha of a total national area irrigated of 170,000 ha. The future estimated potential for irrigation (based on estimates of water flow of the Niger) is a staggering 2 million hectares. All three cropping systems are represented in the project zone of action.
 - **Mauritania:** the total potential agricultural land under management is estimated to be around 42,000 ha, of which around 20 000 ha are put into production each year in the project zone. Rice and vegetables are the two cropping systems of importance.
 - **Niger:** The potential irrigated land is estimated at 140,000 hectares along the Niger River Basin, of which about 40,000 are in production and in the project zone. Crops of concern to the project in Niger are only rice and vegetables.
 - **Senegal:** The potential irrigated land is around 500,000 hectares of which half is located in the Senegal River Valley. The project zone of action has potential access to around 94,320 ha actually under production (the parastatal SAED manages 46,066 ha, and private holders manage 48,254 ha). Rice and vegetable systems are the systems targeted for the project.
4. Senegal, the site of the PDF-B activities, represents perhaps the most “modernized” agriculture in the sub-region, although still dominated by small-holder plots. Crop intensification and diversification policies in the Senegal River Valley, since the creation of dams and intensified irrigated agriculture beginning in the early 1980s have been partially based on an “industrial” model, involving the use of state-owned tractors and combine harvesters that are rented by groups of small farmers, whose collective land area is amenable to large-scale equipment. This model has shown many problems (see Annex J for root-cause analysis) and the economic reality is that returns to farming in this approach are only slightly or sometimes not at all profitable. In terms of crop protection, the agronomic model was based on the *assumption* that dependence on chemical pesticides was necessary for productivity and profitability. In all fairness, this same assumption was made in most countries at that time. Chemical treatments have been the most frequently used method of pest control and farmers often resort to routine treatments according to a set timetable without any assessment of pest infestation. Research and farmer practice in tropical irrigated rice systems in the intervening 25 years has shown this crop-protection model is rarely very effective for preserving or increasing production and for the vast majority of cases either provides cost but no benefit, or actually causes disruption of natural biological control and leads to increased problems. A slightly stronger argument can be made for the need for pesticide use in vegetable production, but here non-toxic alternatives exist but are not widely known. Attention to proper soil fertility management and non-toxic, bio-pesticide alternatives, show demonstrated benefits in terms of production, profit and environmental well-being. Cotton represents the biggest challenge in the sub-region, it being the worst-case example of overuse of chemical fertilizers and especially pesticides. The argument is still being made by some that cotton cannot be grown in tropical environments without frequent applications of toxic pesticides, yet many examples exist to show the contrary (see Annex F for outcomes from the sub-regional IPPM project for all three cropping systems).
 5. It is often generally assumed that pesticide use results in higher yields. In fact this is rarely the case outside company field trials. The published evidence from independent scientists overwhelmingly supports the fact that rather than controlling pests, pesticide use commonly leads to more frequent and more serious outbreaks due to the elimination of the dominant, but more sensitive, arthropod populations (predacious and parasitic organisms). Farmers, unaware of this counter-intuitive mechanism, often feel compelled to find ever more toxic compounds, or to increase the frequency of application of existing pesticides. This leads to a counter-productive, self-reinforcing feedback-loop, or the so-called “*pesticide treadmill*”, in which pesticide use begets more pest problems, begets more pesticide use (see Root Cause Analysis, Annex J). High levels of pesticide use, together with increased runoff from synthetic fertilizers, can cause radical shifts in aquatic ecosystems towards

stable alternative states. These alternative states, once achieved, may be equally resilient, but much less desirable from human-use perspectives.

6. Another important source of pesticides derives from the periodic outbreaks of locust populations that occur in the sub-region on a roughly 10-to-15 year cycle. These outbreaks typically engender an international response that includes very large quantities of pesticides donated to local governments. It is from these past locust campaigns that dieldrin, the principle POPs pesticide found in the PDF-B water samples, originally came into the sub-region. The other source of dieldrin contamination in Senegal has in the past been the commercial sugarcane areas near the town of Ricard Toll. The company no longer uses dieldrin. Obsolete stockpiles of pesticides remaining from past locust campaigns are the subject of another GEF co-financed project executed by FAO, the African Stockpiles Programme. However, local market survey and results from the PDF-B water sampling, strongly suggest that dieldrin is still actively being used by farmers. It is highly likely that dieldrin from these obsolete stockpiles have entered into use by local populations of farmers through informal channels.
7. Since the end of field activities of the PDF-B, a large-scale locust outbreak has again taken place in the sub-region. While the anti-locust (POPs) insecticide, dieldrin is no longer on the donor list, the sub-region has nevertheless been inundated with pesticides. It is difficult to know exact statistics, but some sources estimate 3 million litres of ULV pesticides have been sprayed in the sub-region during the last year. Existing stocks are estimated by FAO consultants to be around 2 million litres of concentrated ULV pesticides. Senegal is known to be holding some 900,000 litres of locust pesticides. Most of these stocks are situated along the Senegal River, as this is the northern-most boundary of the country where locusts are most likely to appear, and from where the base of operations against locusts has traditionally been located. At the time of final revision of this document for Work Program submission the locusts have moved to North Africa and it seems unlikely they will reappear. If they do reappear, then aerial and ground treatments will continue. If they do not reappear, then the Sahelian countries will again be faced with a potential obsolete pesticide-storage problem. History of the sub-region shows these stores are likely to show up in back-channel markets, being sold to farmers. A real threat for farmers comes from the fact that ULV formulations for locusts are highly-concentrated, oil-based formulations for use in specialized aircraft and ground equipment, and not safe for use by farmers, who typically mix emulsifiable concentrate (EC) formulations with water for use in back-pack sprayers. Whereas EC formulations typically have low dermal toxicity, ULV formulations are oil-based, lipophilic substances readily absorbed by the skin. Mistakenly mixing a ULV formulation as an EC poses serious risks. Finally, the PDF-B field activities included a year-long sampling of water from three locations in the Senegal River delta, *which took place prior to the current locust outbreak*. These PDF-B data are therefore a baseline from which subsequent sampling during the proposed full-phase project might be able to detect pesticides attributable to the locust campaign.
8. The pesticides used in this part of Africa contain approximately fifty different active ingredients, of which a large number are classified as “highly toxic” or “toxic” (corresponding to WHO categories Ia, Ib and II). A survey conducted in 2003, during the PDF-B phase of this project, among 500 farmers in the Senegal River basin estimated that about 95% of the growers are neither informed nor aware of the hazards associated with pesticide use (see Annex D). Misuse and overuse of agro-chemicals on the local scale causes serious damage to the environment and poses severe risks to human health in many West African countries, specifically those participating in this project. A related study conducted by CERES/LOCUSTOX and the FAO Global IPM Facility in 2001 revealed the extent to which persistent and toxic pesticides such as dicofol, lindane and dieldrin were in use in market gardening and, more recently, in sugarcane cropping. The study also confirmed the widespread use of several highly toxic organophosphorus pesticides in current government plant

protection practices. The latter are predominantly WHO category Ib and class II pesticides such as carbofuran, endosulfan, dichlorvos, methamidophos, methomyl, dimethoate, triazophos and other organophosphorus insecticides. Analyses of pesticide residues conducted in the framework of the PDF-B revealed levels of dieldrin in two areas of the study region that are 200 km apart. The concentrations of dieldrin were found to be between 0.18 and 3.04 µg/L in eight samples and between 0.27 and 0.47µg/L in two samples. According to the ecotoxicologists at Locustox in Senegal, and also at Alterra, in The Netherlands, the high levels of dieldrin residues found in drainage canals indicate *that dieldrin is still actively being used, despite its prohibition by the country*². The CERES/Locustox study for the PDF-B *estimates that 30,000 litres of dieldrin are in the marketplace*, a quantity that corresponds to amounts that disappeared from obsolete stocks prior to the current removal programme. A socio-economic study on pesticide use in Mali³ revealed that the volume of pesticides found in Malian markets in 1998 was close to 5,400 tonnes of formulated chemicals representing, in value, about 1.9% of GDP.

9. UNEP was the implementing and executing agency for a previous GEF-supported project entitled “*Regionally Based Assessment of Persistent Toxic Substances*”. The outputs from this project include a Regional Report for Sub-Saharan Africa covering 46 countries, including the six countries in this project. The conclusions of this study contain the following statements of relevance to the current project proposal:

- *Sub-Sahara is mainly an agricultural continent and it has been using pesticides for pest and disease control for more than 50 years. Except for South Africa and Zimbabwe, no systematic pesticide monitoring/analysis exist in all the countries of the region.*
- *During the 1970 - 1979 period, only seven PTS were reported (DDT, dieldrin, endosulfan, lindane, toxaphene, PCBs and HCB) whereas in the second period (1980 - 1989), the period of awareness, banning and/or restriction, this number increased to nine (DDT, dieldrin, endosulfan, Lindane, toxaphene, PCBs, HCB, heptachlor and atrazine). DDT, Lindane, endosulfan, dieldrin, PCBs and HCB were common to both periods.*
- *From the data gathered through filled questionnaires, the trend of concentration observed in Sub-Sahara Africa for PTS is DDT > PCBs > toxaphene. These same data apparently indicate that humans were less directly exposed than animals and vegetation to PTS during the period 1970 - 2002. However the main risk remains the food-web contamination. The occurrence of relatively high levels of DDT, PCBs and dioxins/furans in adipose tissues and blood of occupationally exposed persons is of immense concern. Equally disturbing is the high levels of HCB, Lindane and endosulfan in human breast milk in the region, in view of WHO's vigorous campaign that mothers breast milk is best for children. It has been established by studies in South Africa that organochlorine Pesticides (OCPs) can be transferred to infants via breast milk. Thus infants are being exposed to these xenobiotics while the toxicological hazards and risks have not been studied in many sub-Sahara African countries.*
- *Many cases of accidental or intentional release of large amounts of PTS (for fishing or hunting) causing severe stress to the environment and humans have been reported in the region. For example, the accidental release of organochlorine pesticides (OCPs) in large quantities had caused massive fish kills in many countries, such as **Senegal**, Nigeria and Kenya.*

² In fact dieldrin has never been formally banned by Senegal, nor has its importation been banned yet under the Rotterdam Convention. However, if we use the adoption of the CILSS Common Pesticide Regulation as the date after which only Sahelian Pesticide Committee-registered pesticides are allowed in Senegal, one could say that the use of dieldrin was *de facto* not allowed after 1992.

³ Camara, M., F. Haidara, and A. Traoré. 2001. Etude socio-économique sur l'utilisation des pesticides au Mali. Institut du Sahel, Université de Hanovre, FAO, Bamako.

- *A major constraint towards the sustainable management of these hazardous chemicals is the lack of and/or weak enforcement of regulations. For the region to contribute effectively in the global effort to reduce PTS, there is need to establish and/or strengthen existing institutions and legal framework through capacity building and putting in place necessary mechanisms for compliance monitoring and enforcement.*
- *Capacity building needs in the region deserve priority action to ensure global success of the recent Stockholm Convention on POPs and other international regulations for the environmentally sound management of PTS and other hazardous chemicals.*

10. Adverse effects on human health are highly likely to be occurring in the sub-region, although no systematic study has been carried out. Such effects are mediated by human exposures to active agents through the food chain for bio-accumulative substances; contamination of subsurface waters (*e.g.*, shallow wells); and through swimming, bathing and washing in contaminated surface waters or watercourses in which residues and metabolites have accumulated in sediments that can be disturbed by human activities. This has been confirmed by studies carried out by CERES/LOCUSTOX⁴.
11. Sustained exposures through these pathways are likely in the long run, to cause congenital malformations and the appearance of various pathologies such as carcinoma and dysfunction of the immune and reproductive systems. The basic enquiries carried out during the PDF-B phase revealed instances of accidents leading to mortality and acute poisoning⁵. Country reports prepared during the PDF-B presented, from all six countries, a history of poisonings and fatalities due to pesticides. Beside these accidents, there are other infections with non-specific symptoms that might unknowingly be related to these substances. The individuals consulted during the PDF-B surveys from the health centres noted, without assuming an immediate correlation, an increase of the number of cases of diarrhoea, respiratory and dermatological infections and high incidence of increased blood pressure in the areas where irrigation is occurring. During the various diagnoses made together with the populations, the populace also drew a relationship between the development of malaria and schistosomiasis in the Senegal River valley and the scale of irrigation and the enhancement of permanent water supplies as a result of dam construction. In addition to agrochemicals, other substances are used by industry and in programmes for controlling disease vectors. From 1987 to 2002, the Onchocercosis Programme in Guinea, in the fight against River Blindness, sprayed more than 700,000 litres of pesticides containing organophosphates, carbamates and pyrethroids.
12. Among the various agro-chemicals used by growers in the Senegal and Niger River basins, Dieldrin was in use over many years and actively imported until quite recently. As discussed above, dieldrin is most likely still in use in the sub-region. POPs are persistent because they resist photolytic, chemical and biological degradation. POPs generally are semi-volatile—they evaporate relatively slowly. Persistent substances with this property tend to enter the air, travel long distances on air currents, and then return to earth. The colder the climate, the less POPs tend to evaporate, resulting in their migration to, and accumulation in polar regions; hence, their global concern. POPs generally have *low water solubility* (they do not dissolve readily in water) and high lipid (fat) solubility (they do dissolve easily in fats and oils). Persistent substances with these properties *bio-accumulate* in fatty tissues of living organisms. In the environment, concentrations of these substances can increase by factors of many thousands or millions as they move up the food chain. Interest and concern regarding POPs dates to the late 1960s, when scientists began compiling evidence of injury to fish, birds and

⁴ FAO, LOCUSTOX Project, Volumes I, II, III

⁵ ENDA-Pronat. 2003. Analyse des donnees d'enquete sur la sante et les pratiques agricoles, pp. 16. ENDA Tiers Monde, Dakar.

mammals in or around the Great Lakes in the US. In some of these cases, the predominant POPs sources were relatively nearby; in others, they were thousands of kilometers distant. Documented injuries were especially prevalent in high predator species and included: (a) reproductive failure and population decline; (b) abnormally functioning thyroids and other hormone system dysfunctions; (c) feminization of males and masculinization of females; (d) compromised immune systems; (e) behavioral abnormalities; (f) tumors and cancers; and (g) gross birth defects. Their disposal by combustion creates other POPs, such as polychlorinated dibenzo-p-dioxins and dibenzofurans that are similarly persistent and toxic. For these reasons the international community established the Stockholm Convention in May 2002 to engender coordinated international action to reduce the threat posed by these compounds. Dieldrin, which was found in the Senegal River during the PDF-B phase, was one of the most commonly used POPs pesticides in West Africa.

13. In the context of the low levels of education and awareness among the population in the study area, the lack of protective measures, the irresponsible packaging of pesticide formulations without hazard labelling and the habit of buying cheap pesticides of questionable and possibly fraudulent origin, the health risks posed to the local populations, although not yet measured, are likely to be significant⁶. While men apply pesticides, women, children, old and sick people are also vulnerable due to their physiologies and possibly their roles in society (e.g., gathering water and washing clothes).
14. **Agroecological Context (baseline).** The principal socioeconomic root causes (drivers) underlying the existing agroecological problems in the member countries (Annex J) include historical inertia from years of chemical pesticide use coupled with commercial pressures from a long-established pesticide industry. Furthermore, governments lack national monitoring procedures and generally the ability to enforce existing and new regulations. Farmers lack a general level of education, including basic literacy and specifically lack awareness of the many externalities associated with pesticide use as well as sustainable alternative and more profitable agricultural production models. These factors together continue to drive overuse and misuse of pesticides and to a lesser extent an overuse or misuse of chemical fertilizers. Both pesticides and, to a lesser extent, fertilizers act as environmental pressures on aquatic and terrestrial systems, which in turn result in damage to system states (water, soil, biodiversity) and inflict negative impacts in terms of human health, agricultural productivity, ecosystem services (e.g., pollination and pest suppression) and, ultimately, the environmental, social and economic well-being of riverine communities in the six countries.
15. The project proposes to address the most important of these specific proximate drivers by: (i) improving awareness among stakeholders (sub-regional structures, governmental structures, non-governmental organizations, farmer organizations and target communities) of the externalities associated with pesticide use, (ii) improving awareness and skills among stakeholders related to sustainable alternative agricultural practices, and (iii) demonstrating the methods, feasibility and importance of a community-based approach to monitoring pesticides and pesticide use, supported by an analytical capability in the sub-region for detecting aquatic-based chemical contaminants. The long-term outcome of the project will ultimately improve environmental, economic and social well-being of the riverine communities through education of stakeholders leading to improved productivity, reduced input costs, drastically reduced toxic loads in the hydrological systems. The project will help reverse the trend towards environmental contamination from pesticides by “turning off” the demand for pesticides at the local level.

⁶ ENDA-Pronat, ENDA-Santé, and Ceres-Locustox. 2001. Proposition de recherche sur les altérations des écosystèmes et santé humaine dans un contexte d'intensification agricole: Cas de la moyenne vallée du fleuve Sénégal

GEF Programming Context

16. This project relates both to Operational Program 10 International Waters (Contamination) and Operational Program 14 Persistent Organic Pollutants and in both cases focusing on Strategic Priority #3 (Demonstration of innovative and cost-efficient technologies). Also, because the project aims to prevent the contamination of biologically rich aquatic systems, home to internationally protected habitat, it will have benefits in the area of biodiversity.
17. Each of the countries is signatory to a diverse array sub-regional and international agreements related to pesticides, water, biodiversity and the environment, and have developed, in accordance with these, a variety of national laws, strategies and action plans. A list of related legislative actions and international agreements was compiled for each country by national consultants working for their respective National Technical Steering Committees set up during the execution of the PDF-B phase. These reports are on file (in French).

National and Sub-Regional Context

18. The countries party to the project have subscribed to various international agreements and conventions to reflect their commitment to promoting the reduction of pesticide use and the prevention of pollution. These include the Basel Convention on the control of transboundary movements of toxic wastes and their disposal, the Rotterdam Convention on Prior Informed Consent (PIC) and the Stockholm Convention on POPs. At the African level, countries have subscribed to OAU Conventions on Plant Protection; Inter-African authorization of Herbicides; the Bamako Convention prohibiting toxic waste imports, the international Convention on Biodiversity and the *FAO International Code of Conduct on the Distribution and Use of Pesticides*. Efficient and harmonized implementation of all these conventions requires a good understanding of their provisions and the ways in which local populations can contribute to their achievement. Initiatives towards alternatives and pesticide management are already under way.
19. As part of the Stockholm Convention the countries have developed, or are in the process of developing National Implementation Plans (NIPs), which already mentioned above will have specific ties to the project in terms of information exchange. The NIP for Senegal has put elimination of dieldrin as one of their top priorities, therefore the project will be clearly helping to address some of the specific priorities of the member countries with regards to POPs and close linkages between the national NIPs committees and the project's National Technical Steering Committees (NTSCs) will be established and maintained. In each country members of the NIPs committee are also the some of the same members found on the project NTSC; therefore, helping to ensure country drivenness and sustainability of project goals and activities after the project has ended.
20. Regional Pesticide Registration Committee. In the four Sahelian countries involved in the project (Senegal, Mauritania, Mali and Niger) the *Comité Sahélien des Pesticides* (CSP), a subsidiary body of CILSS, is responsible for the evaluation and registration of pesticides. The CSP started operating in 1994, and received technical support from FAO through a Dutch-funded regional pesticide management project, from 1998 to early 2002. This registration system is based on a regional Convention (the "*Common Regulation for the Registration of Pesticides in CILSS Member States*" – revised in 1999), which was adopted unanimously, and has to date been formally ratified by Parliaments of 8 of the 9 CILSS member states. For the two humid-zone countries (Benin and Guinea) a parallel structure exists with the *Comité Phytosanitaire des Pays de la zone Humide de l'Afrique de l'Ouest et du Centre* (CPH/AOC). For both structures, national-level registration has been superseded in favour of regional registration by the CSP and CPH/AOC. The pesticide industry

submits dossiers for review to the structures. The structures can refer to CERES/Locustox, in Dakar, for environmental testing. Countries can adopt more strict guidelines than those adopted by the CSP and CPH/AOC, or, in emergencies (e.g., locust outbreaks), the registration standards can be temporarily relaxed. *Depending on the outcome of the water quality analyses over the course of the project, these two regional pesticide regulation bodies would be an appropriate conduit to communicate findings to the member states with regard to possible transboundary pesticide transport issues.*

21. In 1999, FAO's Global IPM Facility initiated a pilot project in Mali, with financial support from the Netherlands, to strengthen the national system of extension and agricultural research based on a decentralized, participatory training approach for groups of small-scale farmers in so-called "Farmer Field Schools" (FFS). The Farmer Field School (FFS) training model was first developed by FAO in Southeast Asia beginning in the late 1980s. Some 3 million farmers have undergone such training in Asia. The model has been actively developed on the African continent since the late 1990s. Over 25 impact studies have been conducted on the approach, and the results are encouraging. Today, around the globe, participatory farmer education, based on "adult education methods" is generally seen to be the preferred approach to what is termed "extension" methodology, and many variations on the methodological theme can be found. The Integrated Production and Pests Management programme (IPPM), through the FFS model, emphasizes a hands-on, experiment-based understanding of the physical, biological and ecological mechanisms underlying improved production methods, including soil-fertility management and alternative methods for pest control, while also developing topics related to social and economic issues. The success of the early pilot phase in Mali allowed the establishment of a USD \$2.8 million, 4 year sub-regional programme in Mali, Senegal and Burkina Faso in 2001, also funded by the Netherlands. The programme has influenced adoption of the IPPM/FFS approach by the government of Mali in their World Bank financed PASAOP programme. Farmers having been involved in the season-long training have gained a full range of agronomic skills and greatly reduced the quantities of pesticides used in production. On average, farmers involved in the programme have substantially lowered input costs and increased yields and net incomes (Annex F). By the end of phase I (December 2005), some 25,000 farmers had undergone training in the three countries. The programme infrastructure was engaged in supporting the GEF PDF-B activities in Senegal (see Annex F for details of field-level results of GEF PDF-B sites). A second phase of the programme has been financed by the Netherlands and began operations in July 2006 with expanded scope to include a fourth country (Benin) and a greater emphasis on national institutionalization of the IPPM/FFS extension approach. This Phase II programme of USD \$9.5 million explicitly includes plans in the three of the participating countries (Benin, Mali and Senegal) to support the training activities for the communities targeted in this GEF proposal as redirected baseline co-financing. A redirected baseline co-financing of \$2,800,000 will cover half the costs of training (i.e., training costs for trainers and farmers in the three countries—Mali, Senegal and Benin—which are active in the FAO/Netherlands Sub-regional IPPM programme.

International Waters Context

22. The use of pesticides for agricultural purposes and their presence in the valleys of the Senegal and Niger Rivers give rise serious risks to humans and the environment. The chemicals involved pose a significant threat to flora, fauna and human health. These risks are increased by the increasing use of pesticides. The PDF-B took water samples from three sites along the Senegal River, showing that communities are drinking and bathing in water that would be unacceptable in Europe or North America. While the data show humans at risk, they particularly underline the risks to aquatic biota, on which the riparian foodwebs are based. Nineteen pesticides were detected at levels above the limits of quantification and of the total number of detections, **40% were detected at levels greater than 100 times the Dutch Maximum Tolerable Risk (MTR) level** (a measure of risk associated with aquatic

biota—see Annex E). The aquatic groups at greatest risk are the aquatic insects, fish and micro- and macrocrustaceans. The active compounds responsible for this potential ecological impact in the irrigation systems include dieldrin, dichlorvos, ethion, monocrotophos, lindane, deltamethrin and endosulfan. PDF-B surveys and country reports for all six countries note the incidence of dead aquatic organisms (usually fish) observed in rivers and irrigation canals.

Stockholm Convention Context

23. This project is consistent with the objectives and provisions of the Stockholm Convention on Persistent Organic Pollutants (POPs). To the extent that the agro-chemicals used in the Senegal and Niger River basins fall within the currently defined POPs under the Stockholm Convention, this project meets the specifications of GEF Operational Programme No. 14 on POPs and Strategic Priority 3 (demonstration of innovative and cost-efficient technologies). Through a community-based and participatory process the project will define an efficient procedure for “reducing pollutants and pollution, by involving and building capacity of populations (communities)”.
24. Many conventions and treaties are often not implemented because there is little effective monitoring and the targeted populations do not understand their role. This project is intended to implement on-the-ground actions consistent with the intent of the Stockholm Convention involving the populations most at risk. The project will allow communities and governments to better understand and assess the risks to human and environmental health posed by agrochemical use mediated by direct exposures to pesticides and indirectly through environmental contamination of water. The project will be predominantly based on participatory and community-based approaches reinforced by state-of-the-art water-quality monitoring methods and GIS-based mapping and modelling. Collaboration with Oregon State University will provide access to new technologies for detecting pesticides based on a “Passive Sampling Device” (PSD), which is based on a semi-permeable membrane that is submerged in water or exposed to air. After exposure (days, weeks or months) the PSD can simply be shipped off to the laboratory in a plastic container; hence, avoiding the much more cumbersome older methods involving “grab samples” of water that need to be kept cool and are heavy and difficult to ship.
25. Three of the six participating countries (Senegal, Benin, Mali) had ratified the Stockholm Convention before submission of this document for approval (March 2005). Mauritania and Niger have subsequently ratified the convention. The other participating country (Guinea) is a convention signatory and ratification has been approved by their National Assembly. We have a copy of the ratification document, however we are still awaiting official transmittal of the instrument to the Stockholm Convention. The project activities will specifically support Article 3 and Annex A of the Stockholm Convention through capacity building and improving the awareness of local populations and authorities regarding the hazards of pesticides generally, and in particular contribute to the elimination of POPs (dieldrin) use by local populations, currently for sale on local black markets.
26. Once having ratified the Stockholm Convention, the Parties to the Convention are bound legally to ban imports on all POPs chemicals, except where exemptions apply (such as with some DDT for anti-malarial treatments). Such exemptions do not hold for agricultural uses in these countries. However, a very reasonable concern, if not certainty, will be that DDT, if exempt for medical use, will find its way into agricultural systems. This is commonly seen, for example, in illegal cotton pesticides showing up in vegetable production systems, underlining the importance of practical training and education at all levels. It should be kept in mind that the Stockholm Convention is progressively moving to add new chemicals. Two such candidates include the pesticides endosulfan and lindane.

Endosulfan is commonly used in cotton production areas and both chemicals were detected at environmentally damaging levels during the PDF-B.

INSTITUTIONAL COORDINATION AND SUPPORT

Core commitments and linkages

27. There exist GEF interventions in the International Waters Focal Area that have direct relevance and potential connection with this proposed project. These include a regional project entitled “Reversing Land and Water Degradation Trends in the Niger River Basin”. This project involves *inter alia* integrated regional capacity building of the Niger River basin Authority (NBA) and local capacity building to manage local resources through community-based implementation of microgrant-supported interventions. Possible ties to the current proposal are evident from the statement in the Niger River Basin project: “The GEF project’s technical components, through the microgrant-supported demonstration activities, will develop an understanding of the inter-relationship of better land management practices in agriculture, forestry, and other relevant sectors; and define mechanisms to improve water quality while reducing degradation of the regional diversity and ecosystem. Offering possibilities for cumulative rural socio-economic benefits for communities that depend on the land and water resources for their livelihood.”
28. A second GEF project in the International Waters Focal Area is a regional project entitled “*Senegal River Basin Water and Environmental Management Program*”. The objective of this project is to provide a participatory strategic environmental framework for the environmentally sustainable development of the Senegal River basin and to launch a basin-wide cooperative program for transboundary land-water management. The three governments through OMVS have embarked on the implementation of a program called PASIE (*Plan d'Atténuation et de Suivi des Impacts sur l'Environnement*). Priority concerns include environmental health and pollution is mentioned, but no mechanisms are in place for monitoring contaminants or working with communities in this regard.
29. A third GEF project in the sub-region includes the Futa-Djallon project, which will include the eight riparian countries of Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, and Sierra Leone. The development objective of the Programme is to “ensure the rational use and the protection of natural resources existing in the Fouta Djallon Highlands and to help improving the living conditions of populations in the area as well as in areas irrigated by waters originating from the Highlands”.
30. Given that all three of these projects have some elements related to health of the riverine environments, but do not have specific pesticide monitoring capabilities at the community level, the proposed GEF project can therefore play a complementary role in this regard. These projects may wish to adopt aspects of the approach presented in this project. Formal contacts will be established during initial meetings among project coordinators during the initial stages of this project, which will assure information exchange through half-yearly reports sent to the three projects. Specifically, results from the current project will be transmitted directly to the GEF-financed OMVS “*Observatoire Environnemental*” as well as to the project coordination of the Niger Basin Authority (NBA). In addition, opportunities for further exchanges will be developed through participation of appropriate project staff, most likely at the Technical Steering Committee level, but perhaps for more technical staff, in workshops and meetings.

31. The project will provide important outcomes for each of the six countries in line with their respective *National Biodiversity Strategy and Action Plans* and *Country Reports to the COP*, as formulated as part of the Convention on Biological Diversity (CBD). Annual country reports will be sent to country focal points for the CBD.
32. Apart from GEF-supported POPs enabling activities in individual countries of the sub-region that have been referred to previously, there are two GEF initiatives in the POPs Focal Area that deserve reference. The first of these is the so-called 12 “*Country POPs Project*” (the project’s formal name is “*Development of National Implementation Plans for the Management of Persistent Organic Pollutants (POPs)*”). Guinea is a participating country in this project. The project, however, can be regarded as analogous to the GEF-supported individual country enabling activities for the National Implementation Plans (NIPs). *It was specifically recommended* during the second sub-regional stakeholders meeting (Bamako, March 7-8 2005) that the current project should develop formal linkages between the National Technical Steering Committees for this project and the national committees charged with the development and implementation of the POPs National Implementation Plans and that annual reports from the project be sent to the POPs committees. The project will contribute to the implementation of the NIPs by helping communities understand the risks of use, and the feasibility of alternatives to the use of black-market dieldrin.
33. The other POPs project is a regional project entitled “*African Stockpiles Program, Strategic Partnership I*”. Both Niger and Mali are participants in this project that is planned to enter its full project phase in the near future. The FAO will ensure annual reports and any intermediate important and relevant findings from the project are sent to the stockpiles project coordinator, once the stockpiles project commences. Communication has already started with regard to sharing new technologies for pesticide detection and joint interests in building capacity in regional laboratories.

Implementing Agency (UNEP) Programming Context

34. UNEP is the primary United Nations agency promoting the development of the *Strategic Approach to International Chemicals Management* (SAICM). This initiative was proposed by UNEP in 2002 as an outgrowth of the IFCS *Bahia Declaration on Chemical Safety* that includes priorities for action beyond 2000. The purpose of SAICM is to promote enhanced coherence of international and national activities in the field of chemicals management and incorporate chemical safety issues into sustainable development. The initiative was endorsed by the World Summit on Sustainable Development (WSSD) in 2002. In the same year, an inter-organization steering committee for SAICM was formed comprising representatives the seven agencies (*i.e.*, ILO, FAO, UNEP, UNIDO, OECD, WHO and UNITAR), the IFCS, UNDP and the World Bank) participating in the Inter-Organization Programme on the Sound Management of Chemicals (IOMC). SAICM is foreseen as a primary mechanism for enhancing human health and environmental protection from the effects of chemical exposures over the longer term and for meeting the WSSD target of improved chemicals management by 2020.
35. UNEP has many programmes and initiatives in relation to developing countries in Africa. UNEP is also the GEF implementing and executing agency for POPs Enabling Activities in three of the countries participating in this project, Benin, Mauritania and Senegal.

Executing Agency (FAO) Context

36. The Plant Protection Service of FAO includes the Global IPM Facility that will be executing this project. The Facility provides guidance on Integrated Production and Pest Management (IPPM) in

South and South-east Asia, the Middle East, Eastern Europe, Africa and South America and the Caribbean. The IPPM/FFS approach has been shown to increase farmer productivity and reduce input costs through the substantial reduction of pesticide inputs. It improves sustainability of agroecosystems by focusing on improving the knowledge and skills of farmers to enable better management of resources, and reduces farmers' dependence on procured inputs. The approach addresses a full range of agronomic topics, and stresses economic planning and decision-making skills, thereby offering a starting point to improve the farming system as a whole. FAO has been compiling curricula for Farmer Field Schools world-wide, and this offers the project the opportunity to adapt and modify training materials from existing programs, rather than starting from zero.

37. Currently in West Africa three of the six project countries are involved in an FAO-executed IPPM program with the support of the Netherlands (GCP/RAF/009/NET). This \$9.5 million program provides \$2.8 million cash co-financing to the GEF project. The four-year second phase programme began in June 2006 and will provide assistance in terms of redirected co-financing, trained personnel and the collective experience of sub-regional and headquarters management teams.
38. A Netherlands'-funded partnership programme with FAO (FNPP) is currently completing a second phase to last to June 2008. In this phase FAO has been asked to focus a cross-disciplinary effort in four countries world-wide. The countries chosen were India, Laos, Kenya and Mali. In Mali staff from 10 FAO services will be conducting small projects and case-studies on the theme of agricultural biodiversity. One sub-component will involve water resources in the Office du Niger, the assessment of the nature of aquatic biodiversity resources in use by rural populations, and the development of irrigated aquaculture, using a Farmer Field School approach. The rationale is that if rural people better recognize the extent of the benefits gained from aquatic resources, and also begin to benefit nutritionally and economically from aquaculture activities, they will be motivated to prevent further contamination of aquatic resources.
39. FAO has operated a programme for the prevention and elimination of obsolete pesticides since 1994. The GEF/World Bank/FAO "African Stockpiles Project" (ASP) is currently underway. The initial focus of the programme was Africa and the Near East. The new pesticide detection technologies being developed for the proposed project will also be of use to the ASP, enabling them to test waters in wells and even to test the air downwind adjacent to pesticide storehouses.

Consultation Coordination and Collaboration with ongoing and planned activities

40. Several related programmes have been developed within the participating countries, either through national initiatives or those of external agencies. These include the GEF-supported African Stockpiles Programme (ASP). As a further example, Mali is one of the participating countries that have developed several related initiatives. These include:
 - As previously mentioned, the sub-regional project GCP/RAF/009/NET oriented towards the extension of the IPPM methodology to rice farming, market gardening and cotton cropping as well as the development of information/raising awareness of IPPM and on the risks of using chemicals in pest control at a cost of about US\$ 9.5 million;
 - The special initiative on integrated pest management, plant protection aspects and pesticide management under PASAOP financed by an annual World Bank fund estimated at 100 million F CFA ;
 - IPM/IER project/Virginia University that involves research in integrated pest management in market gardening in the Koulikoro area estimated at \$144,000;

- “National Action Plan on Soil Fertility Management”, which is a project for improving crop management in the area administered by the Office of Niger costing approximately \$1 million
41. CERES/Locustox is a key partner in the proposed project and the only ecotoxicological research and training institute in the sub-region conforming to European standards for “Best Laboratory Practices”. CERES/Locustox received certification/membership from an array of international organizations concerned with monitoring pesticide residues (see Annex E). As a Senegalese foundation, CERES/Locustox is independent and works with partners from the private sector, government and international agencies. Its training division has been working with farmer groups (*Comités Villageois*) since 1994. CERES/Locustox has a fully equipped analytical chemistry laboratory with a highly qualified staff. The institute has worked on the development of indicators for aquatic pollution by pesticides in the Sahel since 1989. Standard laboratory procedures for toxicity testing have been developed for laboratory based research, according to OECD and ASTM guidelines. The regional authorities for pesticide registration (CSP and CPH/AOC) have adopted these protocols. Major equipment used by Locustox:
- Gas phase chromatograph with mass detector (GC/MS)
 - Two other Gas chromatographs (CPG/TSD/ECD/FPD)
 - Two high-performance liquid Chromatograph (HPLC) with UV and fluorescence detectors.
 - An atomic absorption spectrophotometer (SAA) for analysis of heavy metals.
42. Since 1982, the NGO ENDA Tiers Monde, through the team PRONAT (Natural Plant Protection), has been developing information and raising awareness programmes and experimenting with alternatives to chemicals with communities in the sub-region. PRONAT is currently conducting a programme of sustainable agriculture in three agro-ecological zones in the country most involved in pesticide use, including the Senegal River valley. It also organizes and supports awareness-raising on pesticide hazards and sustainable agriculture networks in the sub-region.

RATIONALE AND OBJECTIVES

43. The GEF alternative is intended to address the principal root causes underlying the existing agroecological and contaminant problems along the transboundary waterways in the six participating countries. As discussed earlier and in Annex J (Root Cause Analysis), the principal root causes (drivers) are related to lack of awareness at all stakeholder levels of the externalities associated with pesticide use, lack of monitoring and enforcement capabilities, a long-term history of vested commercial interests in the distribution and sale of pesticides, as well as lack of awareness of sustainable alternative “best practices” for agricultural production.
44. Building knowledge and technical capacity will be based on an expansion of the IPPM/FFS approach that has provided good results in other countries and that has been successfully applied in West Africa since 1999, and in Asia since the late 1980s. During the PDF-B phase, the process of informing and increasing the sensitivity of the local populations and authorities to the hazards and counter-productive outcomes associated with pesticide use was well received and had a positive influence on community perceptions and understanding. The communities showed much interest in committing themselves to finding alternative solutions. The experiences in Mali and Senegal during the Netherlands-funded IPPM project will serve to support and facilitate the establishment of improved agricultural management practices in the riparian habitats comprising the Senegal and Niger Rivers. The overall goal is to introduce a new form of agricultural training for farmers, through capacity building within government agencies, non-governmental organizations and especially community-based farmers’ organizations, which will engender major changes in farming practices and substantial reductions in the use of chemicals for pest control, while increasing production levels, profitability

and sustainability. *By putting effective alternative methods at the disposal of grower communities through proven discovery learning methods, they will be able to optimize decision-making regarding the appropriate use of land and water resources and the selection of appropriate agricultural practices.*

45. The proposed GEF increment will expand on the existing IPPM/FFS programme in the sub-region with multiple objectives:
- *Promote* understanding of a range of *environmental and human health* knowledge and issues, particularly those relating to the range of benefits from various ecosystem services, deriving from the riverine habitats, plus the specific threats posed by pesticides to the riverine habitat and therefore also to the health and well-being of the communities. Data from the water-quality samples will be put into a “hands-on” adult-learning format for use in an FFS context to support this objective;
 - *Demonstrate* feasible, economically and environmentally advantageous alternative production models. *The main barrier to adoption of agricultural methods that prevent contamination of fields and waterways is lack of knowledge and skills in the communities.* The hands-on educational approach of the FFS will help the farming communities demonstrate for themselves the feasibility of alternative, non-polluting methods.
 - *Develop* a community-based pesticide-monitoring system. This principal objective of the project involves farming communities surveying, monitoring and keeping track of trends in pesticide use in their own communities through development of an appropriate system for accounting for pesticide use in the communities (type, quantities, points of sale origin, time of use, crop type, etc.). Adoption of the system will be motivated by enhanced understanding of health, economic and environmental costs and risks associated with pesticide use and further motivated by a hands-on appreciation of a range of economically advantageous alternatives.
 - *Create* links among communities that share the same hydrological system flows (“upstream--downstream”) to enable farmer-to-farmer advocacy and the sharing of information and experience, particularly information on the impact of production models on the environment⁷ and the health of communities working and living in downstream areas.
 - *Disseminate* tools for community-based action-oriented analysis and planning, for the future of the river basins.
46. In addition to changing the perceived dependence by growers on pesticides, a related programme objective is to help farmers address a broader range of agronomic topics and new production methods, including expanded soil-fertility management training, training on new rice intensification methods that use substantially less water, and adopting irrigated aquaculture and rice-fish culture in those areas where this is feasible. The ultimate outcome will be more ecologically-based and economically sound agricultural production systems that show greater benefits to farmers, local communities and the countries involved, without the short and long-term costs to human health and the aquatic environment.
47. As mentioned above this full GEF project will contribute to the implementation of the Stockholm Convention on POPs through establishing direct links, and exchanging information with the national committees charged with development of the NIPs. The project will in effect be carrying out several of the operational goals specified in the NIPs (e.g., elimination of POPs pesticide use and development of local monitoring systems). It will also assist the participating countries to achieve the objectives set in UNCED Chapter 14, paragraph 21 (*i.e.*, sustainable agriculture) and the agriculture section of the Convention on Biological Diversity. It will promote movement away from the

⁷ Especially for market gardening and cotton that generally exhibit substantially higher pesticide loads.

psychological dependence on agrochemicals, particularly on POPs, PTS and other highly toxic substances in the sub-region. It will also improve farmer yields and incomes while avoiding environmental contamination.

48. While the regional registration systems through CSP and CPH/AOC are currently fully operational, in practice this is only a part of the task of managing pesticides and there are still pesticides circulating in the countries that are not on the approved lists (including dieldrin). The proposed GEF project will be complementary to the activities of these two sub-regional structures by providing important feedback from the regional farming communities to the CSP and CPH/AOC in the form of annual reports based on the community-based surveys, community-based monitoring programs and laboratory water contaminant sampling data. In return, the project will receive current status on chemicals registered for use by the two regional structures, which will be used as part of the information and awareness raising efforts. A more active link may also be considered in which the structures request specific monitoring to be carried out within the framework of the GEF programme. *These important links will increase the likelihood of the project having regional policy-level outcomes, and also increase the likelihood that countries will seek support for follow-on activities based on the model of the GEF project.*

Project Components /Activities and Expected Results

49. The characterization of components of the project (*i.e.*, their design, objectives, activities and expected results) has been carried out with the representatives of the several participating countries during synthesis and planning workshops. The synthesis workshops were based on country proposals and the PDF-B results allowed joint definition of the goals, activities, expected results and progress indicators. During the PDF-B, country working groups were convened and national consultants hired to provide detailed background information on the countries, and particularly agroecological information for the sites proposed in the full project. These reports are available (in French) and on file with FAO. Annex G provides site listings, maps and some agricultural cropping information. The project comprises five components, namely:
- Awareness Raising and Establishing Baselines;
 - Assessments of Freshwater Contaminants;
 - Developing Best Practices;
 - Developing Community Networks;
 - Project Coordination and Management.

Component I: Awareness Raising and Establishing Baselines

50. *Objectives:* Stakeholder awareness is raised through establishment of baselines and development of partnerships with government structures (including Extension and Crop Protection departments within the Ministries of Agriculture, and appropriate parastatal agricultural entities such as SAED), NGOs and Farmer Organizations (FOs) at local, national and sub-regional levels

Expected outcomes include:

- Appropriate government structures, NGOs and Farmers Organizations fully engaged in conducting participatory training for farmers in sustainable best practices by 2012;
- Overall picture of riverine contaminant levels, types and data on farmer pesticide practices provided by project feedback to regional pesticide regulation structures (CILSS CSP and CPH/AOC) ;

- Baselines established for 30 communities (clusters of villages sharing the same water resources) and results discussed. Data serves also as baseline for evaluation of project outcomes at mid-term and end of project (M&E);
- National policy studies completed by the mid-term report and serve to generate at least two policy recommendations in the four countries for which studies do not yet exist.

To this end activities will be organized as follows:

- a) Conduct consultation and planning meetings at all levels:
 - i. Conduct first sub-regional planning meeting with sub-regional Technical Steering Committee (RTSC) to review details of project start-up plan;
 - ii. Conduct 6 National TSC meetings;
 - iii. Conduct site visits to meet with local governments, communities and other local stakeholders to inform them of the project;
- b) Meet with CILSS CSP and CPH/AOC structures to discuss information exchanges
- c) Conduct baseline community surveys at 5 project sites in 6 countries:
 - i. Establish survey partners with local appropriate community-based organizations and seek community members to participate as additional surveyors ;
 - ii. Conduct joint training for survey and agree on survey form and content;
 - iii. Conduct survey and compile results;
 - iv. Conduct water sampling tests in collaboration with Locustox and ENDA;
 - v. Bring overall results back to the communities for review and validation.
- d) National policy studies completed and national workshops held to discuss outcomes:
 - i. Determine and hire local and international consultants to carry out studies;
 - ii. Develop TOR for study;
 - iii. Present and modify study TOR with National Technical Steering Committee (NTSC);
 - iv. Consultants to carry out policy study;
 - v. Study finalized and presented to NTSC and pesticide policy working group (PPWG);
 - vi. PPWG formulates and presents brief set of policy recommendations to the governments, using study as supporting document

Component 2: Assessments of Freshwater Contaminants

51. *Objectives:* Stakeholders gain a clear picture of issues and threats related to pesticide contaminant loads in rivers, irrigation and drainage systems, through analysis of water samples from target sites.

Expected outcomes include:

- A clear picture of contaminant levels along the Senegal and Niger rivers provided by water samples in at least 30 locations in six countries;
- Overall project progress and outcomes provided to governments and others from project database including geo-referenced data (GIS) ;
- Relative risks to farmers and aquatic environment from exposure to pesticides estimated from at least three simple empirically based modeling approaches;
- Novel curriculum suitable for use in Farmer Field Schools in sub-region and beyond derived from contaminant analysis and modeling efforts;

To this end activities will be organized as follows:

- a) A subset of community sites already identified by NTSCs will be further characterized for monitoring contamination in the Niger and Senegal Basins:
 - i. Sampling plans will be devised together with NCUs, RCU, FAO and CERES/Locustox staff;
 - ii. Sampling consultant will visit general target areas to meet with appropriate government services to gather water-flow and chemical-use data;
 - iii. NCU and consultant presents sampling plan to NTSC for approval;
- b) National teams will be trained on sampling methods by CERES/Locustox staff members in country-level workshops;
- c) Water samples taken and analyzed in CERES/Locustox laboratory:
 - i. Samples taken from field, conserved and sent do CERES/Locustox;
 - ii. Samples analyzed and results entered into project database;
- d) At least three simple empirically based modeling approaches explored as means to estimate relative risks to farmers and aquatic biota using results from sample survey
- e) Results translated into curriculum suitable for use in Farmer Field Schools for discussion of risks to humans and threats to ecosystems;

Component 3: Developing Best Practices

52. *Objectives:* Toxic pesticide use is drastically curtailed, POPs pesticide-use is eliminated, and agricultural productivity and profitability are substantially increased through participatory training and adoption of Best Practices for agriculture. Community-level pesticide-monitoring systems in place and examples of successful self-financed FFS seen in each country.

Expected outcomes include:

- Farmer Field School curricula expanded to include modules on ecosystem services, ecological functioning, community-based mapping and contamination risks to hydrological systems and aquatic environments, SRI and irrigated aquaculture by 2012;
- Regional capacity for participatory training augmented by total of 150 “technician” trainers and 300 farmer trainers by 2012;
- Lessons learned and curriculum developed during the course of the project shared across all six countries by 2012;
- Substantial participation by women in FFS assured: at least 50% in market gardening, 30% in rice and 20% in cotton by 2012;
- Community-based monitoring systems for pesticide use developed and used by all 30 target communities by 2012.
- Successful examples of self-financed FFS (3 per country) established in each country by 2012 and at least two new FFS conducted by local farmer-facilitators in neighbouring communities by 2012.

To this end activities will be organized as follows:

- a) Hold first regional curriculum-development workshop:
 - i. Present and review existing curricula for the sub-region;
 - ii. Create subject-matter sub-groups to address each of the following new topics:
 - *Pesticide toxicity to humans and the aquatic environment;*

- *Economic implications of pesticide use;*
 - *System of Rice Intensification (SRI);*
 - *Irrigated Aquaculture;*
 - *Water-borne and vector-borne Diseases;*
 - *Locust biology, Ecology and non-toxic crop protection methods*
 - *Development of Community-based Pesticide-monitoring system*
- b) Conduct two full-season “Training-of-Trainers” (TOT) programmes in year one for participants from each country, for rice (Mali) and for vegetables (Senegal);
 - c) Conduct three full-season TOT programmes in year two for participants from each country, for rice (Mali), for cotton (Mali) and one for vegetables (Senegal);
 - d) Conduct Farmer Field Schools in each country;
 - e) Develop with target communities, through FFS alumni and village leaders, monitoring systems for pesticide used;
 - f) Conduct second curriculum development workshop in year 3 to share lessons learned and curriculum developed during the first two years of the project;

Component 4: Developing Community Networks

53. *Objectives:* Communities sharing the same river-basin hydrological resources communicate the results of Best Practices and contaminant reduction activities through inter-community communication and exchange networks.

Expected outcomes include:

- Communities disseminate experiences and knowledge gained during project to neighbouring communities in the form of at least one “open door” (inter-community meeting) per location;
- Networks of IPPM farmer facilitators maintain quality and timeliness of information to farmers through exchanges at local, provincial, national and subregional levels.

To this end activities will be organized as follows:

- a) Develop networks among villages in the same water-use areas (same, shared river, irrigation and drainage systems):
 - i. Conduct “Open door” days at the end of each FFS, in which neighbouring communities are invited to witness and discuss outcomes of FFS training, including the nature of toxic risks from pesticides, the existence and increased benefits from alternative methods, and establishment of community-based monitoring systems;
 - ii. Farmer-Trainers (FT) to work with Technician-Trainers (TT) in neighbouring villages in new FFS aimed at expanding scope of training to eventually include entirety of water-use area;
 - iii. Annual “Open door” meetings to be held at larger administrative levels for benefit of prefecture and department-level local government and communities;
 - iv. Representatives elected from target water-use areas meet to discuss possible outcomes of project on larger scales of the river basin;
 - v. Some cross-country based exchanges, depending on strategic analysis of greatest likely outcome (most likely in cotton sector)
- b) Develop networks among facilitators at local, provincial and regional levels
 - i. Local workshops held at each level, beginning with the local levels, with representatives chosen to attend workshops next level up;
 - ii. Newsletter developed for benefit of facilitators and farming communities

Component 5: Project Coordination and Management

54. *Objectives:* Institutional capacity established to co-ordinate regional interventions, monitor project impacts, and disseminate and exchange information.

Activities will be organized as follows:

- a) The Headquarters-based Chief Technical Advisor (CTA) will organize the creation of a Regional Coordination Unit (RCU) to be set up in the sub-region. The RCU will comprise at least a Regional Project Coordinator (RPC), a Regional Data Management Administrator, a Knowledge Management Consultant (part time) and a secretary and will be equipped with appropriate communications and document preparation facilities. In addition, each country will establish a National Project Coordination Unit (NPCU). National Project Coordinators (NPC) will be chosen in the countries by FAO. Semi-annual meetings among the CTA, RPC and the NPCs will be held. One of these meetings, each year, will take place immediately prior to the meetings of the Regional Technical Steering Committee (RTSC) as a means of preparing up-to-date synopses of information for presentation to the RTSC. Annual regional meetings for activity assessment and planning will also be convened involving a wider range of participants from the countries involved in the project. These latter meetings will be arranged to take place prior to individual regional consultation meetings among the national and regional project coordinators;
- b) Six National Project Steering Committees (NTSC) will be set up at the beginning of the project comprising a membership to be decided by each country's lead ministry (which may vary among countries);
- c) A Regional Technical Steering Committee (RTSC) will be set up at the beginning of the project comprising a representative each from UNEP, FAO, the participating countries' NTSC and possibly relevant regional Agencies. The RTSC will be chaired on a rotating basis by the member countries; a representative of FAO will serve as Executive Secretary and the project coordinator will attend in an ex-officio capacity (see Annex K for details on overall and national coordinating structures);
- d) The RTSC will first meet immediately following completion of the appraisal phase and signatures of the GEF CEO, to act as technical and policy advisor to the project and to assist in any required agreements and arrangements for project execution. The RTSC will subsequently meet one time per year including what will be termed the inception workshop, to be held within 2 months subsequent to project start-up, a mid-term meeting and a meeting to be held 3-6 months prior to project completion. At the mid-term meeting, project and component progress will be reviewed, any delays or outstanding difficulties will be discussed and resolved, and forward planning for the subsequent period of project execution will be undertaken. The independent mid-term evaluation commissioned by UNEP in collaboration with FAO will also be reviewed during this meeting. The final RTSC meeting will check to see that all deliverables are completed and that arrangements have been made for sustaining of major consultative and informational components created by the project;
- e) The Project Coordination Units will maintain records of project activities and project expenditures at the national, regional and Headquarters levels. Such records will be made

available to the executing and implementing agency representatives on request. The project workplan and timetable is presented in Annex H.

Risks and Sustainability

Risks

55. The Logframe matrix presented in Annex B lists project-related risks and assumptions. The primary assumption that has a low probability of not being met is that of economic and social stability in the global circumstances and in the region. It is unlikely that major global disruptions in either of these areas will occur over the 4-year life of the project although there exists, as always, the risk of political disruption or conflict somewhere in the sub-region that could adversely affect project execution. A further assumption is that outbreaks of migratory pests (locusts) in the region do not undermine the political will of the countries to move forward with programs aimed at drastically reducing pesticide use. Since the completion of the PDF-B phase activities in Senegal, a major locust outbreak has taken place, and looks to be close to completing its cycle. One outcome has been a rough doubling of the amount of pesticides coming into several riverine regions, including the Senegal River. Although these chemicals are in a formulation (ULV) unsuitable and highly dangerous for use by farmers, it is assumed a certain proportion of the chemicals will find their way into the hands of farmers through back-channel markets. A final assumption is that global climate change will not adversely affect project execution. The project execution and expected outputs are at no real risk from climate change, but on the contrary, the project has several elements that will be a positive contribution to both climate change mitigation and adaptation. The anticipated reduction in the use of agrochemicals will play a direct role in reducing greenhouse gases as substantial greenhouse gases are released during both the production and use of fertilizers and pesticides (mitigation). Furthermore, reducing toxic substances and fragile aquatic systems will help remove one additional source of stress in ecosystems increasingly stressed by climate change.
56. A substantial proportion of the assured co-financing by governments is derived from the re-allocation of existing staff and recurrent budgets of the involved ministries and government departments to project activities. Nevertheless, the demands on these same government departments made by other commitments to initiatives in the sub-region required pursuant to international agreements are significant and this project probably represents a minor incremental demand that is unlikely to present a major burden to the participating governments. Any risk of excessive demand on government departments should be adequately compensated for by increased recognition of the value of such international commitments within the countries concerned.

Sustainability

57. Permanent long-term reduction in the use of the most toxic chemicals is a function of three factors: i) adoption of “Better practices” by farmers exposed to the IPPM training, ii) institutionalization of the IPPM training approach within the appropriate national structures, and iii) policy developments that recognize the real costs and benefits of pesticide use in the developing country context. Experience with IPPM in more than 20 countries overwhelmingly demonstrates that adoption of “better practices” (improved soil, water, seeds and pest management) and including reduction or elimination of pesticides in the major tropical agriculture systems (rice, vegetables, cotton) results on average in perceived increases in yields, income and environmental and health benefits. This lack of “trade offs” with pesticide reduction suggests a clear “win-win” scenario for participating farmers. The evidence supports the logic that farmers experiencing these benefits of an IPPM approach tend not to return to “old habits”.

58. The project aims to actively involve a range of stakeholders, including regional structures, government agencies, NGOs, farmer organizations and individual communities. The project presents five major activities for which sustainability reasonably needs to be addressed: (i) maintenance by the target communities of introduced, alternative agricultural production models, (ii) community-based monitoring for pesticides, (iii) institutionalization of the participatory educational approach (Farmer Field Schools or similar approaches), (iv) national monitoring capabilities for water quality, and (v) development of communications networks.
59. The project will forge strong linkages with key national, regional and international agencies as part of the awareness-raising component. Discussions with the two regional partners involved in pesticide legislation (Comité Sahélien des Pesticides and Comité Phytosanitaire des Pays de la zone Humide de l’Afrique de l’Ouest et du Centre) indicated clearly that the countries lack a means of monitoring the reality of pesticide use at the field level. They therefore strongly support the project goals related to water-quality monitoring and community-based pesticide management, as these efforts, besides providing local benefit, will provide “feed-back” from the field that will support further policy initiatives.
60. *Maintenance by the target communities of introduced, alternative agricultural production models.* Experience in S.E. Asia with similar community-based approaches suggests that *in cropping systems where there is a clear economic incentive for change, farmers tend to adopt, maintain and disseminate new methods.* Experience during the PDF-B and especially during the Phase I IPPM/FFS project demonstrates clear and unequivocal economic benefits in terms of yield increases and lowered input costs (for pesticides) in all three cropping systems. Although yet to be evaluated, the GEF interventions will have the added motivating factor of heightened awareness by farming communities of the negative externalities associated with chemical pesticide use. Furthermore, by helping to develop networks of facilitators and communication among neighbouring communities, and by helping communities learn to take advantage of the opportunities presented by the newly decentralized agricultural service providers, the project will set the stage for continued development and expansion of alternative agricultural models. The Monitoring and Evaluation Plan will evaluate adoption of alternative production methods towards the end of the project, looking back to communities in which the alternative methods were introduced three-to-four years earlier. Spread (replicability) to neighbouring communities will also be evaluated at this time, based on methods currently being developed in the IPPM/FFS program in collaboration with the Department of Agricultural Economics at the University of Hanover, Germany.
61. *Community-based monitoring system for pesticides.* This is an entirely new concept for which no prior data on adoption rates exist. Logically, if the communities find both value in and social acceptance of the methods, with little or no cost, then they should be maintained by the community. If time brings major shifts away from the current use of large quantities of highly toxic pest control materials, then presumably the monitoring system will no longer be necessary. Expansion of these methods along with improved agronomic methods will be contingent on their demonstrated value to the communities. The community-based monitoring will work to feed back to national and regional levels and thereby provide information that can help change policies (e.g., border checks for illegal chemicals).
62. *Institutionalization of the participatory educational approach (Farmer Field Schools or similar approaches).* The trend over the past 20 years in development projects has been toward the increased adoption of participatory, non-formal or “adult education” methods as part of a larger trend towards “adaptive management” and it is likely this trend will persist into the foreseeable future. Evidence for adoption of this approach is clearly seen in Mali and Burkina Faso resulting from the Netherlands co-financing project. In this context the project will help to foster a culture of experimentation, learning

and sharing among farming communities so that they will continue to develop methods that are environmentally and economically most appropriate to their specific farming-systems and continue to share and take advantage from lessons learned elsewhere. In this way the project will contribute to a growing social movement that continues to bring substantial benefits to the communities and the countries involved. The project is constructed in such a manner that lessons learned will continue to feed back into the project countries and be shared on a global level after the end of the project. Specific elements to support this longer-term sustainability include:

- a) *Self-financed Farmer Field Schools* (see full details in Annex L). The IPPM/FFS programs in East Africa developed the first models anywhere for self-financed FFS. These models have evolved there which will be applied to the West African context in this GEF project. Several models have evolved. In both cases a high-value commercial crop is either the subject of the FFS, or is grown in conjunction with the FFS. In the “semi self-financed” model, farmers begin with a grant to the farmers’ group, which uses the money to establish an FFS with associated cash crop. The proceeds from the harvest go into the farmers’ organization to help fund future studies, or in other ways to benefit the group. In the “self-financed FFS” model, the proceeds from the harvest go to repay an initial loan, with the remainder going to benefit the group. *In both cases, the training process has the potential for greater accountability in that farmers groups are in a position to hire or fire the facilitator, based on performance.*
 - b) *Institutionalization at the Farmer Organization level.* Experience elsewhere in the world and in the IPPM/FFS programme shows Farmer Organizations to be one of the most promising avenues for institutionalizing the FFS approach. The current move to decentralize and semi-privatize agricultural support services sets the stage for empowerment of FOs and the development of self-financed FFS.
 - c) *Adoption by government structures.* While government agencies are often the least responsive to change, some encouraging signs are evident. In Mali the World Bank funded PNIR project has specific instructions and has budgeted line items such that any new development of small-scale rice schemes must be accompanied by development of Farmer Field Schools for the scheme. Also note that during the final validation workshop (Bamako, March 7-8 2005) the six participating countries indicated that if the participatory extension approach tested during the GEF project were to prove successful, the governments would be favourably inclined towards further efforts to institutionalize the approach more broadly within state and parastatal structures.
63. *National monitoring capabilities for water quality.* The facilities of CERES/Locustox provide the only certified laboratory facility in the sub-region capable of processing the estimated quantity of samples, and having the requisite analytical reliability. While this will be suitable for the short-term project goals, a longer-term solution will require eventual development of equivalent capabilities in some or all of the partner countries. The project will seek political support to have results from the project incorporated into National Strategies and Action Plans for development of improved national water-quality monitoring programmes. Of course seeking support for future actions is contingent on the outcomes of the project. If little or no contaminant pollution is found in national waterways (certainly not the case for Senegal as determined during the PDF-B), then little incentive will exist.
64. *Development of communications networks.* The setting up of IPPM trainers’ networks is already under way in Mali and Senegal under the IPPM/FFS programme. Its expansion throughout the sub-region will permit updating of knowledge and maintain quality and innovation through knowledge

exchange among partners. Similar networks in S.E. Asia have survived the end of their parent projects. The setting up of an agricultural producer facilitation network similarly will provide new and updated tools to the producers. Training farmers as trainers (estimated to be 300 farmer-facilitators by the end of the project) will also help ensure post-project sustainability.

Replicability

65. **Local:** As discussed under sustainability, experience with IPPM demonstrates clear and unequivocal economic benefits in terms of yield increases and lowered input costs (for pesticides) in all three cropping systems. This, coupled with the added motivating factor of heightened awareness by farming communities of the negative externalities associated with chemical pesticide use, will provide the overall motivation for replication or diffusion of the project activities. The project will have trained some 150 government and NGO facilitators and 300 Farmer-facilitators, who will be capable of training farmers in other communities. Networks of facilitators will help ensure spread of lessons learned and newly developed curricula.
66. **National:** National restructuring of traditional extension services with support for semi-privatized agricultural support services, as described earlier, offers an excellent opportunity for both sustainability and replication of the GEF project activities, including those related to supporting new Farmer Field Schools and possibly supporting semi-self financed or self-financed FFS (see Annex L). Already functioning FFS will be in a much better position to take advantage of newly reorganized agricultural support structures and associated sources of funding, by more effectively being able to diagnose community needs and to put forward coherent proposals for activities. The training-of-trainers component of the project also helps assure human resource capacity at a national level.
67. **International:** Increasing demand for a Farmer Field School approach is seen in the sub-region (Togo, Cameroon, Gambia), elsewhere on the African continent (North, East and Central Africa, Madagascar and the Western Indian Ocean) and elsewhere in developing regions of the world (some 35 countries have already implemented some form of IPPM/FFS programme). This demonstrates a strong potential for replication at an international level. The results from this project, in terms of lessons learned, curricula and human-resource capacity developed, will promote replicability at an international level.

STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS

68. During the PDF-B phase, the characterization of full project activities, their planning and implementation were conducted in collaboration with government (SAED and CERES/Locustox foundation), NGO (ENDA Tiers Monde), and in the field with each of the pilot communities through a multidisciplinary and participatory process. The regional document was prepared through the following process: i) information and raising awareness of authorities in the various targeted countries; ii) establishment of country working groups comprising representatives of the government, civil society and the national GEF and POPs focal points; iii) production of in-depth country reports by national consultants working with the national coordination structures, providing background information on the river and irrigation systems, on the populations and cropping systems in the target sites and on the status of pesticide use in the country (reports, in French, on file with FAO); iv) the submission of proposals for discussion, synthesis and planning for incorporation into a regional programme document during a workshop held in Dakar, 4–6 March, 2004, that involved participation by two designated representatives from each country; v) the write up of the full project brief and vi) the final validation of the full-project brief and endorsement by the countries in a final validation workshop (Bamako, 7-8 March, 2005).

69. The full project is based on the continuous participatory diagnosis related to the various biological, economic and social drivers, pressures and states of the community environment (Annex J). Once the project is under way, local problem identification and system characterization will be done by the populations themselves, with guidance from the project, national and regional partners. The local populations and Farmer Organizations are the main beneficiary of the project activities, but national-level partners, including state and parastatal agricultural services and NGOs will also benefit in terms of gaining experience in participatory approaches and first-time assessments of water quality in the two major rivers and associated irrigation systems. The regional CILSS CSP and CPH/AOC pesticide legislation process will benefit from feedback from the national-level water-quality assessments and community-based pesticide monitoring work.
70. The active participation of the communities is central to the method, and leads to a number of benefits, including the improvement of local knowledge and skills, rapid feedback to partner agencies and pragmatic evaluation of the relevance of research and development of methods appropriate to local circumstances. Furthermore, active involvement from the beginning by communities ensures the topics and the system of evaluation reflect local concerns. Participation and discussion encourage understanding and help lead to empowerment, and promote greater widespread acceptance and adoption of results. The involvement of populations in the choice, implementation and follow-up of study themes promotes the interest of local populations and an understanding of the modalities and benefits of their execution. The more that grassroots communities are involved, the more they understand and are motivated thereby increasing the probabilities of success. Finally, the participation of populations in practical field studies promotes the building of capacity for future investigative work.
71. This regional project will develop partnerships with several different government and NGO-based institutions involved in pesticides and pesticide management, including ecotoxicology laboratories in the sub-region (Locustox, Dakar, Laboratoire Central Veterinaire de Bamako), the six national departments of crop protection, the six ministries of agriculture and environment, AGRHYMET⁸, various NGOs (e.g., PAN Africa, ENDA-Pronat) and the regional CILSS CPS (for Mali, Mauritania, Senegal and Niger) and CPH/AOC (for Benin and Guinea). *Farmer communities in the basins of the Senegal and Niger Rivers are the main partners and the beneficiaries of the project.*
72. One of the primary project strategies will be the creation and strengthening of local competence in the management and monitoring of pesticide use and identifying and testing sustainable and cost-effective alternatives. In this context, emphasis will be placed on civil society participation through the medium of local NGOs working with grassroots organisations, including local Farmer Organizations.
73. ENDA Tiers Monde specializes in informal training and participatory approaches. In recognition of the important role this NGO is playing in the field of information dissemination, raising awareness and training in the sub-region communities searching for alternatives to chemical pest control and the

⁸ AGRHYMET is a special institution of the Comité Permanent Inter Etats de Lutte contre la Sécheresse au Sahel, or CILSS. Its goals are to increase food security by providing tools to help maximize agricultural production in the CILSS member states (Burkina Faso, Cape Verde, Chad, the Gambia, Guinea-Bissau, **Mali**, **Mauretania**, **Niger**, and **Senegal**), and improve natural resources management within the overall Sahel region. Founded in 1974, AGRHYMET collects and disseminates both raw data and a variety of finished information products relating to environmental monitoring and food security in the Sahel. It also acts as a center for capacity building, providing both long-term, degree-level training and short-term training courses in topics such as agrometeorology and hydrology.

improvement of economic conditions, ENDA will be one of the key partners in the implementation of the project. CERES/LOCUSTOX, a unique certified laboratory, specialized in ecotoxicological research in the Sahel, will provide its support in the field of scientific research and biological and chemical analysis. Other NGOs and local research centres will become involved as the project unfolds.

INCREMENTAL COST AND PROJECT FINANCING

74. Table 2 presents an incremental cost table based on the component costs presented in Table 3 and the more detailed analysis contained in Annex A. As noted in that Annex, benefits under this project accrue at the global, regional and national levels. Direct environmental benefits that accrue as a consequence of project activities will be largely national and regional although educational outputs in terms of curriculum development will likely be spread globally within a short time. Also, the overall contribution to POPs reductions in the environment provides global benefits consistent with the aspirations of the Stockholm Convention. Considerable environmental benefits are anticipated to arise through the adoption of alternative farming practices in the Niger and Senegal River basins. These should be both measurable and quantifiable in economic terms by both local populations and national governments.
75. Adopting a regional approach to concerted action carries with it transaction costs associated with networking local and prefectural institutions and the national governments. While not all of these costs are strictly incremental, since national benefits derive from sharing of regional experiences, it is certainly the case that without a GEF intervention such costs will not be met since they result in little direct national benefit. The countries of the region are clearly committed to a regional approach as evidenced by their commitment to the PDF-B process. The costs of actions that result in direct national benefit are predominantly those that build capacity at the local, prefectural and national levels.
76. Table 3 presents the project budget and component financing. The total cost of the project (including the PDF-B phase) is \$9,305,340 of which \$999,683 is the anticipated costs to the governments in cash and in kind. Of the overall sum, FAO and its programmes will contribute both in the form of cash and in-kind, an amount of \$3,458,477, of which \$2,800,000 is redirected baseline from the Netherlands-funded FAO IPPM project and \$267,000 is redirected baseline from the Swedish-funded environmental impacts of locust control project. The project funding requested from the GEF is \$4,105,330. This excludes GEF support for the PDF-B that amounted to \$372,500.

Table 2
Baseline and Incremental Costs

	Baseline	Alternate	Increment
	US \$	US \$	US \$
Global Environmental Benefits	98,922,000	108,227,340	9,305,340
PDF-B Phase		741,850	741,850
Component 1 - Awareness Raising and Establishing Baselines	16,126,000	17,638,006	1,512,006
Component 2 - Assessments of Freshwater Contaminants	1,096,000	3,342,248	2,246,248
Component 3 - Developing Best Practices	79,200,000	81,926,005	2,726,005
Component 4 - Developing Community Networks	2,400,000	3,532,005	1,132,005
Component 5 - Project Coordination and Management	100,000	1,047,225	947,225

Table 3
Project Budget Summary and Component Financing in US \$

Project Activities	GEF	% GEF	Co-financing				Grand Total
			Governments	Other Sources	Total co-fi	% co-fi	
Component 1 - Awareness Raising and Establishing Baselines	805,076	53.2%	250,000	456,930	706,930	46.8%	1,512,006
Component 2 - Assessments of Freshwater Contaminants	1,140,269	50.8%	100,000	1,005,980	1,105,980	49.2%	2,246,248
Component 3 - Developing Best Practices	1,265,566	46.4%	250,000	1,210,440	1,460,440	53.6%	2,726,005
Component 4 - Developing Community Networks	505,076	44.6%	250,000	376,929	626,929	55.4%	1,132,005
Component 5 - Project Coordination and Management	389,344	41.1%	149,683.0	408,198.4	557,881.4	58.9%	947,225
Project Total	4,105,330	47.9%	999,683	3,458,477	4,458,160	52.1%	8,563,490

MONITORING, EVALUATION AND DISSEMINATION

77. The monitoring and evaluation plan (M&E Annex I) maps the approach for measuring and verifying that activities and outcomes described in the project logframe and timeline are being met. The M&E Plan follows UNEP guidelines and incorporates UNEP monitoring activities.

78. There are four entities with roles to play in the Monitoring and Evaluation process:

- UNEP will receive from the FAO Technical Coordination Unit (TCU) six-month progress and quarterly financial reports. UNEP will also serve as a member of the Regional Technical Steering Committee (RTSC). FAO, as the Executing Agency, will also be represented on the Technical Steering Committee and FAO officers will make field visits to assess progress and problems (as needed and agreed with the RPCU and RTSC). UNEP and FAO will jointly appoint independent evaluators for the conduct of mid-term and final project evaluations.
- The TCU will develop a reporting structure for all project partners and ensure that reporting is timely and complete. It will develop all reports for UNEP and carry out regular site visits, together with the RCU, with particular attention to project sites or activities experiencing difficulties or suffering delays.
- The RTSC will review all reports, advise the RPCU on resolving difficulties and increasing efficiency, and monitor progress in all components of the project at annual meetings.
- The RTSC and NTSC will review all reports and offer policy guidance. They will play a key role in facilitating linkages, both in their respective countries and between countries, and will seek appropriate policy outcomes based on project results.

79. Project monitoring is of two types: monitoring of performance in project execution; and monitoring of satisfaction of outputs and milestones.

80. Monitoring of performance in project execution includes evaluation of the efficiency and effectiveness of project management. It also tracks overall project progress and financial

accountability. This aspect of monitoring will be carried out by FAO in cooperation with UNEP and reports will be provided to the Technical Steering Committee for review.

81. Monitoring of project outputs or milestones evaluates the rate of progress in project execution. It is based on the indicators and means of verification specified in the logical framework (or logframe) matrix (Annex B) and the Monitoring and Evaluation Plan. Half-yearly progress reports will include assessments of all outputs that were to be completed within that specific timeframe. Outputs not completed within the planned timeframe will be noted, the reasons for delay specified and the anticipated date of completion indicated for further tracking purposes.
82. The Regional Project Coordinator will be responsible for developing quarterly progress and financial reports with inputs from national management units. These reports will be important monitoring tools, as they will be carefully tracked by both the implementing and executing agencies, the national coordinators and, ultimately, the PSC during annual meetings.
83. Participation of all stakeholders is fundamental to this project. Stakeholder participation in the monitoring and evaluation process is also essential to ensure continued ownership of project activities. Not only are the stakeholders legitimate participants in the process of monitoring and evaluation but they are often the best positioned to understand the reasons for successes and failures. Farmers and other stakeholders will therefore be included in the evaluation process at the local level and will be involved in internal project evaluations and annual reviews of project performance. Mid-term and final evaluation will be conducted by independent evaluators contracted by UNEP.
84. Local evaluations will also be undertaken to underpin the monitoring and evaluation process. These will include an internal self-evaluation undertaken by farmers themselves in consultation with technical experts. It will be carried out during workshops and meetings where farmers will be able to assess their experience and skills and participate in analysis and finding solutions to problems. The process will be disseminated in the form of publications.
85. Government agency representatives serving on the RPSC will be best positioned to understand the challenges and appropriate strategies for influencing national policy priorities. The monitoring process will highlight tactics that are successful or not, motivating factors for project stakeholders, and, as the project progresses, the extent to which project activities are achieving success. These lessons will be summarized in reports for presentation at workshops in the sub-region and for presentation to the PSC. Planning in the final stages of project execution will include mechanisms to ensure that project findings are distributed as widely as possible in order to maximize influence on the agriculture sector.
86. Reporting will be a continuous activity. It will be carried out at country level by the range of stakeholders involved in project activities (coordinators, technicians, farmer facilitators) and at the regional level by the project coordinator who will submit biannual activity reports that will be transmitted to FAO and UNEP.

SECTION 3 - WORKPLAN AND TIMETABLE, BUDGET, FOLLOW-UP

3.1 Workplan and Timetable

A detailed Work-Plan is provided in Annex H.

3.2 Budget

A detailed budget in UNEP format is presented in Annex U. This budget is based upon the GEF approved budget provided in the Full-size Project Brief

3.3 Follow-up

There will be excellent opportunities for replication of lessons learned to other countries in the region and beyond by the execution of the Full-Sized UNEP/GEF Project.

SECTION 4 - INSTITUTIONAL FRAMEWORK AND EVALUATION

4.1 Institutional Framework

FAO, as the Executing Agency, will be responsible for the implementation of the project in accordance with the objectives and activities outlined in Section 2 of this document. UNEP, as the GEF Implementing Agency, will be responsible for overall project supervision to ensure consistency with GEF and UNEP policies and procedures, and will provide guidance on linkages with related UNEP and GEF-funded activities. The UNEP/DGEF Co-ordination will monitor implementation of the activities undertaken during the execution of the project. The UNEP/DGEF Co-ordination will be responsible for clearance and transmission of financial and progress reports to the Global Environment Facility.

FAO, as executing agency, will cooperate with UNEP so as to allow the organization to fulfill its responsibility as Implementing Agency accountable to the GEF. To this end, free access to all relevant information will be provided by FAO.

All correspondence regarding substantive and technical matters should be addressed to:

At FAO

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Biodiversity and Ecosystems Officer
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At UNEP

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International Waters
UNEP/ Division of GEF Coordination,
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All correspondence regarding financial matters should be addressed to:

At FAO

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Finance Officer
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E-mail: joe.fong@fao.org

With a copy to:

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With a copy to:

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Nairobi, Kenya.
Tel: 254-20-7623347
Fax: 254-20-7623162
Email: Sandeep.Bhambra@unep.org

Project administrative and Operational matters should be addressed to FAO, William Settle as per contact information above:

4.2 Final Evaluation

UNEP will organise both a mid-term and final independent evaluation of the project to measure the degree to which the objectives of the project have been achieved.

SECTION 5 - MONITORING AND REPORTING

5.1 Management Reports

5.1.1 Progress Reports

Within 30 days of the end of the reporting period, FAO will submit to UNEP, with a copy to Division of GEF Coordination, using the format given in Annex M, half-yearly progress reports as at 30 June and 31 December.

5.1.2 Terminal Reports

Within 60 days of the completion of the project, FAO will submit to UNEP, with a copy to UNEP/DGEF Coordination, a Terminal Report detailing the activities taken under the project, lessons learned and any recommendations to improve the efficiency of similar activities in the future, using the format provided in Annex P.

5.1.3 Substantive Reports

- (i) At the appropriate time, FAO will submit to UNEP in draft any manuscript for publications and, at the same time, inform UNEP of plans for its publication. UNEP will give FAO substantive clearance of the manuscript, indicating any suggestions for change and such wording (recognition, disclaimer, etc.) as it would wish to see figure in the preliminary pages or in the introductory texts.
- (ii) It will equally consider the publishing proposal of FAO and will make comments thereon as advisable. It may request FAO to consider publication on a joint imprint basis. Should FAO be solely responsible for publishing arrangements, UNEP will, nevertheless, receive 10 free copies of the published work in each of the agreed languages, for its own purposes.

5.2 Financial and Co-financing Reports

5.2.1 Financial Reports

FAO shall submit to UNEP quarterly project expenditure accounts and final accounts for the project, showing amount budgeted for the year, amount expended since the beginning of the year, and, separately, the unliquidated obligations as follows:

- (i) Details of project expenditures on an activity-by-activity basis, reported in line with project budget codes as set out in the project document, as at 31 March, 30 June, 30 September and 31 December each year, providing details of unliquidated obligations separately (see formats in Annex O. The expenditure accounts will be dispatched to UNEP within 30 days after the end of the quarter to which they refer.
- (ii) The expenditure account as at 31 December is to be received by UNEP by 15 February each year.
- (iii) A final statement of account, in line with UNEP project budget codes, reflecting actual final expenditures under the project, when all obligations have been liquidated.

5.2.2 Co-financing Reports

Within 60 days of the reporting period, FAO shall submit to UNEP GEF Coordination Office, a yearly co-financing report for the project using the format provided in Annex V showing information FAO has received on:

- (i) Amount of co-financing realized compared to the amount of co-financing committed to at the time of project approval, and
- (ii) Co-financing reporting by source and by type.
 - (a) Sources include the agency's own co-financing, government co-finance (counterpart commitments), and contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector, and beneficiaries.

(b) Types of co-finance. Cash includes grants, loans, credits and equity investments. In-kind resources are required to be:

- dedicated uniquely to the GEF project,
- valued as the lesser of the cost and the market value of the required inputs they provide for the project, and
- monitored with documentation available for any evaluation or project audit undertaken by FAO.

With regard to reporting on in kind co-financing provided by government and other institutions, FAO will encourage the partners to provide the information in a timely manner and will transmit such information to UNEP as received and without certification.

5.3 Terms and Conditions

5.3.1 Non expendable equipment

FAO will maintain records of non-expendable equipment (items costing US\$500 or more as well as attractive items such as pocket calculators, cameras, computers, printers, etc.) purchased with UNEP funds (or with trust funds or counterpart funds administered by UNEP). FAO will submit an inventory of such equipment to UNEP, indicating description, serial no. (where applicable), date of purchase, original cost, condition, location of each item attached to the half yearly progress reports, including all the information shown in Annex Q.

Within 60 days of completion of the project, FAO will submit to UNEP a final inventory of all non-expendable equipment purchased under the project indicating description, serial number (where applicable), original cost, condition, location and a proposal for the disposal of the said equipment. Non-expendable equipment purchased with funds administered by UNEP remains the property of UNEP until its disposal is authorized by UNEP, in consultation with FAO. The proceeds from the sale of equipment (duly authorized by UNEP) shall be credited to the accounts of UNEP, or to the appropriate trust fund or counterpart fund.

5.3.2 Responsibility for Cost Overruns

FAO is authorized to enter into commitments or incur expenditures up to a maximum of 20 percent over and above the annual amount foreseen in the project budget under any budget sub-line, provided the total cost of the UNEP annual contribution is not exceeded. This may be done without prior authorization, but once the need for these additional funds becomes apparent, a revised budget request should be submitted to UNEP immediately. Cost overruns are the responsibility of FAO unless a revised budget has been agreed with UNEP.

Any cost overrun (expenditure in excess of the budgeted amount) on a specific budget sub-line over and above the 20 per cent flexibility mentioned above should be met by FAO, which originally assumed responsibility for authorizing the expenditure, unless a revision has been agreed to by UNEP prior to the authorization to cover it. Savings in one budget sub-line may not be applied to overruns of 20 percent in other sub-lines, even if the total cost to UNEP remains unchanged, unless this is specifically authorized by UNEP upon presentation of the request. In such a case, a revision to the project document amending the budget will be issued by UNEP.

5.3.3 Claims by Third Parties against UNEP

UNEP does not accept any responsibility for the handling of claims which may be brought by third parties against UNEP and its staff. UNEP and its staff shall not be liable in case of any claims or liabilities resulting from operations carried out by FAO under this project document.

5.3.4 Cash Advance Requirements ⁹

An initial cash advance of US\$400,000 will be made upon signature of the project document by both parties and will cover expenditures expected to be incurred by FAO during the first three months of the project implementation. Subsequent advances are to be made quarterly, subject to:

- (i) Confirmation by FAO at least two weeks before the payment is due, that the expected rate of expenditure and actual cash position necessitate the payment, including a reasonable amount to cover "lead time" for the next remittance; (see format of request in Annex N.) and
- (ii) The presentation of:
 - **a satisfactory financial report showing expenditures incurred for the past quarter, (see format in Annex O.) under each project activity and**
 - Timely and satisfactory progress reports on project implementation.
- (iii) Disbursements to project countries will take place through FAO country offices and strictly in accordance with FAO financial procedures.

5.3.5 Amendments

The Parties to this project document shall approve any modification or change to this project document in writing.

⁹ FAO has requested that UNEP notify FAO in writing of its payments of the advances in favour of FAO, indicating the amount and value date of remittance.