



Global Environment Facility

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May 29, 2003

Dear Council Member,

UNDP, as the Implementing Agency for the project, *Regional (West Africa, Benin, Burkina Faso, Burundi, Chad, Cote d'Ivoire, Gabon, Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Togo): Capacity-building for Improving Greenhouse Gas Inventories (West and Francophone Central Africa)*, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the Council in October 2002 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.gefweb.org. If you do not have access to the Web, you may request the local field office of the World Bank or UNDP 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,

cc: Alternate, Implementing Agencies, STAP



Mohamed
Dear Mr. El-Ashry,

New York, 24 April 2003

Re: Capacity Building for Improving GHG Inventories (West and francophone Central Africa region), RAF/02/G31

I am pleased to attach herewith the above mentioned project document. The brief was approved by the GEF Executive Council on 15 October 2002. Response to the STAP Review and Council comments can be found in Annexes N and O of the project document.

As per paragraph 29 and 30 of the GEF Project Cycle, we are submitting this project for circulation to the members of the GEF Executive Council and, subsequently, for your final endorsement.

Thank you in advance for expediting the review and approval of this project.

Yours sincerely,

Warm regards.

A handwritten signature in black ink, appearing to read 'Frank Pinto', is written over a horizontal line.

Frank Pinto
Executive Coordinator

Mr. Mohamed El-Ashry
Chief Executive Officer
Global Environment Facility
Room G6005
1776 G Street
Washington DC, 20433

cc: Richard Hosier, Bo Lim

**UNITED NATIONS DEVELOPMENT PROGRAMME
GLOBAL ENVIRONMENT FACILITY**

PROJECT DOCUMENT

Project number:	RAF/02/G31									
Project name:	Capacity Building for Improving the Quality of Greenhouse Gas Inventories (West and Francophone Central Africa)									
Participating countries:	Benin, Burkina Faso, Burundi, Chad, Côte d'Ivoire, Gabon, The Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal and Togo									
Estimated starting date:	June 2003	<table border="0" style="width: 100%;"> <tr> <td colspan="2">UNDP and cost co-sharing financing</td> </tr> <tr> <td>GEF PDF-B Project</td> <td style="text-align: right;">298,458 2,694,000 <u>2,992,458</u></td> </tr> <tr> <td>In-kind contributions</td> <td style="text-align: right;">605,585</td> </tr> <tr> <td>Total (incl. in-kind)</td> <td style="text-align: right;">3,598,043</td> </tr> </table>	UNDP and cost co-sharing financing		GEF PDF-B Project	298,458 2,694,000 <u>2,992,458</u>	In-kind contributions	605,585	Total (incl. in-kind)	3,598,043
UNDP and cost co-sharing financing										
GEF PDF-B Project	298,458 2,694,000 <u>2,992,458</u>									
In-kind contributions	605,585									
Total (incl. in-kind)	3,598,043									
Duration:	3 years									
GEF Implementing agency:	UNDP									
Executing agency:	UNOPS									
Eligibility:	Non-Annex I Parties									
ACC sector and subsector:	Environment									
Primary areas of focus/sub-focus:	Climate change									
Primary Type of Intervention:	Capacity-Building									
Primary Target Beneficiaries:	National climate teams									
GEF Programme framework:	Enabling Activity									
Primary Areas of Focus/sub-focus:	Climate Change									

2. Summary: This project will use a regional framework over its three-year lifetime to build national capacity for improving the quality of data inputs to national greenhouse gas inventories. The use of key sources for national greenhouse gas inventories, as defined in the IPCC Good Practice Guidance (GPG), contributes to the project design by allowing countries to systematically prioritise their efforts to improve overall estimates in the most cost-efficient manner. Based on the key source analysis carried out under the PDF phase of this project, the full project will focus on reducing uncertainties and improving activity data and emission factors in the land-use change and forestry (LUCF) sector. Countries will also use GPG to strengthen national arrangements so that, as a result of this project, GHG inventories for future National Communications will be compiled in a sustainable manner and the inventories will be of a higher quality than those prepared for the Initial National Communications. The project will build upon the existing national institutional frameworks established under the enabling activities. The same national institutions from the Initial National Communication will be targeted in this project to create a more permanent infrastructure.

On behalf of:	Signature:	Name/Title:	Date:
UNOPS	_____	Juan-Luis Larrabure ENVP Division	_____
UNDP	_____	Abdoulie Janneh Regional Director, Africa Bureau	_____
The Governments of:			
Benin	_____	_____	_____
Burkina Faso	_____	_____	_____
Burundi	_____	_____	_____
Chad	_____	_____	_____
Côte d'Ivoire	_____	_____	_____
Gabon	_____	_____	_____
The Gambia	_____	_____	_____
Ghana	_____	_____	_____
Guinea	_____	_____	_____
Mali	_____	_____	_____
Niger	_____	_____	_____
Nigeria	_____	_____	_____
Senegal	_____	_____	_____
Togo	_____	_____	_____

A. PROJECT CONTEXT

A.1 Global Context: United Nations Framework Convention on Climate Change

1. The overall objective of this project is to strengthen the capacity of participating countries to improve the quality of their national greenhouse gas inventories (GHG) in the context of their commitments as Parties to the United Nations Framework Convention on Climate Change (UNFCCC), as envisaged by Decisions 10/CP.2 and 10/CP.5, and Articles 4.1(a)(b) and 12.1(a) of the Convention.
2. Under Decision 10/CP.2 (annex, para. 13), non-Annex I Parties are “encouraged to formulate cost-effective national and, where appropriate, regional programmes aimed at the improvement of local emission factors and appropriate data gathering, and to submit requests for financial technical assistance to the interim operating entity of the financial mechanism of the Convention, in addition to their request for support for the preparation of their initial national communications”.
3. Additional guidance to the Global Environment Facility (GEF) (FCCC/CP/2001/L.4/Rev. 1) identifies funding needs of developing countries. These needs include: ‘supporting the continuation of the “country-team” approach, which enhances the collection, management, archiving, analysis, interpretation and dissemination of data on climate change...’(paragraph c); ‘improving climate change related data collection (for example, local emission and regional factors’ (paragraph e); and ‘strengthening and where necessary establishing (i) national, subregional or regional databases on climate change’. All of these requests to the GEF are addressed specifically in this project.
4. Capacity building in the context of the UNFCCC is also addressed here. For instance, the scope of capacity building includes ‘greenhouse gas inventories, emission database management, and systems for collecting, managing and utilizing activity data and emission factors’ (paragraph 16.e, FCCC/CP/2001/L.2).
5. In the West African region, obtaining a more complete inventory for the Land Use Change and Forestry (LUCF) sector will improve overall inventory quality. For this purpose, the improvement of activity data collection, treatment, and archiving should be made together with enhancement of conversion factors for particular sub-source categories. These activities are consistent with the IPCC *Revised 1996 Guidelines* and the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (GPG) for the LUCF sector currently being elaborated under the provisions of the Seventh Conference of the Parties (Decision 11/CP.7).

A.2 Regional context

6. Fourteen countries are participating in this project: Benin, Burkina Faso, Burundi, Chad, Côte d’Ivoire, Gabon, The Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal and Togo. The project initially comprised 11 West African countries. Three Central African francophone countries also endorsed the project; they were included because of the common issues in inventory preparation. Ten of the 14 participating countries have Least Developed Country status¹.
7. A summary of the region’s common issues related to improving the quality of national GHG inventories is outlined below, based upon inventory reviews carried out by three regional experts from Nigeria, Benin and Mali, and upon the NCSU questionnaires completed by the countries (Annex O).²:

¹ Those that do not are: Cote d’Ivoire, Gabon, Ghana, and Nigeria.

² Additional information sources: UNFCCC Third Compilation and Synthesis of initial national communications from Parties not included in Annex I to the Convention., NCSU Thematic Workshop on Inventories for the African Region.

8. *Inventory methodology:* All countries used the *1996 Revised IPCC Guidelines*, but the software has not always been well-mastered, according to the regional experts. Every country reported the need for additional training in IPCC methods for some or all inventory sectors, particularly LUCF and agriculture. All countries will benefit from the proposed training module of this regional project.
9. *Input data:* Some countries were able to develop national emission and conversion factors. For example, Benin has developed national emission factors for burning of plastic waste and for incineration of biomedical waste, Nigeria for gas flaring, and Côte d'Ivoire for savannah burning and carbonisation. However, all countries have relied heavily on the IPCC default factors, which do not always reflect national circumstances. For example, the IPCC guidelines for the LUCF sector can be problematic for tropical forest countries and more so for sub-Saharan forests. The collection of representative and historical activity data is acknowledged as the biggest issue by every country, particularly for the agriculture, LUCF and waste sectors. Under this project, countries will focus on improving input data for key sources and emission factors that are identified as regional priorities (*Regional Priorities*, Section A.4).
10. *Quality control of the GHG inventory:* Many inventories lack completeness, consistency and transparency. Regional experts reported that sectors, gases and tables were often missing, with no justification provided. The main quality control of inventories is by national peer review. Some countries have international reviews carried out – for example, Burundi, Chad, Gambia, Ghana and Guinea submitted their inventories to the National Communications Support Unit (NCSU) for technical feedback, while ENDA reviewed the inventories of Mali, Chad and the Gambia. Niger held a sub-regional workshop to validate their inventory, and Mali hired an international expert. Although some countries have measures for data verification and quality control to ensure the accuracy of GHG inventories – for example, Gambia created a verification team to check the validity of data sources – a more systematic approach is necessary. Under the project, a regional peer review system will be established and experts will be trained in the GPG procedures for quality assurance and quality control (QA/QC), culminating in the preparation of QA/QC plans in the third year.
11. *Uncertainty assessment of GHG emissions and removals:* Togo, Niger, Guinea and Mali have carried out uncertainty assessments to a low to medium level. Overall, countries report high uncertainties in the GHG inventories (Annex P) due to the uncertainties in emission factors and in activity data.
12. *Inventory systems:* All countries have lead agencies to co-ordinate preparation of the GHG inventory, but in most countries national systems do not exist to enable improvement and development of inventories, or to allow for periodic updating. Only Ghana has reported that it updates activity data annually, while Gambia updates data about every two years. Burkina Faso and Senegal have both prepared two inventories. Countries report a lack of awareness by decision-makers to the importance of creating sustainable institutional capacity for the implementation of commitments under the UNFCCC. The project will help countries establish an inventory process that is well-documented, with both short- and long-term strategies for improvements.
13. *Technical capacity:* Countries have been unable to enlarge the technical capacity developed under the enabling activities; high turnover of trained staff is reported in some countries. Training is needed to implement the new guidance of the IPCC, while some countries have requested additional training in the IPCC *1996 Revised Guidelines* and software. As noted earlier, all countries will benefit from the proposed training module of this regional project.

A.3 Institutional framework

14. Under the enabling activities, all countries identified a lead agency to co-ordinate the preparation of the GHG inventory (Annex Q). Typically, the lead agency resides in a government ministry, such as Environment. The designation “lead agency” implies that the agency has overall responsibility for the inventory and that the agency carried out most, or all, of the following duties: co-ordination/compilation of national inventory; archiving of relevant national data; periodic updating of the inventory; documentation of selection process for national activity data, emission factors, and other conversion factors; documentation of methods and assumptions used; validation of conversion units and other data; verification of inventory estimates; compilation of the inventory report; and reporting to international bodies. These responsibilities, however, are only in the context of the Initial National Communication.
15. Each country uses different mechanisms for collecting, managing, updating and archiving data. Many countries used individual (private) experts from universities, institutes, and NGOs, as well as government agencies, to prepare the inventory. A brief outline of the institutional framework and the inventory submission process that currently exists in each country is provided in Annex R.
16. Few countries have formal regulations or legislation for data collection. Guinea, Chad, Mali and The Gambia have Laws of Statistics mandating their national statistical institution to collect data, although such laws do not necessarily benefit data collection activities for the national GHG inventory. In Ghana, the Environmental Protection Agency and the Statistical Services Department have legal mandates to collect data.
17. This project will build upon the existing national institutional frameworks established under the enabling activities. The same national institutions involved in preparing the Initial National Communication will be used in this project. Targeting institutions, rather than experts, will contribute to the sustainability of the project by creating a more permanent infrastructure.
18. A regional institutional framework will be established under the project to foster exchange of information among countries in the region and to provide technical backstopping to the national teams; it will comprise a small co-ordination unit with 2 full-time staff. Regional unit resources will be targeted towards training workshops, technical assistance and a network for information exchange and dissemination.

A.4 Regional priorities

19. Under the PDF B, countries elaborated their national priorities for activity data and emission factors based on a Tier I IPCC good practice guidance (GPG) method for assessing *key sources of emissions* (Box 1). A *key source category*³ is one that is prioritised within the national inventory system because its estimate has a significant influence on the country’s total inventory of direct GHG gases in terms of the absolute level of emissions, the trend in emissions, or both. By basing decisions around key sources, any country can allocate its resources in the most cost-effective manner to improve inventory quality through reduced uncertainties. This method was not available when the majority of inventories for Initial National Communications were being prepared.

³ However, identification of key sources relies on emission estimations and can fail to identify potential key sources that are missing or strongly undervalued in the current inventory. This factor will be considered during the project implementation.

Box 1: Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories

In June 1998, the UNFCCC requested the IPCC to complete its work on uncertainty and prepare a report on good practice in inventory management. The resulting report, *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (GPG), was accepted by the IPCC Plenary in May, 2000.

The GPG provides guidance to assist countries in producing inventories that are neither over nor underestimates, so far as can be judged, and in which uncertainties are reduced as far as practicable. To this end, the GPG supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources.

SBSTA encourages non-Annex I Parties to apply GPG during inventory preparation -- as appropriate and to the extent possible -- as it is recognised that applying GPG could assist these Parties in developing inventories that better reflect their national circumstances (FCCC/SBSTA/2000/L.3).

Table 1: Overview of CO₂ equivalents emission sources and sinks, by country

Country	Base Year	Emission source, by Sector								Removals Gg ¹	Gross Emissions Gg ¹	Net Total Gg ¹
		Energy		Agriculture		LUCF (net)		Other				
		Gg ¹	% ²	Gg ¹	% ²	Gg ¹	% ²	Gg ¹	% ²			
Benin	1995	998	2	38,180	71	14,585	27	395	1	62,108	54,158	-7,950
Burkina Faso	1994	1,091	9	4,708	39	5,815	49	352	3	7,204	11,967	4,763
Burundi	1998	2,289	59	1,395	36	69	2	105	3	3,067	3,858	791
Chad	1993	310	1	10,387	33	20,566	65	412	1	66,674	31,675	-34,999
Côte d'Ivoire	1994	12,438	12	3,449	3	75,731	75	9,840	10	95,579	101,458	5,879
Gabon ³	1994	51,939	61	0	0	32,911	39	157	0.2	504,167	85,007	-419,160
The Gambia	1993	255	1	894	3	30,714	88	3,110	9	50,023	34,973	-15,050
Ghana	1994	6,568	35	5,256	28	6,143	33	754	4	25,616	18,720	-6,896
Guinea	1994	11,181	11	2,524	3	83,639	86	479	0.5	101,529	97,823	-3,707
Mali	1995	968	3	7,573	20	28,498	77	125	0.3	38,247	37,165	-1,082
Niger	1990	928	10	1,840	21	6,106	69	38	0.4	368,013	8,912	-359,101
Nigeria	1994	147,364	42	51,312	15	143,149	40	11,639	3	36,752	353,465	316,712
Senegal	1994	3,789	13	2,958	10	19,823	68	2,572	9	25,820	29,141	3,321
Togo	1995	1,307	4	3,278	9	31,705	86	410	1	11,408	36,701	25,292
Total		241,425	27	133,754	15	499,455	55	30,389	3	1,396,208	905,022	-491,186

Notes:

1. Gg in CO₂ equivalent; 2. Percentage of gross emissions; 3. Emissions from agriculture not reported.

Sources: Draft GHG Inventory of Benin, June 2001; Draft GHG Inventory of Burkina Faso, Republique de Burundi Premiere Communication Nationale, August 2001; Republique du Tchad Communication Nationale Initiale, August 2001; Communication Nationale Initiale de la Cote d'Ivoire, October 2000; Draft GHG Inventory of Gabon; Draft GHG Inventory of Gambia; National Communication of Ghana, May 2001; Guinea information supplied by regional consultant, October 2001; Communication Initiale du Mali, September 2002; Premiere Communication Nationale du Niger, November 2000; Draft GHG Inventory of Nigeria; Communication Initiale du Senegal, November 1997; Draft Communication Nationale Initiale (Togo), August 2000

20. On average, 55% of CO₂ (equivalent) emissions are from the LUCF sector for the countries in the region, with around two-thirds countries showing a carbon sink in the sector (Table 1). While some of these national inventories are not the official data reported to UNFCCC secretariat, nonetheless, they are used for this analysis as they represent the best estimates available. Given the importance of the LUCF sector in terms of CO₂ emissions and removals, countries wished to make LUCF the focus under this regional project. Some countries may also carry out a few project activities for other sectors; given the flexibility of this project, accommodation of national priorities is possible.

21. At the project development workshop in Benin, participants were introduced to key source analysis. Assessments were carried out both with, and without, the LUCF sector in the key source analysis (Annex T)⁴. Following recommendations from the NCSU Technical Advisory Panel, which includes experts from the IPCC GPG group, proponents decided that omitting the LUCF sector from the analysis would distort both regional and national priorities. IPCC GPG experts developing the LUCF guidance tested datasets provided from the region, and have found the key source approach to continue to be robust with the inclusion of the LUCF sector. Hence, this proposal is presented with the complete dataset from all sectors, as shown in Annex S.
22. A number of methodologies can be used to improve the LUCF estimates. The current GPG, which is cross-cutting in nature, can be readily applied to the LUCF sector without any additional modifications. The IPCC Special Report on Land Use, Land-Use Change and Forestry (IPCC, 2000) also contains a few methodologies relevant to data collection. Any new guidance that emerges from the IPCC specific to the sector (March 2003) can be folded in during the project implementation, where appropriate.
23. Linkages have also been initiated to ensure that this project complements the IPCC work programme. For instance, an IPCC representative attended the project development workshop and provided comments upon this proposal; a representative of the IPCC Task Force on National Greenhouse Gas Inventories is on the project's Technical Advisory Panel. Regional experts under this project have also been nominated for the IPCC work on GPG.
24. The choice of the land-use change and forestry sector was confirmed at the PDF B project finalisation workshop in Ghana, where 13 out of 14 countries identified forest and grassland conversion as the largest key source/sink, with enteric fermentation from livestock as the second most frequent key source (Annex S)⁵. Focusing on the reduction of the high uncertainties in the key sources of the LUCF sector, by improving the accuracy of calculations on the basis of enhanced activity data and conversion factors, will have the most significant improvement in the overall quality of the inventories.
25. When the LUCF sector is included, the four priority emission factors to improve at the regional or sub-regional level are, in descending order of priority:
 - Forest and Grassland Conversion (LUCF)
 - Enteric Fermentation in Domestic Livestock (Agriculture)
 - Mobile Combustion: Road Vehicles (Energy)
 - Rice cultivation (Agriculture)
26. Project activities will initially focus on the forest and grassland conversion sub-sector. However, the project will be most effective if it retains the flexibility to treat the LUCF sector as an integrated ecosystem. By improving on the LUCF sector, this project will also complement the pilot project being carried out in Europe and Commonwealth of Independent States (Europe/CIS) where the focus is in the energy and waste sectors.
27. Improvement of emission factors will be assessed in year two of the project (see Section C, Project Strategy). Developing emission factors for either enteric fermentation in domestic livestock or mobile combustion in road vehicles would be very difficult and potentially costly, as both sub-sectors are very case-specific. Similarly, consideration could only be given to developing a rice production emission factor after extrapolating the data from the ALGAS project in Asia. Rather, this project aims to identify existing emission factors under development elsewhere, thereby avoiding the carrying out of

⁴ Formal guidance on including the LUCF sector in key source analysis will be finalised in March 2003

⁵ According to the GPG, as the LUCF sector has been included in the analysis, the pre-determined threshold may need to be re-evaluated, because it was based on an evaluation of sources categories only.

primary research. Emphasis will be given to the quality and applicability of the emission factors through a process of reviews, documentation in conjunction with improved data collection procedures. However at the Ghana workshop, countries agreed to provide data on enteric fermentation in cattle to the US-EPA, who will have an emission factor estimate made under a project being carried out at International Livestock Research Institute (ILRI) in Ethiopia (see Annex X for survey).

A.5 Country ownership

28. *Country eligibility:* All countries that have ratified the UNFCCC, and are eligible for GEF funding through the financial mechanism of the convention, are eligible to participate in this project. However, submission of the Initial National Communication will be a prerequisite to participating in the full project. Eleven countries participating in this project have submitted their National Communications; the remaining three have final drafts and are expected to submit during the next few months (Table 2). If for some reason they do not, the three countries will only be allowed to undergo training under output 3 of this project. The rationale for their participation in the training is to ensure that they do not fall behind in the project. However, no additional funding from the regional project will be made available until their communications are submitted.

Table 2: Submission dates of National Communications

Countries	National Communication Submission (Actual or expected date)
Benin	22 October, 2002
Burkina Faso	16 May, 2002
Burundi	23 November 2001
Chad	29 October 2001
Cote d'Ivoire	2 February 2001
Gabon	2 nd quarter, 2003
Gambia	2 nd quarter, 2003
Ghana	2 May 2001
Guinea	28 October, 2002
Mali	13 November 2000
Niger	13 November 2000
Nigeria	2 nd quarter, 2003
Senegal	1 December 1997
Togo	20 December 2001

29. *Country driven-ness:* The value of a “bottom-up” approach to capacity building has been recognised by the NCSU and the UNDP-GEF. Participating countries have been actively involved in developing this proposal to encourage ownership, and regional consultants were used to enhance capacity. Countries have also been involved in follow-up activities from workshops, including compilation of data and information for the development of a regional emission factor for enteric fermentation for cattle.
30. During 1999-2000, NCSU activities for the West African region included four workshops on inventories, abatement and vulnerability and adaptation, and National Communications⁶. The recommendations from those workshops; in particular the *Thematic Workshop on Inventories* (19-21 January 1999, Nairobi, Kenya) and the *Regional Exchange Workshop on Preparation of National Communications* (25-26 April 2001, Dakar, Senegal) are addressed in this proposal.
31. The workshop recommendations include:

⁶ Workshop reports can be downloaded from the NCSU website at www.undp.org/cc/workshops1.htm

- centralising and circulating data and information;
- encouraging collaboration and exchange of data between institutions at the regional level;
- strengthening institutions for acquisition, storage and circulation of more complete and reliable data;
- improving reliability of data and emission factors, particularly for the LUCF and agriculture sectors; and
- building technical and institutional capacity.

32. The following outputs were achieved during the PDF phase of the project:

- 14 extensive questionnaires were submitted by countries that provide the underlying information for this project;
- 3 regional experts were hired to review the national GHG inventories and to provide technical backstopping to countries as they carried out the key source analysis;
- 14 national GHG inventories were assessed for overall quality and as background information to the project;
- a regional project initiation workshop was held on 16-18 October 2001 in Cotonou, Benin, to review and modify the project framework developed in the pilot project in the Europe/CIS region. Workshop participants included national inventory experts, project co-ordinators of climate change enabling activities, international and regional experts from non-Annex I Parties, and a representative of the IPCC-Technical Support Unit on GHG Inventories.
- a regional project finalisation workshop was held on 21-23 May 2002 in Accra, Ghana, to agree on implementation approaches under the full project and to review the outcomes of the IPCC Expert Meeting on LUCF GPG (12-14 March 2002, Eisenach, Germany) for further elaborating the LUCF methods. Workshop participants included national inventory experts, project co-ordinators of climate change enabling activities, international and regional experts from non-Annex I Parties, and a representative of the IPCC-Technical Support Unit on GHG Inventories.
- a regional consultation process was undertaken to finalise the project proposal;
- a first draft of the GPG training package underwent wide review in late 2002; the package will be completed by May-end June 2003 and tested in the region prior to publication (source guidance for the LUCF sector will be developed in parallel with the IPCC work) (Annex U).

A.6 Prior and ongoing assistance

33. *GEF*: All participating countries carried out GEF climate change enabling activities. Thirteen countries have also received additional GEF funding for Climate Change Enabling Activity Phase II Expedited Financing for (Interim) Measures for Capacity Building in Priority Areas on technology transfer, observing systems and emission factors. No duplication is envisaged between this project and the enabling activity top-ups.
34. *NCSU*: Technical assistance has been provided to participating countries through its Help Desk and through four regional workshops. Five countries have received technical reviews of their national GHG inventories and/or national communications: Burundi, Chad, Ghana, the Gambia, and Guinea.

35. Table 3 summarises both multilateral and bilateral funding received by countries for their studies.

Table 3: Prior and ongoing assistance provided to countries for inventory preparation (US\$)

Country	Global Environment Facility		Other
	Enabling Activity total	EA inventory	
Benin	200,145*	15,000	CC:Train
Burkina Faso	333,810*	30,000	--
Burundi	419,450*	65,000	--
Chad	178,250*	n.a.	CC:Train
Cote d'Ivoire	427,000*	88,000	US CSP
Gabon	419,450*	65,000	--
Gambia	237,900*	11,700	US CSP/UNEP
Ghana	194,760*	n.a.	UNDP
Guinea	432,690*	80,000	--
Mali	194,760*	n.a.	UNDP
Niger	445,600*	80,000	--
Nigeria	259,560	30,000	US CSP/UNEP
Senegal	167,100*	n.a.	UNEP
Togo	438,040*	78,000	--
<i>Note:</i>			
* Including \$100,000 for Climate Change Enabling Activities Phase II (top-up)			
-- = no other assistance provided; US CSP = US Country Studies Program; n.a. = figure not available			

B. PROJECT JUSTIFICATION

B.1 Problem(s) to be addressed and the present situation

36. For implementing commitments under the UNFCCC, participating countries will need to create *sustainable institutional and technical capacity*. The national GHG inventory is the cornerstone of the National Communication; most non-Annex I Party inventories have high uncertainties in activity data and emission factors and a number of activity data gaps⁷. More accurate inventories also enable participating countries to identify major sources and sinks of greenhouse gases with greater confidence, and thus to make more informed policy decisions with respect to appropriate response measures.
37. This project intends to build technical and institutional capacity to improve the quality of future national GHG inventories through a regional programmatic approach. The activities outlined in this project (Section E) build on the discussions and recommendations of NCSU thematic and regional workshops⁸,
38. Through active discussions in the regional workshops of the NCSU, current thinking among countries has evolved on how to improve national inventories in a cost-effective manner. While much of the previous discussion has centred on activity data and emission factors, there is a gradual realisation that the quality of inventories is the net result of a more complex process. The primary change in thinking is that a broader number of areas need to be looked into in order to move towards sustainable ways of preparing national GHG inventories. Developing national capacity for archiving and updating inventory data is critical to the sustainability of the inventory process.

⁷ FCCC/SBI/2000/15: Second Compilation and Synthesis Report of initial National Communications from Parties Not Included in Annex I to the Convention

⁸ Workshop reports are available on the NCSU website at www.undp.org/cc/workshops1.htm

39. The countries participating in this project need to create *sustainable institutional and technical capacity* for implementing their commitments under the UNFCCC. The national GHG inventory is the cornerstone of the National Communication. More accurate inventories will enable participating countries to identify major sources and sinks of GHGs with greater confidence, and thus to make more informed policy decisions with respect to appropriate response measures. This project will build upon the existing national institutional framework established under the enabling activities. Targeting institutions, rather than experts, will contribute to the sustainability of the project by creating a more permanent infrastructure. “Training of trainers” is another key output of the project.
40. The application of IPCC good practices can also strengthen national arrangements to make the inventory preparation process more sustainable in a cost-effective manner. The inventories of the participating countries contain high uncertainties, largely caused by the use of IPCC default emission and conversion factors and gaps in activity data. As explained in Section A.4, this project will focus on the LUCF sector and, in particular, forest and grassland conversion.
41. The LUCF sector requires a range of country-specific data not only for the inventory year, but also “historical” data. For most developing countries, the historical data is very tentative. The main gaps and constraints in GHG inventories for the LUCF sector are: limited applicability of default data and conversion factors; lack of complete and timely consistent data for specific sub-source categories; and failure to address regional forestry and land management practices with the default methodology.
42. Under the project, countries will identify suitable methods for identifying existing sources of activity data and extrapolating activity data and emission and conversion factors. Based on an analysis of the inventory data, it is clear that the main sources of uncertainty of the LUCF inventory arise from estimates of above ground carbon stocks (mostly dry and montane moist forest) and rates of forest conversion to pasture and cropland. Some of these data issues can be alleviated by the consistent application of the IPCC guidelines for classification of managed forests, and improved transparency and reporting to ensure that land areas are not double counted. Where IPCC default data are used to estimate annual increments in biomass stocks, and where national data are not available from ecological or permanent plots, allometric regression equations can be used to convert standard tree measurements to biomass. Such equations have the advantage of not being species specific, and can be readily applied to estimate biomass data, especially for moist and wet forests.
43. Finally, the investment in institutional and technical capacity building will have benefits beyond national GHG inventories. For example, the LUCF sector is closely linked to the issue of sustainable development of natural resources. Developing goals for sustainable development of natural resources requires information about the current state of the resource, trajectories of possible future changes in the resource, and potential ways to manage the resource to reach a desired outcome. A national GHG inventory can provide this information.
44. For example, the inventory provides data on the current resource, as well as information to identify activities that are reducing or increasing carbon stocks and thus degrading or enhancing the state of resources. Producing a GHG inventory for the LUCF sector provides information for developing baselines and helps in developing appropriate land management practices. Inventories can also be used to develop indicators of sustainable management. For example, one indication of the sustainability of LUCF resources is changes in carbon stocks on land. A carbon source from forests implies that timber removals and damage exceed regrowth and the forest is degrading, whereas carbon sinks imply the forest is being used more sustainably. By measuring indicators, it is possible to assess the effects of intervention and attainment of goals.

B.2 Expected end-of-project situation

45. The project will use a flexible approach over its three-year lifetime to respond to the evolving needs of countries. The project will focus on preparing a “pilot” inventory for the LUCF sector; that is, an inventory consisting of 3-4 key sources. National arrangements will be strengthened so that, as a result of this project, GHG inventories for future National Communications will be compiled in a sustainable manner and the inventories will be of a higher quality than those prepared for the Initial National Communications⁹. In particular, the following outputs will be obtained:
46. *Inventory quality improved:* The project will use a flexible, programmatic approach over its three-year lifetime to respond to the evolving needs of countries. As a result of this project, GHG inventories for future National Communications will be compiled in a sustainable manner; the inventories will be of a higher quality than those prepared for the Initial National Communications.
47. *Institutional framework for inventory preparation strengthened:* Several activities have been identified under Immediate Objective 2 to ensure that the inventory process can become permanent. One activity relates to strengthening relations with national Ministries to ensure that countries are proactive in creating new relations within government, particularly for “win win” joint activities such as utilising inventory data for other national activities. An awareness-raising campaign will be developed under the project in English and French. The campaign will promote the importance of an institutionalised inventory process beyond the national GHG inventories to policymakers, particularly for “win win” joint activities such as utilising inventory data for other national activities and linking LUCF results to national sustainable development planning. Outreach activities to potential donors are also proposed.
48. *Long-term strategies to improve inventories developed:* Using the procedures outlined in the GPG, countries will create quality assurance and quality control plans, along with a prioritised, long-term strategy for improving inventory quality over the short and long-term.
49. *Regional and international information exchange network established:* A regional database of national inventory experts and institutions will be compiled, and a web site established to enhance exchange of data and information. Country solutions will be compiled and disseminated within the region, and to the Europe/CIS pilot region to allow countries to benefit as quickly as possible from the lessons learned. Linkages to regional and international activities will be established through a Technical Advisory Panel.
50. *Data collection systems and management improved:* For the selected key sources, activity data gaps will be reduced and data collection strategies will be improved. The national arrangements for collecting, managing and archiving data in each country will be documented and described for a given sector of the national inventory. National arrangements for data collection and application of inventory methods will be archived so that the inventory can be updated on a regularly basis, as required under Article 4.1a of the UNFCCC. Issues to be addressed are likely to include: interagency co-ordination for the collection, management, archiving and quality control of national data, interagency mandates, roles and responsibilities for inventory preparation; peer review of the national data; state legislation for data collection. A preliminary analysis of the national institutional arrangements is described in Annex X. These national arrangements will be reviewed by national climate teams during the development of their national workplans, in liaison with the regional Project Manager, during the start-up phase of project implementation.

⁹ In the UNFCCC Third Compilation and Synthesis Report of Initial National Communications of non-Annex I Parties, it was reported that where national GHG inventories were prepared and reported for several year(s) in addition to the originally submitted inventory for the base year, the completeness, transparency and quality improved. This suggests that there is some scope for encouraging the preparation of inventories on a continual basis.

51. *Emission factors improved and disseminated:* Assumptions and methods for emission factors will be documented to increase their reliability and up to three regional emission factors in the LUCF and agriculture sectors will be improved to reflect appropriate regional circumstances. ILRI in Ethiopia will be invited to one regional workshop to explain the development of a regional emission factor based on the enteric fermentation data supplied by countries participating in this project (Annex X). As explained later in this proposal (see Objective 4), this proposal aims to review existing emission data. Wide distribution of the results will elaborate new data and factors applicable for majority of countries in the region. The emission factors will also be disseminated through the IPCC emission factor database. However, no new methods for estimating emission factors will be developed under this project.
52. *Number of trained experts increased:* Two training workshops in IPCC GPG will be held under the project; one during the start-up phase on incorporating GPG procedures into national arrangements and one in the third year on quality assurance and quality control procedures. Two national experts from each country will attend these workshops. These experts will then become trainers for their national teams. Eight to 10 inventory experts will be trained at the national level in this way. Additional training in the IPCC 1996 *Revised Guidelines* for the LUCF sector may be required to ensure that national activities are harmonised and comparable. Some training needs may also be identified prior to the commencement of activities on developing emission factors. Finally, the project will also seek to include national experts in the elaboration of the IPCC GPG for the LUCF sector. Participation in this IPCC work will help promote to development of a methodology that will address the needs of the region. It will also help train regional specialists in improved approaches for accounting for sectoral emissions and sinks.
53. *Stakeholder awareness raised:* An awareness-raising campaign will be developed under the project and translated in English and French. The campaign will promote the importance of an institutionalised inventory process beyond the national GHG inventories to policymakers. For example, as explained earlier, there are multiple benefits of data collection and emission factor development, such as in sustainable development of natural resources. Other stakeholders will also be targeted. For example, national biomass studies form a valuable source of data for the LUCF inventory, yet this type of study is generally not initiated under climate change activities because of the difficulties and cost involved¹⁰. Therefore, the campaign could identify international databases containing biomass information, or other users of national biomass studies, e.g. land use planning departments, Ministries of Energy, as collaborators, in order to stress the importance of such studies at the national and international level.
54. *Technical peer review system established:* To develop capacity, every country will conduct a peer review of the “key source inventory”¹¹ of another participating country. The key source inventories might also be presented at regional workshops for additional comments from regional and external experts. Other aspects of the peer review mechanism will be finalised under the full project.

B.3 Stakeholder participation

55. Several mechanisms have been built into the project to ensure maximum stakeholder participation which are outlined in Section E. These include workshops, project steering committees, an awareness-raising campaign targeting policy-makers and data providers, the establishment of a regional exchange information network, and linkages to the international expert and donor communities.

¹⁰ Lammers, P.E.M., A.A. Olsthoorn and J.F. Feenstra (1996). Country/Region-Specific Emission Factors in National Greenhouse Gas Inventories, IVM-E96/08, UNEP, Nairobi, Kenya.

¹¹ That is, an inventory for 3-4 key sources only.

56. *National inventory team:* As described earlier, national experts have been fully involved in the development of this project. These experts will be trained in GPG and form a core part of the team to carry out project activities. The national inventory team leader will act as the national co-ordinator for this project. National sectoral experts and representatives of national stakeholder institutions who worked on the first national GHG inventory will also be involved through institutional sub-contracts or, in select cases, through personal contracts with experts. In this way, the project will build upon existing technical capacity.
57. *Lead national institution:* All countries have identified a lead agency for inventory preparation (Annex O). This arrangement will help to build institutional capacity and to ensure that the process established here is sustainable beyond the lifetime of the project.
58. *National institutions:* Each country has identified institutions from which inventory experts can be drawn, building on the existing framework established under the enabling activity (Annex O). Awareness-raising activities targeting these institutions will help strengthen the inventory preparation framework. Active input from these institutions will be sought throughout the project cycle.
59. *National project steering committee:* To raise awareness and enhance co-operation with data provision agencies and policy-makers, each country will establish a national project steering committee. Ideally, this committee would be the National Climate Committee established for the enabling activities where this body or one of its subcommittees serves as the Project Steering Committee. The committee will comprise the National Project Co-ordinator of the climate change enabling activity, the National Inventory Team Leader, a UNDP Country Office staff member, and representatives of appropriate government Ministries and data provision agencies, including the private sector.
60. *Regional and international outreach:* The regional project steering committee will include representatives of the UNDP-GEF and NCSU and the Executing Agency. A Technical Advisory Panel will also be established with representatives of the UNFCCC, the IPCC Inventory Task Force Bureau, and appropriate Annex I and non-Annex I experts to encourage international and in-house linkages to appropriate projects, e.g. the Capacity Development Initiative. Outreach will be sought with other relevant regional activities and institutions. For example, ENDA attended the project development workshop in Benin so that linkages could be identified. Linkages to Annex I Parties have also been built into the project framework. These Parties include economies in transition, which can provide examples of appropriate regional approaches, and other Parties, which can provide in-kind expertise or financial support.

C. PROJECT STRATEGY

61. The goal of this project is to build on the inventory work undertaken for first National Communications in preparation for Second National Communications. Technical and institutional capacity will be sustained. As a result of this regional inventory project, GHG inventories prepared under enabling activities for subsequent National Communications will be of a higher quality than those prepared for the initial national communications.
62. The project framework is based upon the design developed in a pilot project in the Europe/CIS region. The Project Planning Matrix (Annex J) was modified during the Project Initiation Workshop in Cotonou, Benin, on 16-18 October 2001. The key differences between the two projects are that the LUCF sector will be the priority sector for West and Central Africa (rather than energy) and that additional training needs in the use of *IPCC 1996 Revised Guidelines* have been identified. The approach, while regional in design, is flexible enough to meet national needs. That is, aside from certain common activities, countries are free to choose to participate in some or all of the remaining

project activities, consistent with national priorities. This gives countries the opportunity to focus allocation of resources on national arrangements (Output 1) or emission factors (Output 4), as appropriate.

63. In the start-up phase of the project (2-3 months), national teams will have training in the IPCC's good practice guidance for inventory preparation. This training will consist of reinforcing the notions of prioritising improvements to the inventory based upon key source analysis, identifying appropriate methods for estimating emissions in the LUCF sector. This training will provide the basis for creating a sustainable institutional framework; countries will develop long-term national strategies to improve inventory preparation and identify the national institutions and organisations to be targeted for long-term involvement in the inventory process. Additional training in the IPCC *1996 Revised Guidelines* for the LUCF sector may be required. A regional website, expert database and information exchange network will be established for information dissemination.
64. For the remainder of year one, countries will focus on strengthening national arrangements for compiling, archiving, updating and managing GHG inventories. In particular, countries will improve their data collection strategies and identify methods for reducing data gaps. The rationale for commencing these activities prior to beginning any work on emission factors is that improved activity data can often improve emission estimates sufficiently that the need for a new emission factor is reduced. The selection processes will be described and documented. A regional workshop will be held to exchange experiences on overcoming barriers to obtaining data and overcoming data gaps. The results will be compiled into a best practices document that will be disseminated to all countries.
65. In the second year, countries will begin to undertake activities on improving emission factors and methods. The first step will be to improve the reliability of existing emission factors by documenting the selection processes, methods and assumptions. Any existing national emission factors and methods for estimating emission factors will be disseminated within the region. Countries will begin to improve up to three emission factors that have been identified as regional priorities. The emission factors selected for improvement will be assessed at the end of the first year of the project. Sub-regional workshops will be held to ensure that the approaches are harmonised. No country will work on the development of every emission factor; the results will be shared between countries using the regional exchange network.
66. At the regional level in the second year, an awareness-raising package will be developed. There will be two audiences for the package. Firstly, national policy-makers and data providers will be targeted, to strengthen government and institutional support for inventory procedures. Secondly, donors who could assist in financing regional activities after the end of this project. Relations with regional and sub-regional institutions will also be strengthened as part of the outreach activities. Results will also be exchanged with the Europe/CIS pilot project. A side-event at the UNFCCC Conference of the Parties in 2004 will be held to disseminate the interim results of the project.
67. In the third year, each country will prepare a pilot inventory. A regional peer review system will be established in which each country reviews the pilot inventory of another country¹². Countries will also establish formal processes for the national review of inventories.
68. In the last quarter of the project, there will be a GPG training workshop in quality analysis and quality control (QA/QC) procedures. Countries will develop QA/QC plans that can be put into place for Second National Communications. Countries will also archive all activity data and emission factors

¹² That is, an inventory of 3-4 key sources in the LUCF sub-sectors.

obtained under the project and develop a manual of procedures for preparing a national GHG inventory. This manual is essentially the national blueprint for the inventory.

69. During Second National Communications, the project strategy can be replicated for the sectors of the inventory, which are not covered under regional project. Particular attention will be paid to those activities under Immediate Objective 1. For example, under this objective, the national arrangements for compiling, archiving and updating the land-use change and forestry inventory may be strengthened. The proposals for second enabling activities require that relevant prior and on-going projects are clearly documented. If analysis for a given sector is already funded by the regional project, it would not be repeated under an enabling activity for Second National Communication. It would be the responsibility of the Implementing Agency to ensure that the GEF principle of non-duplication was strictly applied.

D. DEVELOPMENT OBJECTIVE

70. The overall objective of this project is to build technical and institutional capacity to enable a significant number of countries to improve the quality of activity data and emission factor inputs to their national GHG inventories in the context of National Communications. The main constraints for estimating GHG emissions are that: IPCC default activity data may not address regional practices; the low accuracy of default data and emission and conversion factors for some sectors; and high costs for improvement of some country-specific activity data and emission and conversion factors.

E. IMMEDIATE OBJECTIVES, OUTPUTS AND ACTIVITIES

E.1 Immediate objectives, outputs and activities

Immediate Objective 1: Strengthened national arrangements for compiling, archiving, updating, and managing greenhouse gas inventories

71. No countries participating in this project have permanent inventory systems in place. Under this component, countries will begin a systematic approach to strengthening national arrangements, incorporating GPG principles. Countries will focus on key source categories, according to national priorities. Outputs 1.1 to 1.3 are national activities, Output 1.4 has regional and national activities. Some of the significant outputs from this component will be: 1) compilation document of country solutions to overcoming barriers to data collection, 2) application of GPG methods to document and describe inventory system, and 3) establishment of a regional information exchange network and web site.

Output 1.1: Data collection strategy improved¹³

72. This output focuses on activity data gaps for which data exists, but for which there are barriers to collection. Using a top-down approach, the strategy is to first identify available data sources at the international and regional levels. If national data exists that was not utilised for the Initial National Communication, countries will then identify barriers to its collection and solutions for obtaining this data.

Activities:

- 1.1.1 Identify data gaps
- 1.1.2 Identify sources of available data from prior and ongoing international and regional projects (e.g. from EU, World Bank, FAO, OECD, IEA, other bilateral donors)
- 1.1.3 Identify prior and ongoing national sources of data, e.g. Forestry Department, Ministry of

¹³ Data collection will be a national activity not funded under this project.

- Environment, and other agencies
- 1.1.4 Identify barriers to obtaining available data in key source categories
- 1.1.5 Compile the practices (country solutions) to overcoming barriers in one document to be distributed to all participating countries
- 1.1.6 Utilise practices (country solutions) to overcoming barriers
- 1.1.7 Check conversion of units and validate data compiled

Output 1.2: Activity data gaps reduced

73. This output focuses on compilation of activity data where available sources cannot be identified. Various approaches and methods for extrapolating the data will be considered.

Activities:

- 1.2.1 Identify data that must be compiled/developed to fill gaps
- 1.2.2 Identify the most appropriate methods and approaches to overcome data gaps and to facilitate the generation of new data, using GPG (e.g. compare inventories across years in order to identify trends in emissions and removals, use interpolation/extrapolation methods, etc.)
- 1.2.3 Compile the practices/methods (country solutions) for overcoming data gaps in one document (with Activity 1.1.5) to be distributed to all participating countries
- 1.2.4 Check conversion of units and validate data compiled
- 1.2.5 Identify international assistance for implementing inter-regional studies to derive activity data

Output 1.3: Inventory system documented and described

74. Documentation for this output will be prepared throughout the project lifetime in conjunction with activities under Outputs 1.1, 1.2, 4.1 and 4.2. Activities 1.3.5 and 1.3.6 will be undertaken in the project finalisation phase. Documents may be translated between French and English for dissemination as training tools if deemed appropriate.

Activities:

- 1.3.1 Archive (i.e., compile and store) relevant national data (e.g., activity data, emission factors, conversion factors, etc.) for several years
- 1.3.2 Document the major sources of national activity data and emission/conversion factors
- 1.3.3 Document the selection process of national activity data and related parameters used in inventory preparation process
- 1.3.4 Document methodologies and data assumptions used
- 1.3.5 Document the data collection methods of data providers
- 1.3.6 Elaborate a manual of procedures to prepare the inventory
- 1.3.7 Identify needs in legislation and compliance measures for data collection and interagency co-ordination
- 1.3.8 Establish a formal process for review of the GHG inventory at the national level

Output 1.4: Regional information exchange network established

75. The regional information exchange network will be critical to the project's success, allowing improved information flow on national experiences to overcoming barriers to data collection, as well as exchange of emission factors, local methods, and activity data. This will also ensure that both successes and failures ("lessons learned") can be quickly disseminated. The information exchange may serve for improving activity data and default conversion factors and collecting additional (missing) information. It can also contribute to the elaboration of unique activity data and factors applicable for all countries in the region. Links to other international and regional efforts on data collection and emission factors will be established, e.g. the IPCC Emission Factor Database. Three regional exchange workshops will be held. The first will focus on institutional aspects of data collection under Outputs 1.1-1.2, and will also

consider the need for GIS mapping and analysis of GIS data. The second will be a regional exchange workshop to review the results of improved data collection and to commence activities on emission factors (Outputs 4.1 and 4.2). There will also be a project finalisation workshop to present all the outputs. The regional peer review mechanism is a capacity-building exercise whereby each country will prepare a pilot inventory that is technically reviewed by another country within the region.

Activities:

- 1.4.1 Establish regional website and identify ways to make the site sustainable
- 1.4.2 Create a regional database of national inventory experts and regional institutions
- 1.4.3 Exchange regional and international information on inventories, activities and investigations performed within the region to elaborate (derive) emission and conversion factors and derive lacking activity data
- 1.4.4 Collect and archive information on inventories and research undertaken in the region
- 1.4.5 Create technical peer review mechanism

Immediate Objective 2: Sustainable Institutional Framework Created

- 76. Countries will develop long-term national strategies for improving inventories and enhancing sustainability of the institutional framework, and identify or establish a unit responsible for inventory preparation. The Regional Project Manager will design an awareness-raising campaign to successfully engage policymakers and data providers to understand 1) the importance of data collection for national commitments under the UNFCCC, 2) the benefits of institutionalising the inventory process, and 3) the multiple benefits of data collection and emission factor development, beyond national GHG inventories. The regional campaign will be modified for national circumstances. Given the crucial role of this activity, a media/public relations consultant will assist with the campaign. A side-event at COP-10 for Ministers is also planned under the campaign. In addition, a specific national activity (2.1.4) is proposed to ensure that countries are proactive in outreach within government, particularly for “win win” joint activities such as utilising inventory data for other national activities and linking LUCF results to national sustainable development planning. Potential donors will be identified to mitigate against the risk of the awareness-raising campaign failing.
- 77. All the activities under Immediate Objective 2 will be carried out in conjunction with all countries.

Output 2.1 Sustainable institutional framework created

Activities:

- 2.1.1 Develop a long-term national strategy to improve inventory preparation (e.g. interagency co-operation and collaboration, training, etc.)
- 2.1.2 Identify and/or establish a unit responsible for inventory preparation on a sustainable basis
- 2.1.3 Carry out awareness-raising campaign targeting policy-makers and other stakeholders on importance and benefits of data collection, inventory quality, and reporting obligations to the UNFCCC
- 2.1.4 Identify and strengthen relations with national institutions and Ministries
- 2.1.5 Identify appropriate financing e.g. multilateral, bilateral, private sector (for the end-of-project)
- 2.1.6 Identify and strengthen relations with regional and sub-regional institutions (e.g. Environnement et développement du tiers-monde; Comité permanent Inter-états pour la lutte contre la sécheresse dans le Sahel; Economic Community Of West African States; Communauté Économique et Monétaire de l'Afrique Centrale)

Immediate Objective 3: Enhanced technical capacity for preparing national inventories

78. It is envisaged that, at the end of the project, technical capacity in the region will be substantially improved. In the interim, the NCSU and a Technical Advisory Panel will provide a major role in technical backstopping under this component, as well as providing linkages to international activities.
79. All the activities under Outputs 3.1 and 3.2 will be carried out in conjunction with all countries.

Output 3.1: Number of qualified national inventory experts increased

80. The *IPCC 1996 Revised Guidelines for National Greenhouse Gas Inventories* and the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* have been disseminated through the NCSU network to all countries participating in this project. An integrated training package will be finalised by the full project start-up (Annex U) and translated into French. The two national experts who assume the role of trainers for their national teams will use this package. Eight to 10 inventory experts will be trained at the national level in this way.

Activities:

- 3.1.1 Train (trainers) in IPCC Good Practice applications
- 3.1.2 Ensure participation of regional experts in IPCC activities
- 3.1.3 Distribute supporting materials¹⁴ and education kits

Output 3.2: IPCC Good Practice applied

81. All countries participating in the project will undertake the activities under this output. While activities 3.2.1 and 3.2.2 have been carried out under the PDF B, they are included here, as they are essential to the programmatic approach that has been developed. Activities 3.2.3 and 3.2.4 will take place during the project start-up phase. One regional training workshop will be held during the project finalisation phase under activity 3.2.5 to develop the quality analysis and quality control plan and to train experts in GPG for reporting uncertainties.

Activities:

- 3.2.1 Key sources identified through Tier 1 Assessment
- 3.2.2 Comparison of key source-specific assessments
- 3.2.3 Identify appropriate methods source by source, using GPG decision trees
- 3.2.4 Identify areas where recalculations are necessary, and plan strategy to ensure consistency
- 3.2.5 Prepare quality assurance and quality control plan

Immediate Objective 4: Improved emission factors and methods

82. Countries will first exchange and review local methodologies and approaches for estimating emission factors. Up to three sub-regional workshops to improve regional and/or sub-regional emission factors will be held, as outlined in Section A. There will be close liaison with the IPCC Expert Group that is working on the LUCF GPG. Emission factors will be improved using methods consistent with IPCC guidelines. (It is not anticipated that any new methods for estimating emission factors will be developed under this project.) Training workshops will be held as part of this development process.
83. The actual approaches for improving the emission factors will be finalised in the first year of the project, once activities on national arrangements are well underway. It will be critical that countries harmonise their approaches to allow inter-country comparisons – therefore, these approaches will be agreed at the first emission factor workshop planned for the fifth quarter. Results will be presented during the project finalisation workshop (under Output 1.4).

¹⁴ Developed within this project and/or already available at different international organisations

84. National emission factors (e.g. fugitive emissions from gas flaring, Nigeria; savannah burning and carbonisation, Côte d'Ivoire; burning of plastic waste and for incineration of biomedical waste, Benin) will be reviewed for feasibility as regional emission factors. All outputs will be disseminated through the regional information exchange network.

Output 4.1: Methodologies to estimate emission factors improved, using appropriate approaches

Activities:

- 4.1.1 Compile and harmonise local methodologies/approaches used for estimating emission factors
- 4.1.2 Disseminate harmonised local methodologies/approaches (compiled under Activity 4.1.1) within region and externally (e.g. IPCC emission factor database), consistent with IPCC guidelines and standard units
- 4.1.3 Assess the suitability of disseminated methodologies for use at national level, applying GPG

Output 4.2: Improved emission factors for key sources

Activities:

- 4.2.1 Compile and disseminate local emission factors within region
- 4.2.2 Assess the suitability of the disseminated emission factors for use at the national level, applying GPG
- 4.2.3 Improve links to international emission factor databases (e.g. IPCC emission factor database, International Energy Agency)
- 4.2.4 Prioritise emission factors to be improved, using GPG tools such as “sensitivity analysis”
- 4.2.5 Improve 3-4 emission factors that are significant on a regional or sub-regional level (based on key source analysis), consistent with IPCC guidance on methodologies

Output 4.3: Increased reliability of emission factors

Activities:

- 4.3.1 Document the selection process of emission factors and other conversion factors used in inventory preparation process
- 4.3.2 Document the methodologies and assumptions used

F. RISKS AND SUSTAINABILITY

85. *Risks:* The main risk of this project is that governments will not have funds to sustain the national arrangements, inventory team and regional information exchange network once the project ends. One assumption is that the activities undertaken in Immediate Objective 2 will sufficiently mitigate this risk, along with the gains obtained from applying GPG. These activities include:

- *Awareness-raising campaign:* The Regional Project Manager will produce a regional campaign to successfully engage policymakers and data providers to understand 1) the importance of data collection for national commitments under the UNFCCC, 2) the benefits of institutionalising the inventory process, and 3) the multiple benefits of data collection and emission factor development, beyond national GHG inventories. A component of the campaign will allow countries can make modifications to reflect national circumstances. Given the crucial role of this activity, a media/public relations consultant will assist with the campaign, which will be translated into national languages to maximise dissemination potential. A side-event at COP-10 for Ministers is also proposed.
- *Outreach to potential donors:* Linkages to Annex I Parties will be developed to learn from their experiences on overcoming barriers. Assumption that continued economic growth and therefore increasing emissions.

- *GPG*: will improve procedures for compiling, archiving, managing and updating activity data in the most cost-effective manner. The inventory will be documented and validated; national arrangements will be strengthened.
86. *Sustainability*: A prerequisite for the national experts hired under this project will be involvement in the preparation of the inventory for the first National Communication. This ensures that this project builds on past experience. Countries will train 8-10 additional experts at the national level within the lifetime of the project¹⁵.
 87. Countries will contract appropriate national institutions to carry out the project activities. This will help mitigate against the loss of inventory experts by creating a more permanent infrastructure while laying the basis for sustainable institutional practices once the project has ended. At the project development workshop, countries were strongly committed to identifying or establishing national units to be responsible for inventory preparation on a sustainable basis.
 88. The documentation and description of national arrangements is an essential output for ensuring sustainability of procedures should personnel change. The lead national institution will develop a long-term in-country programme for improving the national inventory and elaborate a quality assurance and quality control plan; these documents also provide countries with a blueprint for future work.
 89. If financial resources are not made available at the end of the project to sustain the Regional Exchange Network, the website could be hosted by either the NCSU or the UNDP SURF based in Dakar. The SURF will play a key role in disseminating emerging best practices through UNDP's global information network.
 90. *Replicability*: As explained under Project Strategy, the Project Planning Matrix reflects a regional approach that can be applied to any region, subject to consideration of sector-specific issues and modifications to reflect regional circumstances.
 91. One important project output is the compilation of national solutions for overcoming barriers to data collection and emission factor improvement and development. These "lessons learned" will be disseminated through the regional information exchange network, along with other successes and failures. Many of the issues that the region faces in the context of inventory preparation will also be of interest to other non-Annex I Parties. Many of the issues that the region faces in the context of inventory preparation will also be of interest to other non-Annex I Parties. Therefore dissemination of results through the UNDP/NCSU global network of climate change teams, the UNDP SURF based in Dakar, and to other international arenas, will be encouraged.

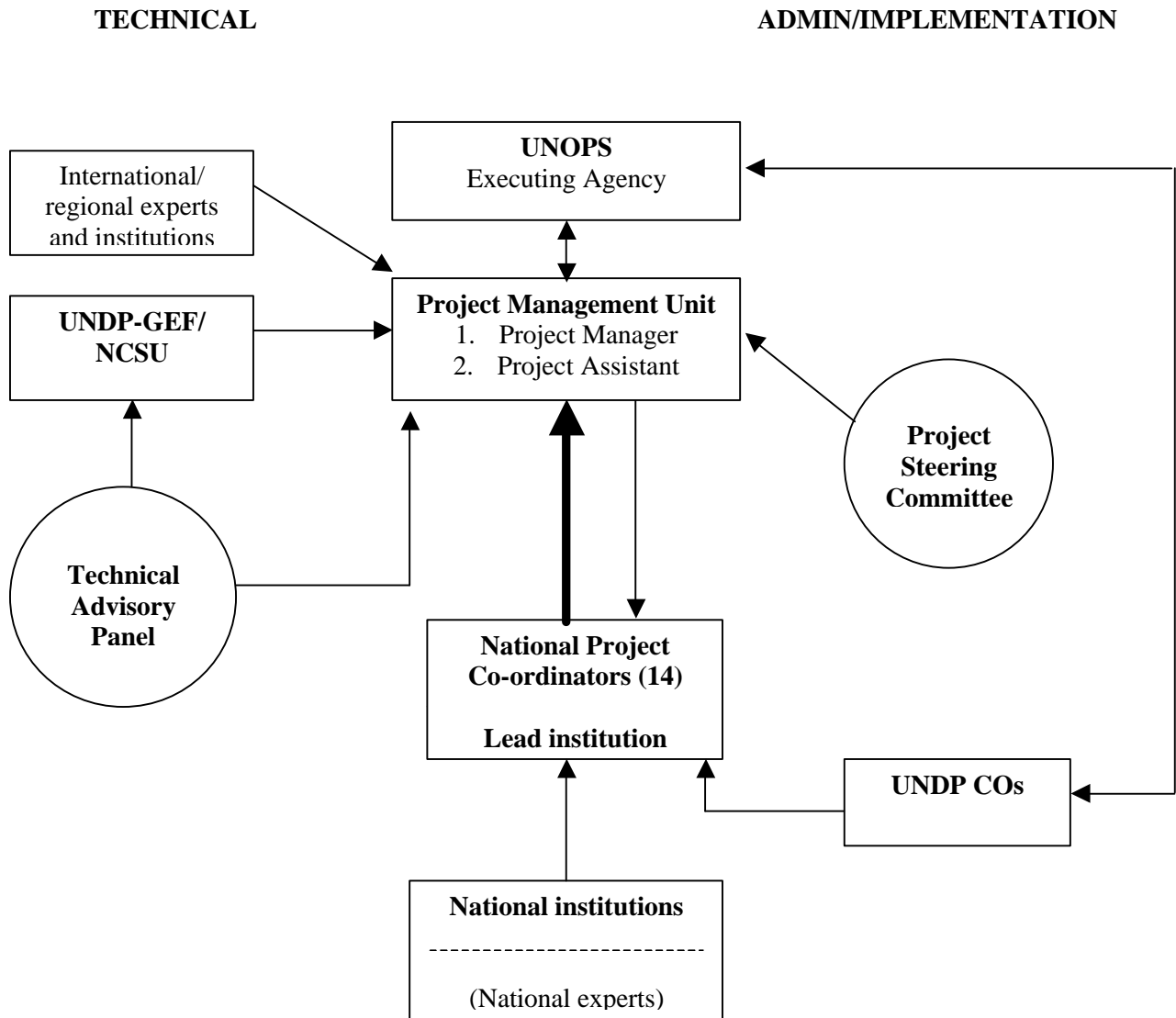
G. INSTITUTIONAL ARRANGEMENTS

92. During the project development, countries supported a decentralised structure in order to maximise national capacity development. There was minimal support for establishing a regional centre of excellence, although the use of regional experts was requested where possible. Figure 1 is an indicative organisational chart of the institutional arrangements, which are elaborated below.
93. UNDP will serve as the GEF Implementing Agency to strengthen and develop linkages with other relevant projects, such as enabling activities, the Europe & CIS sister project, and the Capacity Development Initiative. In particular, the NCSU, which is currently located at UNDP-GEF in New York, will effectively continue to provide implementation support to the countries of the region and

¹⁵ Ideally, this would be funded under the second CCEA, but otherwise under this project.

will help disseminate project results to other regions, as appropriate. UNOPS will serve as the Executing Agency. There will be no lead UNDP Country Office.

Figure 3: Indicative organisational chart of project implementation arrangements



International level

94. A Technical Advisory Panel will have supervisory, technical and quality control roles (terms of reference, Annex T). The Panel will be co-ordinated by the NCSU and will include representatives from appropriate regional and international bodies (e.g. IPCC National Greenhouse Gas Inventories Programme Technical Support Unit, UNFCCC, ENDA), along with 2-3 regional and/or international experts.

Regional level

95. A Regional Co-ordination Unit (RCU) will be established to implement the Project on a day-by-day basis and to ensure that the expected outputs are completed on time. The Unit will be based in Dakar, Senegal. The RCU will provide professional guidance to both project stakeholders and governments during the

period of execution. The RCU will be composed of one full-time Project Manager (PM) and one full-time Program Assistant. The PM will be hired through an international and transparent process, according to UN rules and regulations. As the PM is crucial to the success of this project, the NCSU will supervise the Manager and will be consulted during the hiring process. The PM will hire his/her program assistant, subject to the approval of UNOPS.

96. All staff contracts will terminate at the end of the project unless non-GEF funds are found. There will be no contract extensions using GEF funds under any circumstances.
97. The PM will hire international and regional consultants as needed to provide technical assistance for the duration of the project. Consultants recruited under the project will report to the PM, as specified in their Terms of Reference. Regional institutions will be identified that can provide technical assistance, training, information dissemination and networking. The NCSU will also play an important role in technical backstopping, particularly on GPG and training activities.
98. If the project assistant has an information technology (IT) background, he/she will maintain the Regional Information Exchange Network. Alternatively, an IT consultant will be contracted on an ad hoc basis to oversee the regional networking activities and website construction and maintenance.
99. A Project Steering Committee (PSC) will be established to oversee project execution (Terms of Reference, Annex T). One key role of the PSC will be to encourage linkages to appropriate international, regional and in-house projects, e.g. the Capacity Development Initiative. Regional/local NGO communities and private companies will be invited to participate to discuss policy or technical issues as these arise during project implementation. The PSC will consist of the following members:
 - A UNDP-GEF representative (NCSU or UNDP-GEF regional co-ordinator for West Africa);
 - Project Manager;
 - Executing Agency representative;
 - donor representatives, where appropriate;
 - three to five national project co-ordinators.The national representatives to the Project Steering Committee could change on an annual rotating basis or, for continuity, might be elected for the three-year term of the project. Countries will make a decision on this matter at the end of the first year of the project.

National level

100. Within each country, a national focal point will be designated to supervise the project. One prerequisite is that the expert must have been substantially involved in preparing the inventory for the First National Communication. It is envisaged that this person will be either the national inventory team leader or the project co-ordinator of the climate change enabling activity (CCEA), and based at the national institution that was responsible for the preparation of the initial National Communication. Within this project document, this focal point position is referred to as the National Inventory Team Leader.
101. The national inventory team leader will be responsible for overseeing the execution of national project activities, reporting on national project activities to the regional Project Manager. He/she will ensure that there are linkages between this project's outputs and other relevant national projects, particularly the climate change enabling activities (top-ups, second National Communication). He/she will also be responsible for outreach and co-ordination activities with government institutions and Ministries, universities and other relevant stakeholders. Draft terms of reference can be found in Annex T; these may be refined by each participating country to appropriately reflect national circumstances. The managerial duties of the national inventory team leader are estimated at 140 working days in total. The technical and supervisory aspects are estimated at 120 working days in total.

102. Where the national inventory team leader is funded from the enabling activity, he/she cannot hold a full-time contract under the top-up and/or Second National Communication and hold a part-time contract under the regional project. In these cases, the national inventory team leader would be hired part-time to manage the regional project¹⁶. It is assumed that the CCEA project co-ordinator would be hired full-time under the top-up, Second National Communications, or the National Adaptation Plans of Action (NAPAs). If this is not the case, the project co-ordinator may choose to assume the role of national inventory team leader for the regional project¹⁶ as long as he/she can carry out the technical activities.
103. Where government funds the CCEA project co-ordinator, countries can divide the duties outlined in the Terms of Reference (Annex T), according to their needs. That is, the CCEA project co-ordinator may carry out the managerial duties of the regional project as an in-kind contribution to the project, while the national inventory team leader carries out the technical and supervisory duties. However, if the CCEA project co-ordinator has severe time constraints, it may be preferable to delegate full responsibility to the national inventory team leader to manage the regional project. In either case, it is expected that the national inventory team leader and the CCEA project co-ordinator will ensure close co-ordination between all enabling activity projects.
104. No project staff can be simultaneously employed by government, in line with UNDP rules and regulations.
105. Each national inventory team leader will identify national institutions to carry out project activities, according to the national workplans and conforming to national priorities, in consultation with the regional Project Manager. Ideally, these institutions should employ experts who worked on the first national GHG inventory to build upon existing technical capacity. UNOPS will contract the national institutions (individual institutions, agencies, universities, NGOs, or other recognised legal entities). In select cases, specific national experts may carry out project activities. The regional Project Manager, if requested by the country, can review Terms of Reference for the national institutions. The national inventory team leader will be responsible for ensuring the quality and timeliness of the project outputs, and for reporting these outputs to the regional Project Manager. Additional external technical assistance from regional and international experts can be requested through the Project Manager.
106. The national inventory team leader will also identify one national expert to participate in the peer review of the key source inventories to be carried out under Activity 3.2.6. The regional Project Manager will develop the mechanism of review and appropriate Terms of Reference.
107. In each country, a national Project Steering Committee will be created that includes the CCEA Project Co-ordinator, the National Inventory Team Leader, and a UNDP Country Office staff member. Ideally, the National Climate Committee that was established for the first National Communication should take this role to ensure that appropriate outreach occurs under Output 2.1. The Committee should include representatives drawn from appropriate government Ministries and other data providers, such as the private sector (see Annex O for potential committee members).
108. Opportunities are available for the UNDP Country Office environmental focal point or programme officer backstopping on this project to be active in certain national activities that would benefit from UNDP's expertise. In particular, the UNDP could advise on the awareness raising and institutional strengthening activities under Output 2.1. Opportunities also exist for assisting with Activities 1.1.2 (identifying available data from international and regional projects), 1.2.5 (identifying international

¹⁶ The national inventory team leader can still be hired part-time to oversee the inventory preparation for the Second National Communication, as long as the total sum of his or her time does not exceed 100%.

assistance for implementing inter-regional studies), and 1.4.3 (regional and international exchange of information on the project).

International/regional linkages

109. During project implementation, a high level of co-ordination will be carried out through a Technical Advisory Panel with relevant international and regional institutions and organisations to ensure that the project activities are distinct and fully complementary to other international, regional and national initiatives.
110. An especially high level of co-ordination is expected with the IPCC National Greenhouse Gas Inventories Programme, the inventory sub-group of the UNFCCC Consultative Group of Experts on non-Annex I National Communications, the GEF Capacity Building Initiative and Phase II Climate Change Enabling Activities and Second National Communications.
111. Other potential synergies have been identified with projects and plans of: United Nations Environment Programme, United Nations Institute for Training and Research, United States Environmental Protection Agency, the International Livestock Research Institute, Ethiopia; and the Canadian International Development Agency. These partnerships were established under the PDF B and will be strengthened under this project.
112. Input will be sought from the UNDP Regional Bureau for Africa to ensure that the project remains within the Strategic Results Framework for the region.

H. MONITORING, EVALUATION AND DISSEMINATION

113. The regional Project Steering Committee (PSC) will be responsible for monitoring and supervising project implementation as a whole (Terms of Reference, Annex T). The PSC will meet on a quarterly basis to review the performance of the project, and will review interim progress reports as well as inputs from different institutions and experts involved in the project's realization. These meetings shall take place by teleconference and/or email, or during regional exchange workshops. The Project Manager may request 1-2 additional teleconferences during the start-up phase of the project, if required.
114. Each national inventory team leader will prepare a progress report, revised workplans and a financial report on a quarterly basis and submit these to the Project Manager prior to the PSC meetings. The UNDP country offices should be copied, for information. Disbursement of the subsequent installments of funds through UNOPS will be subject to the final approval of the national reports by the Project Manager.
115. Overall responsibility for project management and reporting shall lie with the Project Manager. The Project Manager will circulate a synthesis of the national progress reports, and a quarterly progress report and revised workplan for regional activities to the PSC prior to meetings. The monitoring and evaluation duties of the Project Manager will be critical to the success of the project and will be subject to supervision by the UNDP/NCSU.
116. International and regional consultants who are recruited under the project to provide technical assistance will be subject to the approval of the TAC and the NCSU.
117. In line with UNDP procedures, the project will be subject to an annual Tripartite Review (TPR). The PSC will decide on the representation of the Government for the tripartite reviews. The PM shall

submit an Annual Project Report (APR) for the tripartite review meeting at least 2 months in advance to allow review by UNDP and UNDP-GEF. Additional performance reports may be requested, as necessary, during the project.

118. A Project Terminal Report will be prepared for consideration at the terminal tripartite review meeting. It shall be prepared in draft sufficiently in advance to allow review and technical clearance by the Executing Agency at least four months prior to the terminal tripartite review.
119. Two external, independent evaluations of the project will be conducted; at mid-term and at the close of the project. The mid-term review should assess project implementation and results to date, and provide recommendations for ensuring the project's success. The end-of-term project should assess the outputs produced, their impacts, and the lessons learned.
120. In line with GEF procedures, the project will be subject to an annual Project Implementation Review (PIR). The PM will prepare a draft PIR report and formulate recommendations for adjustment of strategies and activities, where necessary.
121. Financial auditing will be carried out according to UNDP rules and regulations.
122. The Executing Agency's and the UNDP's extensive experience in implementing regional projects will be drawn upon to ensure that project activities and outputs are monitored and properly documented. The Project Planning Matrix (Annex J) includes indicators to assist in the monitoring and external evaluation. Such indicators will allow, by means of established verification, the implementation of a final evaluation of the project.
123. A number of national and regional documents are being produced under the project. These will be disseminated widely to key stakeholders within the region to and to relevant international bodies. Awareness-raising activities identified under the project will directly contribute to these efforts. Any results of the project that could be beneficial to other developing countries will be disseminated using the UNDP SURF and the NCSU networks that are already in place. The Project Manager should also provide annual reports to any relevant UNDP-BDP Knowledge Management network that is established.
124. It is worth noting that, among the specified activities of the project, the implementation of an awareness-raising campaign is considered. The objective of the campaign is to publicise, to targeted policymakers and stakeholders, the importance of the inventory process. The establishment of a regional network will guarantee wide dissemination of both data and lessons learned, as they are substantiated. The project will make every effort to identify both successful and unsuccessful experiences so that they can be learned from quickly. Linkages to international and regional initiatives have also been identified under the project.

I. PROJECT FINANCING

Inputs

125. The cost of this project has been estimated at \$US 3.6 million, of which \$US 2.99 is cash and \$605,585 is in-kind. The GEF is asked to contribute costs of \$2.992 million (including the PDF B of US\$ 298,458).
126. All 14 Governments are strongly committed to the implementation of the project. Each Government will provide necessary staff time and facilities with a view to ensure that the national co-ordinating

mechanisms are functioning in a proper and timely manner, and governmental institutions and other stakeholders are actively participating in the project. At the national level, this involves improved performance of environmental institutions; enhanced policy integration with other sectoral ministries; and facilitation of stakeholder participation. All countries have provided budget breakdowns for in-kind contributions (Annex L).

127. As the Implementing Agency, UNDP will backstop the project with its own staff members, both from the headquarters and locally from the Country Offices.

Outputs

128. An output budget, including the in-kind and cash contributions from participating governments can be found in Annex K. The majority of in-kind contributions are toward office space and furniture and other overheads such as, telephone calls, electricity and water, and national steering committee honorariums.
129. The output budget has been calculated based on the cost of the activities carried out under the Regional Co-ordination Unit plus the aggregate for all national activities. However, countries may choose to apportion their national allocations slightly differently, according to national priorities.
130. The regional activities amount to approximately 42%, or nearly \$1.05 million, of the budget total. This sum is targeted for 1) a full-time project manager and administrative assistant (16% of total); 2) regional and sub-regional training workshops, including the costs of national expert participation and logistics (16%); 3) technical assistance to be provided by international, regional and national experts (6%), 4) and programme running costs (5%).
131. The national activities account for 51% of total funds (\$1.28 million). The National Inventory Team Leader will contract national institutions and experts to carry out national project activities. This allocation also includes internet connection costs. Based on in-country cost estimates from the enabling activities, the average amount that each country will receive in total is approximately \$91,500, or nearly \$30,500 per year.
132. The remaining 7% of funds will be managed by the NCSU for monitoring and evaluation, and the time and travel of the Technical Advisory Panel.
133. Both the regional and the national budget allocations were constructed in such a way as to minimize administrative overheads and to target project activities. At the regional level, this has been achieved by avoiding the creation of the regional center. At the national level, some of administrative overheads are minimized by utilising existing national arrangements created under the enabling activities.

J. LEGAL CONTEXT

134. This project shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Governments of Benin, Burkina Faso, Burundi, Chad, Côte d'Ivoire, Gabon, The Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal and Togo. The following types of revisions may be made to this project document with the signature of the UNDP/GEF Executive Coordinator:
 - (a) Revisions in, or addition of, any of the annexes of the project document (with the exception of the Standard Legal Text for non-SBAA countries which may not be altered and the agreement to which is a precondition for UNDP assistance);

- (b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of a project, but are caused by rearrangement of inputs agreed to or by cost increases due to inflation; and
- (c) Mandatory annual revisions, which re-phase the delivery of agreed, project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility.

ANNEXES

- K. Project Planning Matrix
- L. Activity budget, UNDP budget and in-kind contributions
- M. Regional Workplan
- N. STAP Review and Response to STAP review
- O. GEF Council consolidated comments and Response
- P. NCSU Questionnaire
- Q. Level of uncertainty in GHG inventory by source/sector, using expert judgment
- R. National stakeholder involvement, by country
- S. Institutional arrangements for inventory preparation, by country
- T. Frequency of key sources for region
- U. Regional priorities for improving emission factors
- V. Training package on Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories
- W. Terms of Reference

ANNEX K: PROJECT PLANNING MATRIX

Project Strategy	Verifiable Indicators	Means of Verification	Assumptions and Risks
Project Development Goal: To build capacity of countries to fulfill their commitments as Parties to the UNFCCC.			
Immediate objectives (project outcomes):			
1. Strengthened national arrangements for compiling, archiving, updating, and managing greenhouse gas inventories	Key organisations have strategies for compiling, archiving, updating, and managing greenhouse gas inventories by end of project: <ul style="list-style-type: none"> • 14 national manuals of procedures • 14 long-term inventory improvement strategies • 14 national quality assurance/quality control plans 	<ul style="list-style-type: none"> • National manuals of procedures • Long-term inventory improvement strategies • National quality assurance/quality control plans 	
2. Sustainable inventory framework created	<ul style="list-style-type: none"> • inventory experts employed by government (as result of awareness-raising & outreach campaign) • 14 long-term inventory improvement strategies • inventory archive established 	<ul style="list-style-type: none"> • End-of-project report • Long-term inventory improvement strategies • End-of-project report 	Outreach campaign results in government funding for permanent inventory team
3. Enhanced technical capacity for preparing national inventories	National experts able to prepare national inventory: <ul style="list-style-type: none"> • 14 key source inventories produced and peer reviewed 	<ul style="list-style-type: none"> • key source inventories • peer review reports 	
4. Improved methodologies and emission factors	<ul style="list-style-type: none"> • Up to 3 emission factors improved to reflect appropriate regional circumstances 	<ul style="list-style-type: none"> • Technical advisory group comments (minutes of meeting) 	
Impact: GHG inventory periodically updated and improved			
Outputs:			
1.1: Data collection strategy improved	Reduced gaps in inventory by end of project: <ul style="list-style-type: none"> • Number of new sources of institutional data 	<ul style="list-style-type: none"> • Key source inventories 	

Project Strategy	Verifiable Indicators	Means of Verification	Assumptions and Risks
1.2: Data gaps reduced	Reduced gaps in inventory by end of project: <ul style="list-style-type: none"> • Number of methods identified to overcoming data gaps 	<ul style="list-style-type: none"> • “Country solutions” manual • Workshop report on overcoming barriers 	
1.3: National inventory system documented and described	<ul style="list-style-type: none"> • 14 national manuals of procedures by end of project • 14 inventory archives established 	<ul style="list-style-type: none"> • national manuals of procedures • end-of-project report 	
1.4: Regional information exchange network established	Regional website established in first quarter: <ul style="list-style-type: none"> • Number of countries using website Email list-server established in first quarter: <ul style="list-style-type: none"> • Number of experts using network Database established <ul style="list-style-type: none"> • Number of experts in database In country peer review mechanism established <ul style="list-style-type: none"> • 14 in country peer reviews of key source inventories undertaken Regional workshop on overcoming barriers held	<ul style="list-style-type: none"> • website, with access information • list-server • database • peer review reports • workshop report 	
2.1 Sustainable inventory framework created	<ul style="list-style-type: none"> • inventory experts employed by government (as result of awareness-raising & outreach campaign) • 14 long-term inventory improvement strategies • inventory archive established In-kind/in cash funding increases by end project: <ul style="list-style-type: none"> • 1 donor identified Awareness of government & stakeholders increased: <ul style="list-style-type: none"> • awareness-raising campaign • COP-10 side event 	<ul style="list-style-type: none"> • End-of-project report • Long-term inventory improvement strategies • Archives • Donor proposal • Copy of awareness-raising strategy • Report/agenda of COP-9 side event 	Outreach campaign results in government funding for permanent inventory team

Project Strategy	Verifiable Indicators	Means of Verification	Assumptions and Risks
3.1: Number of qualified national inventory experts increased	<p>Experts trained in GPG:</p> <ul style="list-style-type: none"> • At least 2 experts trained in GPG • 8 trained at national level by trainers¹⁷ • No. of national training workshops held <p>Materials disseminated:</p> <ul style="list-style-type: none"> • Number of documents disseminated 	<ul style="list-style-type: none"> • End-of-project report • End-of-project report • Copy of materials 	
3.2: IPCC Good Practice applied to extent needed	<ul style="list-style-type: none"> • 14 quality assurance/quality control plans created • 14 long-term inventory improvement strategies prepared • 14 key-source inventories compiled, reflecting use of GPG application 	<ul style="list-style-type: none"> • Long-term inventory improvement strategies • National quality assurance/quality control plans • Peer reviews of key source inventories 	
4.1: Methodologies to estimate emissions improved, using appropriate approaches	<ul style="list-style-type: none"> • Number of methods identified, compiled and assessed 	<ul style="list-style-type: none"> • Copy of “best practices” document 	
4.2: Improved emission factors for key sources	<p>Up to 3 emission factors improved to reflect appropriate regional circumstances</p> <ul style="list-style-type: none"> • Up to 3 improved emission factors • Up to 3 workshops on emission factors held • Number of local emission factors disseminated • Uncertainties reduced (by peer review) 	<ul style="list-style-type: none"> • Results of peer reviews • Technical Advisory Group minutes • Workshop reports 	
4.3: Increased reliability of emission factors	<p>Selection process, assumptions and methods documented:</p> <ul style="list-style-type: none"> • Number of emission factors documented and archived 	<ul style="list-style-type: none"> • Archive 	

¹⁷ As a national activity, not funded under this project.

ANNEX L: ACTIVITY BUDGET, UNDP BUDGET AND IN-KIND CONTRIBUTIONS

OUTPUT	GEF	GOV'T in-kind	GOV'T in cash	Other	Total
Immediate objective 1: Strengthened national arrangements for compiling, archiving, updating, and managing greenhouse gas inventories					
Output 1.1: Data collection strategy improved	170,500	100,000	0	0	270,500
Output 1.2: Activity data gaps reduced	170,500	100,000	0	0	270,500
Output 1.3: Inventory system documented and described	74,500	100,000	0	0	174,500
Output 1.4: Regional information exchange network established	452,000	25,000	0	0	477,000
Immediate objective 2: Sustainable institutional framework created					
Output 2.1: Sustainable institutional framework created	476,500	50,000	0	0	526,500
Immediate objective 3: Enhanced technical capacity for preparing national inventories					
Output 3.1: Number of qualified national inventory experts increased	208,500	20,585	0	0	229,085
Output 3.2: IPCC Good Practice applied	414,000	30,000	0	0	444,000
Immediate objective 4: Improved emission factors and methodologies					
Output 4.1: Methods to estimate emission factors improved using appropriate approaches	296,300	40,000	0	0	336,300
Output 4.2: Improved emission factors for key sources	349,100	100,000	0	0	449,100
Output 4.3: Increased reliability of emission factors	82,100	40,000	0	0	122,100
Total	2,694,000	605,585	0	0	3,299,585

UNDP BUDGET

Budget Line	Description	Objective	Allocation	Total Budget	2003	2004	2005
10	PERSONNEL						
1100	International Project Staff						
11.01	Project Manager (P4)	1.1-4.3	REG	344,000	130,000	107,000	107,000
11.51	Consultants - technical assistance	1.1-4.3	INT/REG	22,500	7,500	7,500	7,500
11.52	Consultants - workshops	1.1,1.2,3.2,4.2	INT	36,000	12,000	12,000	12,000
11.57	Project technical advisory panel	1.1-4.3	INT	90,000	30,000	30,000	30,000
1199	Component subtotal			492,500	179,500	156,500	156,500
1300	National Support Staff						
13.01	Administrative assistant (G6)	1.1-4.3		50,400	16,800	16,800	16,800
1399	Component subtotal			50,400	16,800	16,800	16,800
1600	Mission costs						
16.01	Project Manager/RCU	1.1-4.3	REG	45,000	15,000	15,000	15,000
16.02	Technical advisory panel missions	1.1-4.3	INT	45,000	15,000	15,000	15,000
16.03	Project evaluation -- mission & personnel	1.1-4.3	REG	25,000	0	12,500	12,500
	Component subtotal			115,000	30,000	42,500	42,500
1700	National Project Personnel						
17.01	National project teams (14)	1.1-4.3	NAT	465,000	155,000	155,000	155,000
17.02	Peer review (14 national experts)	1.4, 3.2	NAT	10,500	0	0	10,500
17.51	Consultants -- workshops	1.1,1.2,3.2,4.2	REG	21,000	7,000	7,000	7,000
17.52	Consultants - data collection/compilation	1.1, 1.2	REG/NAT	10,000	5,000	5,000	0
17.53	Consultants - methods collection/compilation	4.2, 4.3	REG/NAT	10,000	0	5,000	5,000
	Component subtotal			516,500	167,000	172,000	177,500
20	SUBCONTRACTS						
21.01	Media/PR consultancy	2.1	REG/NAT	6,000	0	6,000	0
21.02	Prep'n/dissemin reports	1.1-1.2,4.1-4.3	REG/NAT	5,000	2,500	2,500	0
21.03	Technical assistance	1.1-4.3	REG/NAT	15,000	5,000	5,000	5,000
21.04	Website and REI network	1.4	REG/NAT	14,000	5,600	4,200	4,200
21.05	Translation	1.1-1.2,2.1,4.1-4.3	REG	20,000	10,000	5,000	5,000
21.06	National institutions	1.1-4.3	NAT	756,000	252,000	252,000	252,000

	Component subtotal			816,000	275,100	274,700	266,200
30	FELLOWSHIPS/MEETINGS						
32.01	Workshop -- Project Startup (GPG training)	3.2	NAT	89,000	89,000	0	0
32.02	Workshop -- Data collection strategies	1.1,1.2	NAT	61,000	61,000	0	0
	Workshop -- Emission factor strategies	1.1, 1.2, 4.1, 4.2	NAT	61,000	0	61,000	0
32.03	Workshop -- GPG Training (QA/QC)	3.2	NAT	61,000	0	0	61,000
32.04	Workshop -- Project finalisation	1.4	NAT	61,000	0	0	61,000
32.06	Sub-regional workshop -- Emission Factors	4.2	NAT	31,000		31,000	0
32.07	Sub-regional workshop -- Emission Factors	4.2	NAT	31,000	0	31,000	0
	Component subtotal			395,000	150,000	123,000	122,000
40	EQUIPMENT						
45.01	Non-expendible office equipment	1.1-4.3	REG	11,000	7,000	2,000	2,000
45.02	Expendible office equipment	1.1-4.3	REG	6,000	2,000	2,000	2,000
	Component subtotal			17,000	9,000	4,000	4,000
50	MISCELLANEOUS						
53.01	Sundries	1.1-4.3	REG	11,644	5,644	3,000	3,000
53.02	Office rent	1.1-4.3	REG	30,000	10,000	10,000	10,000
53.03	Sundries (internet access)	1.4,2.1	NAT	50,400	16,800	16,800	16,800
	Component subtotal			92,044	32,444	29,800	29,800
90	PROJECT TOTAL (Operational)			2,494,444	859,844	819,300	815,300
	AOS UNOPS (8%)		INT	199,556			
	Component subtotal			2,694,000			
99	GRAND TOTAL			2,694,000			

Notes: NAT = national allocation; REG = regional allocation; INT = international allocation.

Budget description

UNOPS will execute the project. A brief description of the budget lines follows:

International Project Staff:

Project Manager (11.01): The Project Manager will be responsible for overall project coordination, implementation, monitoring and evaluation, and dissemination. He/she will implement the regional workplan within UN reporting and management regulations, reporting to UNOPS and the UNDP-GEF/NCSU. He/she will be based in Senegal and recruited internationally, using UN processes and procedures. The Terms of Reference can be found in Annex W.

Short-term international/regional consultants (11.51)

Short-term consultants will provide ad hoc technical assistance for project activities carried out at the national and/or regional level, and give guidance on scientific or methodological issues. Where possible, the consultants will be hired from the region, although international expertise may be required in some areas (detailed Terms of Reference will be prepared by the Project Manager during project implementation, based upon technical assistance requests from countries).

International workshop resource persons (11.52)

Allocation has been made hire up to two international resource persons to attend the five regional workshops scheduled under the project. For the two sub-regional workshops on emission factors, the allocation is one international resource person per workshop.

Technical Advisory Panel (11.57)

As opposed to the ad hoc technical assistance of the short-term consultants above, the Technical Advisory Panel (TAP) will provide technical and policy guidance to national teams on issues related to the quality of national GHG inventories at strategic points during the project. The TAP will also review project outputs as a quality control measure. Terms of Reference can be found in Annex W.

Administrative assistant (13.01)

The Project Manager will hire one full-time administrative assistant for the project duration.

Mission costs

This includes travel for developing and implementing the project, review meetings, and for attending workshops during the course of the project.

Regional Co-ordination Unit (16.01)

These funds are for the travel of the Project Manager and the Project Assistant (as needed) throughout the region in support of the Project. Travel is anticipated primarily for attending workshops. At least one mission to the UNFCCC COP to present project results is anticipated.

Technical Advisory Panel missions (16.02)

These funds are for the travel of the Technical Advisory Panel members to attend key workshops and evaluation meetings.

Project independent evaluation mission and personnel (16.03)

There will be two independent evaluations of the project. It is anticipated that travel will only be required to meet with the Executing and Implementing Agencies, not with participating countries. The mid-term review will focus on performance (effectiveness, efficiency and timeliness), relevance and lessons learned about the project design, management and implementation. The final evaluation will focus on similar issues as the mid-

term evaluation, but also consider project impact and sustainability and replicability of results. Recommendations on follow-up activities will also be provided. Terms of Reference for both evaluations will be developed by the Project Manager and approved by the regional Project Steering Committee.

National Project Personnel

National project teams (17.01)

National experts will be hired in the participating countries at local rates to carry out national project activities. There will be an equivalent allocation of man months to each country, based on national rates provided by participating UNDP Country Offices. For Terms of Reference, see Annex W.

Peer review (17.02)

Under Outputs 1.4 and 3.2, all countries will develop a key source inventory that is reviewed by an expert from another participating country. It is estimated that each review will take 3 days' maximum. This budget line provides funding for this capacity building activity. The Project Manager will develop the Terms of Reference for the peer review mechanism.

Regional workshop resource persons (17.51)

Allocation has been made hire two regional resource persons to attend each of the five regional workshops scheduled under the project and the two sub-regional workshops on emission factors.

Short-term regional/national consultants (17.52, 17.53)

Short-term consultants will be hired to assist the Project Manager in identifying, compiling and comparing data and methods within the region, as outlined in the project document. Where possible, the consultants will be national experts involved in the project to carry out the following activities:

- Data collection and compilation issues (Objectives 1.2 and 1.2) (17.52): Assisting with identification of barriers to obtaining or compiling data and compilation of country solutions, training in methods to overcome data gaps, e.g. extrapolation, interpolation
- Emission factor issues (Objectives 4.2 and 4.3) (17.53): Assisting with compilation and comparison of local methodologies, prioritisation of emission factors, and identification of suitable methods and approaches to improving emission factors.

Subcontracts

Technical assistance (21.01-21.05)

Subcontracts may be executed with the individual institutions, agencies, NGOs or other recognised legal entities to perform specific activities associated with the GEF/UNDP project. The subcontracts will be based upon specific terms of reference prepared by the Project Manager and agreed with NCSU and UNOPS prior to contract execution. It is important to stress that the subcontracts are assigned on the basis of comparative advantage for the countries in the region. The budgets proposed by subcontractors will be carefully assessed to ensure the maximum possible use of national consultants and the transfer of benefits to the region. The anticipated subcontracts are as follows:

- Media/PR consultancy (21.01): estimated development and production costs for preparing an awareness-raising campaign that can be modified at the national level under Output 2.1
- Preparation/dissemination of reports (21.02): estimated development and production costs for preparing a country solutions (best practices) manual as an outcome of Outputs 1.1, 1.2, 4.2, and 4.3.
- Technical assistance (21.03): for general technical assistance under the project
- Creation and maintenance of a regional website and information exchange network (21.04)
- Translation (21.05): All essential documents, project outputs, and workshop materials should be available in French and English.

National institutions (21.06)

National institutions will be contracted in the participating countries to carry out project activities (in conjunction with national experts hired under 17.01). There will be an equivalent allocation of man months to each country, based on national rates provided by participating UNDP Country Offices. For Terms of Reference, see Annex W.

Fellowship/Meetings

Seven workshops are documented in the project, namely:

- Regional Start-up Workshop with training in GPG (32.01)
- Regional Exchange Workshop on data collection strategies (32.02)
- Regional Exchange Workshop on emission factor strategies (32.03)
- Regional Finalisation Workshop with training in QA/QC (32.04)
- Regional Finalisation Workshop (32.05)
- Sub-regional Workshop on emission factors (32.06)
- Sub-regional Workshop on emission factors (32.07)

The Project Manager will develop workshop agendas in consultation with participating countries, the Project Steering Committee and the Technical Advisory Panel. Where possible, the workshops should include hands-on training.

For regional workshops, the budget allocation is based upon estimated logistical costs (administrative support, conference facilities, translation, etc) and the travel of 1-2 experts from each participating country, and international and regional resource team members. For the start-up workshop, up to 3 experts should be invited. All travel is economy class. Travel of the Project Manager and TAC members is provided under budget lines 16.01 and 16.02 respectively. Fees for resource team experts are provided under budget lines 11.52 and 17.51.

For sub-regional workshops, the budget allocation is based upon estimated logistical costs (administrative support, conference facilities, translation, etc), the travel of 1 expert from each participating country. All travel is economy class. Travel of the Project Manager and TAC members is provided under budget lines 16.01 and 16.02 respectively. One regional workshop on emission factors could be held in lieu of two sub-regional workshops, should countries request such an option. Other countries from the region may attend the regional workshops as long as their participation is funded from the respective climate change enabling activities, and not from this project.

Equipment

Procurement of equipment under the project will strictly follow UN procurement procedures, according to the value of the purchased goods. UNOPS will be responsible for ensuring that the equipment and supplies procured using GEF/UNDP funds are used strictly for the purposes of the project.

Non-expendable office equipment (45.01)

Includes items of a value of US\$ 400 or more, with a serviceable life expectancy of at least five years. Inventory records of all items of non-expendable equipment procured through the project will be maintained for audit purposes.

Expendable equipment (45.02)

Expendable equipment (consumables) includes items of a value of less than US\$ 400 with a serviceable life expectancy of less than 5 years. Financial records of all expendable equipment procured through the project will be maintained for audit purposes.

Miscellaneous

Sundries (53.01)

The cost of activities undertaken by the Project Manager for project reporting, monitoring and evaluation are included in this general category. Telecommunication and postage costs are also included.

Office rent (53.02)

The potential cost of office rental for the project lifetime in Dakar, Senegal.

Sundries (internet access) (53.03)

This budget allocation will be apportioned on a differential basis reflecting internet connection costs for each country over three years, based on the quotes provided by countries.

Support costs

UNOPS will charge an 8% service charge for its execution activities. UNDP Country Offices will be reimbursed on a cost-recovery basis.

GOVERNMENT IN KIND CONTRIBUTIONS (Total: \$605, 585)

BENIN	1st year (CFA)	2nd year (CFA)	3rd year (CFA)	Total (CFA)	Total (\$US)
<i>Hébergement du projet</i>					
Location de Bureaux	3120000	3120000	3120000	9360000	13,371.43
Equipements mobiliers	1500000	0	0	1500000	2,142.86
Installation d'une ligne téléphonique	400000	0	0	400000	571.43
Frais de fonctionnement de la ligne téléphonique, du courrier électronique, et du site web	1800000	1800000	1800000	5400000	7,714.29
Frais de fonctionnement du comité directeur	1200000	1200000	1200000	3600000	5,142.86
<i>Divers</i>					
Point de presse trimestriel	1000000	1000000	1000000	3000000	4,285.71
Traduction anglais-français	150000	150000	150000	450000	642.86
Travaux d'imprimerie et reprographie	165000	330000	495000	990000	1,414.29
Imprévus	250000	250000	250000	750000	1,071.43
TOTAL				25450000	36,357.14

BURKINA FASO	1st year	2nd year	3rd year	Total
Bâtiment (bureau)	2400	2400	2400	7200
Electricité, eau	1000	1000	1000	3000
Téléphone + internet	3000	3000	3000	9000
Personnel administratif d'appui	2700	2700	2700	2700
Total	9100	9100	9100	27300

BURUNDI	1st year	2nd year	3rd year	Total
Loyer des bureaux	4800	4800	4800	14,400
Mobilier et équipement de bureau				2000
Eau et Electricité	600	600	600	1800
Entretiens des bureaux et gardiennage	960	960	960	2880

Honoraires du Comité directeur	1500	1500	1500	4500
Total				25,580

CHAD	1st year	2nd year	3rd year	Total
Electricity	2,570	2,570	2,570	7,710
Office space	850	850	850	2,550
Telephone	3,420	3,420	3,420	10,260
Salaries	6,300	6,300	6,300	18,900
Yearly total	13,140	13,140	13,140	39,420

COTE D'IVOIRE	1st year	2nd year	3rd year	Total
Loyer des bureaux	3,800	3,800	3,800	11,400
Telephone	750	750	750	2,250
Mobilier et équipement bureau	2,000	0	0	2,000
Yearly total	6,550	4,550	4,550	15,650

GABON	1st year	2nd year	3rd year	Total
Appui administratif	36,000	36,000	36,000	108,000
Loyers bureaux	4,200	4,200	4,200	12,600
Mobilier et équipement bureau	2,000	0	0	2,000
Eau et électricité	720	720	720	2,160
Honoraires du comité de direction	18,000	18,000	18,000	54,000
	60,920	58,920	58,920	178,760

GAMBIA	1st year	2nd year	3rd year	Total
Office rental	4,250	4,250	4,250	12,750
Electricity	725	725	725	2,175
Telephone	715	715	715	2,145
Furniture	3000	0	0	3,000
Photocopying, etc	500	500	500	1,500
Steering Committee	1,200	1,200	1,200	3,600
Contingency	2,100	0	0	2,100
Total	12,490	7,390	7,390	27,270

GHANA	3 Year Total
Office rental	25,200
Office amenities	15,000
Steering Committee	3,600
Telephone	3900
Total	47,700

GUINEA	3 Year Total
Office rental	15,000
Electricity	2,100
Steering Committee	4500
Telephone	1500
Total	23,100

MALI	Year 1	Year 2	Year 3	Total
Office rent (Building and Office furniture)	8400	8400	8400	25200
Electricity and water Supply service	2400	2400	2400	7200
Steering Committee	1200	1200	1200	3600
Total	12000	12000	12000	36,000

NIGER	3 Year Total
Locaux servant de bureau(2)	7500
Meubles de bureau(3 bureaux, 2 fauteuils de bureau, 6 chaises visiteurs, 2 armoires)	4500
Climatiseurs(2)	800
Total	12800

NIGERIA	3 Year Total
Total	15,000

SENEGAL	Year 1	Year 2	Year 3	Total
Office rental	6000	6000	6000	18000
Telephone	2400	2400	2400	7200
National Climate Committee honorariums	2000	2000	2000	6000
	10400	10400	10400	31200

TOGO	Year 1	Year 2	Year 3	Total
Office rental	6000	6000	6000	18000
Telephone	2500	2500	2500	7500
National Climate Committee honorariums	1500	1500	1500	4500
	10400	10400	10400	30,000

ANNEX M: DRAFT PROJECT WORKPLAN

(The Project Manager will review the national workplans to ensure that national activities are linked to the common regional activities.)

Activity	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Hire Project Manager and project assistant	X											
Develop regional workplan	X											
Hire national inventory team leaders	X											
Develop national workplan	X											
Prepare terms of reference for technical assistance and national institutions	X											
Immediate objective 1: Strengthened national arrangements for compiling, archiving, updating, and managing greenhouse gas inventories												
Output 1.1: Data collection strategy improved												
1.1.1 Identify data gaps	X	X										
1.1.2 Identify sources of data from prior/ongoing international and regional projects	X	X	X	X								
1.1.3 Identify prior and ongoing national sources of data	X	X	X	X	X	X						
1.1.4 Identify barriers to obtaining available data in key source categories		X	X	X	X	X						
1.1.5 Describe the practices (country solutions) to overcoming barriers			X	X	X	X						
1.1.6 Utilise practices (country solutions) to overcoming barriers			X	X	X	X	X	X	X	X	X	X
1.1.7 Check units of conversion and validate data compiled	X	X	X	X	X	X	X	X	X	X	X	X
Output 1.2: Activity data gaps reduced												
1.2.1 Identify data that must be compiled/developed to fill gaps	X	X										
1.2.2 Identify the most appropriate methods and approaches to overcome data gaps and to facilitate the generation of new data	X	X	X	X	X	X	X	X				
1.2.3 Compile the practices/methods (country solutions) for overcoming data gaps		X	X	X	X	X	X	X				
1.2.4 Check units of conversion and validate data compiled	X	X	X	X	X	X	X	X	X	X	X	X
1.2.5 Identify international assistance for implementing inter-regional studies to derive activity data				X	X	X	X	X	X	X	X	X
Output 1.3: Inventory system documented and described												
1.3.1 Archive (i.e., compile and store) relevant national data	X	X	X	X	X	X	X	X	X	X	X	X
1.3.2 Document major sources of national data and emission/conversion factors	X	X	X	X	X	X	X	X	X	X	X	X
1.3.3 Document the selection process of national activity data and related parameters used in inventory preparation process	X	X	X	X	X	X	X	X	X	X	X	X
1.3.4 Document methodologies and data assumptions used	X	X	X	X	X	X	X	X	X	X	X	X
1.3.5 Document the data collection methods of data providers					X	X	X	X				
1.3.6 Elaborate a manual of procedures to prepare the inventory					X	X	X	X	X	X	X	X
1.3.7 Identify needs in legislation and compliance measures for data collection and interagency co-ordination			X	X								
1.3.8 Establish formal process for review of the GHG inventory at the national level									X	X	X	X

Activity	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Output 1.4: Regional information exchange network established												
1.4.1 Establish regional website and identify ways to make the site sustainable	X	X	X	X	X	X	X	X	X	X	X	X
1.4.2 Create regional database of national inventory experts and regional institutions	X	X										
1.4.3 Exchange regional and international information on inventories	X	X	X	X	X	X	X	X	X	X	X	X
- <i>Regional Exchange & Training Workshop on Data Collection Strategies for LUCF (Activities 1.1.4 and 1.2.2)</i>			X									
- <i>Project Finalisation Workshop</i>												X
1.4.4 Collect and archive information on research undertaken in the region	X	X	X	X	X	X	X	X	X	X	X	X
1.4.5 Regional peer review mechanism created							X	X	X	X	X	X
Immediate objective 2: Sustainable institutional framework created												
Output 2.1: Sustainable institutional framework created												
2.1.1 Develop a long-term national strategy to improve inventory preparation (<i>Review strategy periodically based on project results</i>)	X	X				X			X			X
2.1.2 Identify and/or establish a unit responsible for national inventory preparation on a sustainable basis	X	X										
2.1.3 Carry out awareness-campaign targeting policy-makers and other stakeholders			X	X	X	X	X	X	X	X	X	X
2.1.4 Identify and strengthen relations with national institutions and Ministries	X	X	X	X	X	X	X	X	X	X	X	X
2.1.5 Identify appropriate financing (for the end-of-project)							X	X	X	X	X	X
2.1.6 Identify and strengthen relations with regional and sub-regional institutions	X	X	X	X	X	X	X	X	X	X	X	X
Immediate objective 3: Enhanced technical capacity for preparing national inventories												
Output 3.1: Number of qualified national inventory experts increased												
3.1.1 Train (trainers) in IPCC Good Practice applications	X	X			X	X			X	X		
- <i>Project start-up workshop (to include GPG training component)</i>	X											
3.1.2 Ensure participation of regional experts in IPCC activities	X	X	X	X	X	X	X	X	X	X	X	X
3.1.3 Distribute supporting materials and education kits	X	X	X	X	X	X	X	X	X	X	X	X
Output 3.2: IPCC Good Practice applied												
3.2.1 Key sources identified through Tier 1 assessment	X											
3.2.2 Comparison of key source-specific assessments	X	X										
3.2.1 Identify appropriate methods source by source, using GPG decision trees	X	X	X	X	X	X	X	X	X	X	X	X
3.2.2 Identify areas where recalculations are necessary, and plan strategy			X	X			X	X			X	X
3.2.3 Prepare quality assurance and quality control plan									X	X	X	X
- <i>Regional training workshop on quality assurance and quality control</i>										X		
Immediate objective 4: Improved emission factors and methods												
Output 4.1: Methodologies to estimate emission factors improved												
4.3.1 Compile and harmonise local methodologies/approaches used for estimating emission factors					X	X	X	X				
4.3.2 Disseminate local methodologies/approaches (compiled under Activity 4.3.1)					X	X	X	X				

Activity	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
within region and externally												
4.3.3 Assess the suitability of the disseminated methodologies for use at the national level, applying GPG						X	X	X	X			
- <i>Regional Exchange & Training Workshop on Emission Factor Approaches (Activities 4.1.3, 4.2.1, 4.2.2, with input from data collection activities)</i>						X						
Output 4.2: Improved emission factors for key sources												
4.2.1 Compile and disseminate local emission factors within region					X	X	X	X				
4.2.2 Improve links to international emission factor databases			X	X	X	X	X	X	X	X	X	X
4.2.3 Prioritise emission factors to be improved, using GPG <i>(Review priorities based on results of data collection strategies)</i>					X	X						
4.2.4 Develop up to 3 emission factors that are significant on a regional or sub-regional level, consistent with IPCC guidance on methodologies					X	X	X	X	X	X	X	X
- <i>Emission Factor Assessment Workshop (Outputs 1.1, 1.2, 4.1, 4.2)</i>							X					
- <i>Sub-regional workshop to develop/improve emission factors</i>								X				
Output 4.3: Increased reliability of emission factors												
4.1.1 Document the selection process of emission factors and other conversion factors used in inventory preparation process					X	X	X	X	X	X	X	X
4.1.2 Document the methodologies and assumptions used					X	X	X	X	X	X	X	X

Proposed Workshop Plan (from Ghana workshop, May 2002)

Date	Subject	Proj. Outputs	Who
1Q	Project startup, with training in GPG	3.1	Project co-ordinators, 2 national experts (LUCF, agriculture)
3Q	Training on activity data collection strategies for LUCF	1.1, 1.2	2 national experts (LUCF), UNEP soil carbon project representative
5Q	Sub-regional training on emission factors (based on ILRI research)	4.1, 4.2	1 national expert (agriculture), ILRI, US-EPA
7Q	Project review	1.1, 1.2, 4.1, 4.2	Project co-ordinators, 1 national expert
8Q	Sub-regional emission factor (to be decided)	4.2	1 national expert
10Q	Training in GPG (quality control and quality assurance)	3.2	Project co-ordinator, 1 national expert
12Q	Project finalisation	1.1-4.3	Project co-ordinators, 1 national expert (?)

DRAFT AGENDA, START-UP WORKSHOP

- Duration:** 4-5 days
Host country: must have computing facilities, internet connections
Materials: NCSP GPG training package; LUCF and agriculture sectors of inventories, preparation work by countries, elaborated national workplans, national definitions of LUCF and agriculture terminology and issues with defining terms
Experts: Project co-ordinator, 1 agriculture expert, 1 LUCF expert
Resource team: UNFCCC, IPCC, FAO ?, UNEP soil carbon project representative ?

Objectives:

- To provide hands-on training in GPG for strengthening national arrangements (Outputs 3.1, 3.2, 1.3)
- To provide hands-on training in LUCF and agriculture inventory preparation (Outputs 1.1-1.3)
- To obtain regional harmonisation in the terminology of IPCC Revised Guidelines for agriculture and LUCF (Outputs 1.1, 1.2, 4.2)
- To address data needs for agriculture and LUCF (Outputs 1.1. and 1.2)
- To improve confidence in quality of national LUCF and agriculture inventories (Outputs 1.1. and 1.2)

Outputs:

- 3 experts trained in GPG approaches
- Revised, harmonised national workplans
- Assessment of archiving needs for national inventory systems
- Regional harmonisation of agriculture and LUCF sector terminology
- Recalculation of agriculture and LUCF inventories

Agenda:

Day 1: Plenary

- Review of key source analysis and approach for trend assessment (see Canada 2000 NC) – recalculate to agreed sub-source level
- Issues with recalculation
- Documentation

Day 2 and 3: Participants divide into three Working Groups

GPG Working Group

Day 2: Introduction to uncertainties
Archiving and documentation needs

Day 3: Standard Operating Procedures and inventory strategy planning
Awareness-raising approaches

Agriculture Working Group

Day 2: Harmonisation of terminology
Training in IPCC Revised Guidelines for Agriculture and GPG
Recalculation of inventory using defaults and extrapolation, using national data, hybrid Tier 1/Tier 2, and Tier 2 approaches

Day 3: Training in methods for developing emission factors for enteric fermentation

LUCF Working Group

Day 2: Comparison of national inventories, data and assumptions

Training in IPCC Revised Guidelines for LUCF and GPG

- Data sources (above ground biomass, soil)
- Interpretation of definitions (forests, managed)
- Application of methodology in the African context
- Documentation of assumptions and rationale for their selection

Recalculation of inventory using defaults and extrapolation, using national data, hybrid Tier 1/Tier 2, and Tier 2 approaches

Day 3: Key missing data (rates of forest conversion, biomass)

Solutions and approaches for overcoming data gaps

Day 4: Plenary

- Reports from the working groups
- Next steps: regional approaches, data collection needs
- Additional training in data methods? e.g. extrapolation, etc
- Review and elaboration of national workplans

ANNEX N: STAP REVIEW AND RESPONSE TO STAP REVIEW

Capacity Building for Improving the Quality of Greenhouse Gas Inventories (West and Francophone Central Africa)

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The proposed project is to assist the aforementioned region to build national capacity for improving the quality of data inputs to national greenhouse gas inventories. The project is intended to last three years, and will most likely be initiated towards the end of 2002. The project has two main foci. One is to create a regional network and the second is to focus on the assembling of activity data and emissions factors, primarily the land use, land-use change and forestry sector. The project will build on existing national institutional frameworks established under earlier enabling activities. The total project budget is \$2.7 million of which \$1.2 million is intended for the regional network. My comments on the Project Brief are noted below.

1. The project is well formulated and clearly worth pursuing. Capacity building is much needed in the region, and having a regional network will pay for itself over the years. It is the one thing that the participating experts are likely to appreciate and will likely ask for more activities to be conducted as part of the network once the project is over. It is also a way of ensuring sustainability for continued learning among experts.
2. The sustainability question is also tied to how the inventory outputs might find use for other national needs. Having data on grassland conversion should also help other agencies track these parameters to better understand their impact on soil erosion, desertification, etc. The more joint benefits like these are accomplished during the project, the more likely are its benefits to persist.
3. The project brief notes that training individuals does not always lead to sustained capacity development in the country. As a remedy it intends to build capacity at the institutional level. This is certainly better than training individuals, but ultimately sustainability can be truly enhanced only if there is a continued demand for the use of their expertise. One way to ensure that this does occur is to establish strong linkages between the institutions engaged in the preparation of the inventory, and those other ministries and institutions identified in the back of the document as potential participants. Connecting to national needs as articulated by these ministries will ensure that demand for the trained experts exists even in the absence of the inventory process. The Brief needs to demonstrate how such linkages will be strengthened during the course of the project either through outreach activities and/or connecting the activity data to the needs of these other ministries.

Response: A specific outreach activity has been included under Output 2.1, "Identify and strengthen relations with national institutions and Ministries". The end-of-project outputs now reflects this activity (paragraph 44), as does risks (paragraph 73).

4. One problematic issue is the timing of the IPCC LULUCF Good Practice Guidance (GPG) report. The first meeting of the writing team is in mid-March 2002, and the GPG will be ready only in March 2003, about half way through this project. The brief needs to acknowledge that and indicate whether and how the GPG

outputs will be utilized. At the moment there are vague indications of interactions between the two, but it is important that this project make full use of the GPG since it is likely to be a much improved version than the earlier document.

Response: Paragraph 21 has been strengthened to acknowledge that a member of the IPCC Task Force on National Greenhouse Gas Inventories will be represented on the project's Technical Advisory Panel. Secondly, it is not anticipated that the approve full project will begin implementation until December 2002. By that stage, the majority of the IPCC work on LUCF GPG should have been finalised and in the review stage.

5. According to Table 2, at least six countries are finishing their inventories this year, and others have finished them during the last year or so. It is very likely that these experts will be available for the proposed inventories. The project brief needs to provide information about the training that these experts have already received, and the additional information and training that this brief is intended to provide.

Response: Table 2 refers to the submission of National Communications; all countries have already finalised their inventories. All countries reported in the NCSU questionnaire that they received training in the IPCC 1996 Revised Guidelines for preparing inventories – however many of them requested additional training in using the Guidelines for the LUCF and agriculture sectors. This is reinforced by the findings of the regional experts, who in their review of the inventories noted that many countries had not mastered the Guideline (paragraph 8). In project outputs, the training section (paragraph 45) has been slightly expanded to include the various training workshops. A draft workplan has been included (Annex L) that makes it easier to identify the workshops taking place.

6. About \$1.2 million is budgeted for regional activities and the remaining for other activities. When I look at the budgeted amounts and the language describing the Outputs, the funding allocation seems inappropriate. For example, the activity data for Output 1.2 may require GIS mapping and analysis, although this is not stated in the document. Is this planned for in the budgeted amount? Likewise, in Outputs 4.2 and 4.3, will measurements be carried out and what methods will be used? Is this the reason the budget is large for this output? I think part of the problem is that the outputs say little by way of technical methods that might be used which makes it difficult to see the need for the allocated amounts. The Outputs text needs to be clear about whether regional and national workshops will be organized, the equipment that might be purchased to measure emissions, and whether there is need for collection of GIS data and their interpretation.

Response: In calculating the Output Budget, it was anticipated that countries would spend 30% of their national allocation on Output 1, 20% on Output 2, 20% on Output 3, and 30% on Output 4. The large budget for Output 4.2 reflects the 4 sub-regional workshops that will be carried out.

Methods will not be developed, but improved under the project. That is, locally-developed emission factors will be disseminated and reviewed (Output 4.1) and suitable methodologies will be identified to improve or develop new emission factors (Output 4.2). However, this work will not commence until the 4th or 5th quarter of the project.

Although the collection of activity data is not anticipated under this project (rather, it is a national activity), it is acknowledged that some GIS mapping and analysis may be required for Output 1.2. Therefore, in the project document development, special attention will be paid to 1) obtaining co-financing or in-kind support from NOAA and European organisations for obtaining GIS data, and 2) reviewing any results obtained from other projects in the region, e.g. START. The issue of GIS data can be considered in the Regional Exchange Workshop on Data Collection Strategies – this is now noted under Output 1.4 (paragraph 65).

All workshops noted in this project brief are either regional or sub-regional.

ANNEX O: GEF COUNCIL CONSOLIDATED COMMENTS AND RESPONSE

WORK PROGRAM: COMMENTS FROM COUNCIL MEMBERS

(Reference to GEF/C.20/3 October 14-15, 2002)

Regional : Capacity-building for Improving Greenhouse Gas Inventories (West and Francophone Central Africa) (UNDP) ; GEF: \$2.992 million; Total Project Costs: \$3.597 million

Comments from the Constituency of Australia, South Korea, and New Zealand:

Please note: In raising the issues noted below we are not advocating that the Proposal needs to be re-submitted. These are suggestions for enhancing/clarifying the element of the Proposal that relates to the development of emission factors.

This project seeks to develop regional emission factors for the West and Central African region. This is important as European and North American experts largely provide the defaults provided in the IPCC Guidelines and they are usually not appropriate in regions with difficult ecosystems and management practices.

- It is not clear though how successful the above-mentioned component of the project will be as no funding will be available for research. We assume that it is because no new research is required as there are relevant data/studies that could be reviewed. We would however appreciate clarification that this data does exist and that no new research is required.
- The project proposes that no two countries invest in developing the same emission factor. This is a good approach as funds are limited. However, the benefit is only achieved if there is a reasonable heterogeneity in these factors across the region. This will need to be carefully monitored.

UNDP-GEF response: No new research on emission factors will be carried out; rather countries will assess the applicability of existing emission factors. This has been clarified in paragraph 25. The project document has also been revised throughout to “improvement” of emission factors rather than “development”. Harmonisation of approaches will be a critical factor for success, and will be addressed at a regional training workshop on emission factors (paragraph 83).

Comments from Switzerland:

General Commentaries

The project is designed to assist the 14 participating countries (of which 10 have Least Developed Country status) to build national capacity for improving the quality of data inputs to national greenhouse gas inventories, using key sources as defined in the IPCC’s Good Practice Guidance (GPG). By creating a regional network and by strengthening national arrangements for compiling, archiving, updating and managing GHG inventories, in particular by improving data collection strategies and identifying methods for reducing data gaps, the project will enable participating countries to reduce uncertainties and improve activity data and emission factors. The focus in this project is the land-use change and forestry (LUCF) and the agriculture sector, according to the identified national and regional priorities.

The focus on the LUCF and agriculture sector is well legitimated and justified given that especially the quality of LUCF data has been assessed as being weak in first National Communications, and given the fact that e.g. IPCC default factors do not always reflect national circumstances such as for tropical or sub-Saharan forests to be found in the project region. The intervention is thus timely.

The project has been elaborated in a most consultative, country-driven and participatory manner, which guarantees a broad national and regional ownership and the full commitment of all stakeholders. The project document is well elaborated and transparent. The project framework is based upon the design developed in a pilot project in the Europe/CIS region, which however focuses on the energy sector, and the Planning Matrix was accordingly modified. This will allow valuable exchange of experience on methods among the two regions.

The main risk of this project is that governments will not have sufficient funds to sustain the national arrangements, inventory team and regional information exchange network once the project ends. A number of measures have however been defined in order to minimise this risk, such as awareness and fund raising campaigns, specific outreach to governments, experience exchange and training of trainers.

Conclusions and Recommendations

GEF is strongly advised to approve the project. In addition, GEF is recommended to undertake necessary steps and an initiative to facilitate the exchange of experiences made in such regional projects in other world regions. It is therefore recommended to begin already at early stages of the project to widely disseminate the experiences gained, the applied methodologies, achievements and finally the project results.

UNDP-GEF response: The recommendation of Switzerland is noted. Lessons learned from this regional project will be disseminated through the NCSU's Knowledge Network and list-server for the benefit of countries not participating in this project.

Comments from Germany:

Germany supports this project without any further comments.

UNDP-GEF response: No response required.

ANNEX P: NCSU QUESTIONNAIRE



National Communications Support Programme Global Environment Facility

The NCSU is co-sponsored by the GEF, EU, Denmark, Finland and Norway

QUESTIONNAIRE TO IDENTIFY INSTITUTIONAL FRAMEWORK AND PREPARATION ISSUES RELATED TO THE GHG EMISSIONS INVENTORY

Objective:

This questionnaire will provide the background information needed to develop the full project under the PDF B proposal, “*Capacity Building for Improving National Greenhouse Gas Inventories*”. The questionnaire will be followed up with a brief country visit from a regional expert.

The questionnaire focuses on the three-core project components for improving the quality of national inventories prepared for national communications:

1. Improve methodologies and emission factors;
2. Strengthen national arrangements for compiling, archiving, updating, and managing greenhouse gas inventories; and
3. Enhance capacity for preparing national inventories.

Countries will identify national priorities for improving emission factors, and outline the methods used and current experience. The national institutional frameworks for data gathering will be described, including an evaluation of current capacity and future capacity needs.

Instructions:

- The two inventory experts nominated for the regional project should complete this questionnaire, as one of their key tasks under the PDF.
- Please try to provide as much information as possible. However, as this is the first stage in project development, we understand that you may not be able to answer all the questions. Any gaps can be discussed with the regional expert during the country visit.
- Please return the completed questionnaire to Rebecca Carman (rebecca.carman@undp.org) **no later than 29 June.**

NAME OF COUNTRY: _____

DATE OF RESPONSE: _____

**Component 1:
Improve methodologies, emission factors and appropriate data gathering**

Under this component in the full project, countries will first assess data gaps and needs and then identify the capacity needs for data collection. Countries will be trained in the selection and prioritisation of data using the IPCC 1996 Good Practice Guidance and Uncertainty Management (GPG).

For developing this full project component, we would like to learn:

- *what national methodologies have been used (that might be applied at the regional level);*
- *what national emission factors have been used (that might be applied at the regional level);*
- *how countries presently prioritise data collection needs.*

QUESTION 1.

- a) What are the most significant sources of greenhouse gas **emissions** in your national inventory?
- b) What are the most significant sources of greenhouse gas **removals** in your national inventory?
- c) For each source, please indicate whether the associated level of **uncertainty** is high, medium or low:

Source/Sector	Level of uncertainty (using expert judgement)
Energy	
Industrial processes	
Agriculture	
LUCF	
Waste	
Other	

- d) What type of software tools you use for estimating emissions? (E.g. IPCC software, Excel tables, CORINAIR, COPERT, MS Access, etc.) Did you develop any special software for estimating emissions? For which sector?

Source/Sector	Software tools used
Energy	
Industrial processes	
Agriculture	
LUCF	
Waste	
Other	

QUESTION 2

- a) Did you use any methods for developing emission factors apart from the IPCC defaults? If yes, for which key source/sector?

Source/Sector	Emission factors used
Energy	
Industrial processes	
Agriculture	
LUCF	
Waste	
Other	

- b) For any of the methods that you have identified, please indicate if and how the selection process has been documented
- c) Would any of these methods be suited to regional application?
- d) In which sectors/sources is there the highest priority for developing emission factors?

Question 3.

- a) Does your country have a “statistical office” or other organisation responsible for regular data collection in prescribed format?
- b) Is this format suitable (and consistent in time) for estimating emissions (source categories, type of activity data, availability since 1990 (1994)?
- c) Have you identified the most significant data gaps in your national inventory?
- d) For each of the data gaps you have identified, is there (a low-cost) method of collecting the data available?
- e) What criteria do you currently apply for identifying priorities in data collection?

COMPONENT 2: STRENGTHEN NATIONAL ARRANGEMENTS FOR COMPILING, ARCHIVING, UPDATING, AND MANAGING GREENHOUSE GAS INVENTORIES

Under this component in the full project, countries will identify ways of strengthening the existing institutional arrangements supporting national inventory preparation, especially those that could be approached at the regional level.

To develop this full project component, we would like to learn:

- Who is responsible for supporting inventory preparation?*
- Is there any legislation supporting inventory preparation?*

Question 1

- a) Does your country have a national emission inventory system that is regularly updated?
- b) If yes:
- Which sources are included in the system?
 - Which gases are covered by the system?
 - At what time periods is the data in the system updated?

Question 2

Are there any national regulations or legislation relating to data provision and collection? How are these regulations or legislation enforced? Please describe the difficulties and/or success stories.

Are there any national regulations or legislation related to reporting/compiling of emissions or emissions sources?

- what are the sources covered by the legislation?
- what are the gases covered by the legislation?
- what is the period for updating information

Is it necessary to pay for any data that is collected? Is funding available for this purpose?

Do you have a standard reporting format that is used when collecting data? If so, please attach an example.

Question 3

- a) At what time intervals is the national inventory updated? If it has not been updated, when do you plan to do so?
- b) How long is the time delay between actual emissions and availability of activity data to the people in charge of inventory preparation for each key source/sector?

Question 4

- a) Is there one central entity/institution that is clearly responsible for the overall inventory? If so, please name it and describe its institutional arrangement.
- b) Please describe any difficulties and/or success stories that this institution has experienced in carrying out its functions.

- c) Do the staff preparing the inventories change frequently? Is the staff developing the national inventory generally knowledgeable about UNFCCC inventory requirements?
- d) Which institutions are involved in inventory preparation? Please name the institutions for each key source/sector and for each function in the table below:

Institution involved	Energy	Industrial processes	Agriculture	LUCF	Waste
Activity data collection					
Identification/development of emission factors					
Preparation of inventory emission estimates					
Reporting of inventory emission estimates					
Archiving of activity data and EF					
Archiving the emission estimates					

- e) Which institutions are involved in inventory data management procedures at national level? Please name the institutions in the table below:

Data management procedure	Institution involved
Co-ordination/compilation of national inventory	
Archiving of relevant national data	
Identification/contracting of national experts for the sectors	
Periodic updating of the inventory	
Documentation of selection process for national activity data, emission factors, and other conversion factors	
Documentation of methods and assumptions used	
Validation of conversion units and other data	
Verification of inventory estimates	
Compilation of inventory report	
Reporting to international bodies	

Question 5

- a) What data verification and quality control measures are currently carried out to ensure the accuracy of your country's GHG emission inventory?

- b) Was there, or will there be, a third party or independent peer review of the inventory before submission to the UNFCCC Secretariat? Please describe the current quality assurance process.
- c) Do you foresee any difficulties in establishing quality assurance objectives and processes: for activity data, emission factors and inventory methods? Please specify these.

Question 6

- a) Please describe the official approval processes for the **inventory** prior to its submission (e.g., cabinet committee, inter-ministerial committee for climate change).
- b) Please describe the official approval processes for the **national communication** prior to its submission (e.g., cabinet committee, inter-ministerial committee for climate change).
- c) Are there any difficulties with these approval processes (e.g., time frame for approval, low priority given to the issue)?

**COMPONENT 3:
ENHANCE CAPACITY FOR PREPARING NATIONAL INVENTORIES**

A flexible approach will be developed under this component to support training in methods, data measurements, and inventory and data management. A package of training tools will be developed that provides a practical means of implementing the GPG. The package will be published in early 2002.

Question 1.

- a) Does your government have problems producing emissions inventory according to existing reporting requirements (i.e., the 1996 revised IPCC inventory guidelines)?
- b) In the table below, please indicate any key source/sector for which there is **insufficient** capacity for providing inventory information. Please add other columns if necessary (e.g., for solvents) and refer to the *1996 IPCC Reporting Instructions* for inventories, if needed.

National capacity needs	Energy	Industrial processes	Agriculture	LUCF	Waste
Activity data collection					
Calculation of emission factors (rather than using IPCC default)					
Preparation of inventory emission estimates					

Please describe any major difficulties, such as lack of regulatory mandate to obtain data, unclear responsibilities, time delays, lack of staff with appropriate skills, resources, time, or lack of equipment. Use as much space as necessary for your response.

Question 2

a) Would your government have problems meeting any of the following inventory preparation, reporting and management functions associated with GPG?

b) Does Inventory agency designate QA/QC responsibilities to other agencies or institutions?

c) Please, if possible, assess national capacity in the table below. *Refer to Chapter 8 of the GPG, if needed.*

Inventory preparation and reporting functions	Already carried out ¹	Possible with existing capacity ²	High quality possible with assistance	High quality unlikely before 2005
1. Develop a QA/QC plan				
2. Apply general QC procedures (Tier 1)				
3. Apply source category-specific QC procedures (Tier 2) for: <ul style="list-style-type: none"> • emission data QC • activity data QC • QC of uncertainty estimates 				
4. QA review procedures				
5. Verification of emissions data				
6. Documentation				
7. Archiving				
8. Reporting				
<i>Notes:</i> 1. Indicate quality where <i>H = high, M = medium and L = low</i> 2. Indicate expected quality where <i>H = high, M = medium and L = low</i>				

b) For **each** of the inventory preparation and reporting functions in the table above (1-9), please detail:

- the capacity that already exists, if any;
- the institutions that are responsible for each function;
- particular difficulties;
- what type of assistance is needed (e.g., funding, expertise).

Please use as much space as necessary for your responses.

Question 3

a) Please prioritise the **types** of training needed:

Training needed	High	Medium	Low
IPCC methods for inventory preparation for:			
• Energy			
• Industrial processes			
• Agriculture			
• LUCF			
• Waste			
• Other			
Good Practice Guidance			
• Energy			
• Industrial processes			
• Agriculture			
• Waste			
• Quantifying uncertainties			
• Methodological choice and recalculation			
• Quality assurance and quality control			
Data collection and management			
Inventory reporting and archiving			
General awareness raising			

b) How many people are/were involved in inventory compilation a) full time b) on an ad hoc basis?

c) Please identify **who** needs training, and in which areas? For example, national inventory experts, data providers, government officials. What are the priorities?

d) How do you propose retaining newly trained personnel?

e) Have you been able to retain inventory experts in the past? Please describe your difficulties and/or successes.

Question 4

a) Does your government have a national GHG web site with inventory information available on it? If not, would it be possible to create one? What difficulties would you anticipate?

b) Would your country find a web site containing training tools and on-line technical assistance useful?

- If yes, please describe what kinds of information would you like to have available?
- If no, what difficulties do you anticipate?

ANNEX Q: LEVEL OF UNCERTAINTY IN GHG INVENTORY BY SOURCE/SECTOR, USING EXPERT JUDGEMENT

Source/Sector	BEN	BF	BUR	CHA	CdI	GAB	GAM	GHA	GUI	MAL	NIG	NGA	SEN	TOG
Energy	H	L	L	H	--	--	L	--	M	L	L	M	H	M
Industrial Processes	M	--	H	H	--	--	H	--	H	L	M	M	L	M
Agriculture	H	H	M	H	--	--	L	H	M	M	M	M	M	M
LUCF	M	H	M	--	--	--	M	H	M	H	H	L	H	M
Waste	M	H	H	--	--	--	M	--	H	L	H	M	L	M
<p><i>Notes:</i> BEN = Benin; BF = Burkina Faso; BUR = Burundi; CHA = Chad; CdI = Côte d'Ivoire; GAB = Gabon; GAM = Gambia; GHA = Ghana; GUI = Guinea; MAL = Mali; NIG = Niger; NGA = Nigeria; SEN = Senegal; TOG = Togo H = high uncertainty; M = medium uncertainty; L = low uncertainty; -- = no information provided <i>Source:</i> Country responses to NCSU questionnaire</p>														

ANNEX R: NATIONAL STAKEHOLDER INVOLVEMENT, BY COUNTRY

Country	Planned stakeholder involvement
Benin	<p>Ministère de l'Environnement, de l'Habitat et de l'Urbanisme * Projet Changement Climatique-Bénin * Comité National pour les Changements et la Variabilité Climatiques (CNCVC) Centre Béninois pour le Développement Durable (CBDD) Agence Béninoise pour l'Environnement (ABE) Institut National de la Statistique et de l'Analyse Economique (INSAE) Institut National de la Recherche Agronomique du Bénin (INRAB) Centre Béninois pour la Recherche Scientifique et Technique (CBRST) CENAGREF Service Météorologique (ASECNA) Direction de l'Energie. Institut Régional de Santé Public (IRSP/OMS) Département de Géographie et Aménagement du Territoire (FLASH-Université d'Abomey-Calavi) Groupe Thématique: Technologies Nouvelles (POTEMAT/CPU) Groupe Thématique : Bases de données (LAMENU/FAST-Université d'Abomey-Calavi) Groupe National de Travail des ONG pour la Prévention des Changements Climatiques et pour le Développement Durable (GNT/P2CD) Groupe de travail sur les projets, financements et négociations internationales pour la prévention des Changements Climatiques (ProFinCC) Groupe de Travail sur les Stratégies d'Atténuation/Réduction des GES (GT-SAR)</p>
Burkina Faso	<p>SP/CONAGESE* CIMAC Institut National de la Statistique et de la Démographie GERED: Group d'études Recherche Energie-Environnement pour le Développement SONABEL: national society of electricity IRSAT: research department for applied science and technology DGE: General Direction of Energy SONABHY: National society of hydrocarbure INERA: Institut de l'environnement et de recherche agricole MA: Ministry of Agriculture ONAT: National office for Land Management CREPA: Centre regional d'Eau Potable et d'Assainissement Direction for Pollution Prevention Direction of Environmental Protection Third Development Urban Project Ministry of Health Cartography project</p>
Burundi	<p>Departement de l'Environnement * Ministère de l'Aménagement du Territoire et de l'Environnement La Direction Générale de l'Eau et de l'Energie La Direction des Forêts La Direction générale du Suivi et Evaluation du Ministère de l'Agriculture et de</p>

* Organisation in bold is the institution responsible overall for inventory preparation

	l'élevage
Chad	Ministry of Environment and Water (MoE) Climate Change Enabling Activities - Project Office under MoE*
Gambia	Department of Water Resources * Department of Energy Central Statistics Department Gambia Civil Aviation Authority Gambia Public Transport Corporation Department of Livestock Services National Environment Agency Department of Planning Department of Agricultural Services Department of Forestry Department of Parks and Wildlife Gambia Environment Agency Banjul City Council Kanifing Municipal Council Brikama Area Council.
Ghana	Environmental Protection Agency * Forestry Department CSIR-AGI
Guinea	Direction Nationale de l'Environnement (DNE) Climate Change Enabling Activities - Project Office under DNE * Centre de Recherche Scientifique de Conakry Rogbané (CERESCOR) Bureau d'étude privé (CBS) Direction Nationale de la Statistique
Mali	Centre National de la Recherche Scientifique et Technologique (CNRST) * Direction Nationale de la Statistique et de l'Informatique (DNSI) Secrétariat Technique Permanent du Cadre Institutionnel de Gestion des Questions Environnementales Direction Nationale de l'Energie (Ministère des Mines et de l'Energie) Direction Nationale de l'Industrie Ecole Nationale d'Ingénieurs (Université du Mali) Energie du Mali Entreprise SADA. SA Cellule des Combustibles Ligneux (Ministère en charge de l'Environnement) Direction Nationale de l'Aménagement et de l'Equipement Rural (Ministère en charge de l'Environnement) Ecole Normale Supérieure (Université du Mali) Direction Nationale des Services de Voirie Direction Nationale de la Réglementation et du Contrôle des Pollutions et Nuisances Centre National de l'Energie Solaire et des Energies Renouvelables Direction Nationale de la Météorologie Organisations non Gouvernementales (GRAT, STOP SAHEL) Association Féminine de Gestion des Déchets Urbaines Direction Nationale de l'Agriculture Office Nationale des Produits Pétroliers Direction Nationale de l'Appui au Monde Rural (charge d'Elevage)

	<p>Office du Niger (pour la riziculture) Institut d'Economie Rural Direction Nationale du Plan et de la Statistique Direction Nationale du Transport</p>
Niger	<p>Commission interministérielle Nationale sur les Changements et Variabilité Climatiques (CNCVC)* Direction de l'Electricité et des Energies Nouvelles et Renouvelables Centre National d'Energie Solaire Société Nigérienne d'Electricité Société Nigérienne des Produits Pétroliers Société Nigérienne de Charbon Société des Mines de l'Air Compagnie Minière d'Akokan Direction du Développement Industriel Société Nationale de Cimenterie Société Nigérienne de Chaux Office de Lait du Niger Entreprise Nigérienne de Production de Mousse Société des Produits Chimiques du Niger Entreprise Nigérienne de Textiles Office National des Produits Pharmaceutiques et Chimiques Société de Brasseries du Niger Direction de l'Agriculture Direction de la Production Animale Institut National de la Recherche Agronomique du Niger Office National des Aménagements Hydro Agricoles Direction de l'Environnement</p>
Nigeria	<p>Federal Ministry of Environment * Federal Ministry of Industry Federal Ministry of Agriculture Federal Ministry of Petroleum Resources Federal Ministry of Water Resources Federal Ministry of Transport Nigerian Metrological Agency Energy Commission of Nigeria State Environment Agencies National Planning Commission Federal office of Statistics Centre for Energy Research and Development, OAU Manufacturers Association of Nigeria</p>
Senegal	<p>Direction de l'Environnement et des Etablissements Classés (DEEC) * Ministry of Environment & Quality of Life Direction de l'Environnement, Service des Installations Classées Ministère de l'Industrie, Ministère de l'Agriculture, Ministère des Mines et de l'Energie Direction des Transports MINAGRA</p>

	<p>EECI Université d'Abidjan Université d'Abobo-Adjamé Direction de la Statistique Ville d'Abidjan <u>For LUCF:</u> Ministère des Eaux et Forêts SODEFOR (Société de Développement de la Forêt) CNRA (Centre National de Recherche Agronomique) BNETD (Bureau National d'Etudes et de Développement) CNTIG (Comité National de Télédétection et de l'Information Géographique) INS (Institut National de la Statistique)</p>
Togo	<p>Ministry of Environment (MoE) Climate Change Enabling Activities Project Office, under MoE * Office of Statistics Direction nationale de l'Énergie Laboratoire de Chimie de l'Atmosphère École Supérieure d'Agronomie Laboratoire de Physique de l'Atmosphère</p>

ANNEX S: INSTITUTIONAL ARRANGEMENTS FOR INVENTORY PREPARATION

<i>Benin</i>	<p>The Ministry of Environment (Ministère de l'Environnement, de l'Habitat et de l'Urbanisme) has the overall responsibility for the inventory. The Ministry commissioned national experts to collect the activity data, prepare emissions estimates and develop emission factors.</p> <p>The inventory was validated by a national committee of experts before being adopted by the National Climate Change Committee.</p>
<i>Burkina Faso</i>	<p>The Permanent Secretariat for the Management of Environment (SP/CONAGESE) is charged with co-ordinating all inventory activities. SP/CONAGESE is supported by the Inter-Ministerial Committee for FCCC Actions (CIMAC). There is no mechanism for the permanent collection and the systematic updating of data. Several government agencies provide activity data and emissions estimates.</p> <p>The inventory was validated at a national workshop and by comparing data with the Institut des Statistiques et de la Démographie before being adopted by CIMAC and the Council of Ministers.</p>
<i>Burundi</i>	<p>The Department of Environment, within the Ministry for Environment and Regional Planning (Ministère de l'Aménagement du Territoire et de l'Environnement), has overall responsibility for the inventory; the work was carried out by the climate change enabling activity team. The main collaboration is from the Direction Générale de l'Eau et de l'Energie; the Direction des Forêts, and the Direction générale du Suivi et Evaluation (DGSE) du Ministère de l'Agriculture et de l'élevage.</p> <p>The inventory was validated in a national workshop including public and private institutions and university researchers before being submitted to the Council of Ministers.</p>
<i>Chad</i>	<p>The climate change enabling activity team is responsible overall for the inventory, under the supervision of the Ministry of Environment and Water. The National Statistics Institute and all government ministries and agencies concerned with emission sources are requested to provide activity data and emissions estimates.</p> <p>The inventory was validated through external review and a national inter-ministerial workshop before being adopted by the National High Committee for Environment (Haut Comité National pour l'Environnement).</p>
<i>Gambia</i>	<p>The National Climate Committee, composed of 40 government, non-government and private sector institutions, is mandated to implement the UNFCCC. The Committee is housed at the Department of Water Resources (DWR). Within the DWR, the Head of the Meteorology Division is directly responsible for the inventory. Activity data and emissions estimates are provided by a Task Force of 25 institutions. A Global Change Research Unit has been established as the UNFCCC Focal Point.</p> <p>The inventory was validated internally and externally before being sanctioned by the Minister Responsible for Climate Issues.</p>
<i>Ghana</i>	<p>The Ministry of Environment, Science, and Technology is the focal point of UNFCCC activities in Ghana while the Environmental Protection Agency (EPA) serves as the country's main implementing institution for technical coordination of activities on climate change and the UNFCCC. The Environmental Protection Agency (EPA) is responsible overall for the inventory. The EPA prepares the inventory for the industry and waste sectors. The Forestry Commission, CSIR-ARI and Ministry of Energy are involved in preparation of the LUCF, agriculture sectors and energy, respectively.</p> <p>Prior to submission, the inventory is presented to the National Climate Change Committee at a workshop. The Ministry of Environment, Science and Technology accepts the report on the government's behalf and reports to Cabinet.</p>
<i>Guinea</i>	<p>There is no institution designated as being formally responsible for the inventory. This role is carried out by climate change enabling activity team, under the Direction Nationale de l'Environnement. Activity data and emission estimates were also provided by the Conakry</p>

	Rogbané Centre of Scientific Research (CERESCOR) and by the CBS, a bureau of private studies. The final review of the inventory was overseen by the Project Steering Committee before being adopted by the Interministerial Council.
<i>Mali</i>	<p>The STP/CIGQE is the national institution charged with co-ordinating all International Conventions signed by the Government of Mali through a Convention Desk and an Inter-Ministerial Committee. The Minister of Environment and the National Direction of Meteorology (the focal point of the UNFCCC) delegated the technical responsibility for all inventory activities to the Centre National de la Recherche Scientifique et Technologique (CNRST). However, it has not been given the authority to update the inventory. The CNRST has the advantage of working with several multi-sectoral research institutions and the University.</p> <p>The STP/CIGQE is now co-ordinating the Phase II enabling activity and will oversee the regional project. The team of national inventory experts that has been created will be used on the regional project. A Steering Committee and the National Climate Change Committee (NCCC) will provide technical advice.</p> <p>National and regional experts and the NCCC validated the inventory before it was approved at a National Inter-Ministerial Workshop.</p>
<i>Niger</i>	<p>An interdepartmental National Commission on Climate Change and Variability (CNCVC) was created in July 1997. The commission is under the supervision of the Executive Secretariat of the National Council of the Environment for Sustainable Development, which is attached to the cabinet of the Prime Minister. The CNCVC supports the Executive Secretariat on national climate policy and is responsible overall for the inventory. Activity data is provided by “societes” for electricity, gas, mines, cement and chemicals, by national institutes, the Departments of Electricity and Renewable Energy and Environment, and private companies.</p> <p>The inventory underwent an internal CNCVC review before validation at a national workshop.</p>
<i>Nigeria</i>	<p>The co-ordination of climate change activities is vested in the Federal Ministry of Environment (FMEnv). The FMEnv set up an inter-ministerial National Committee on Climate Change (NCCC) to ensure the participation of other Ministries on relevant issues. The NCCC is also represented by the private sectors and the academia. The FMEnv has identified a number of universities and research institutions that could act as centers of excellence to support research and development activities in the climate change area. The head of the Climate Change Unit and 2 desk officers are regular government employees, as well as the majority of the NCCC.</p>
<i>Senegal</i>	<p>The Direction de l'Environnement et des Etablissements Classés (DEEC) is responsible overall for the inventory. Activity data and emission estimates are also provided by the Ministries of Energy, Industry, Environment and Agriculture and affiliated government agencies (e.g. forestry, statistics), along with NGOs, private sector and research institutions.</p> <p>The Inter-Ministerial National Climate Change Committee, which includes representatives of the government, research institutions, NGOs and the private sector, is charged with final validation and approval of the inventory.</p>
<i>Togo</i>	<p>The Office of Statistics is responsible for regular data collection. The climate change enabling activity team has overall responsibility for preparing the inventory, under the Ministry of Environment. The team compiles sectoral activity data and inventory emission estimates provided by the Direction Nationale de l'Énergie, the Laboratoire de Chimie de l'Atmosphère, the École Supérieure d'Agronomie and the Laboratoire de Physique de l'Atmosphère.</p> <p>The inventory was disseminated to stakeholders for a three-week review prior to adoption at a national expert workshop. The inventory was then submitted to the Cabinet of Ministers and the National Assembly for final approval.</p>

ANNEX T: FREQUENCY OF KEY SOURCES FOR REGION

KEY SOURCE CATEGORY ¹	Sector	Direct GHG	Countries identifying key source	No. of countries
Forest and Grassland Conversion	LUCF	CO ₂	Benin, Burkina Faso, Chad, Côte d'Ivoire, Gabon, Gambia, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Togo	13
Enteric Fermentation in Domestic Livestock	Agriculture	CH ₄	Benin, Burkina Faso, Burundi, Chad, Ghana, Mali, Nigeria, Senegal	8
Mobile Combustion: Road Vehicles	Energy	CO ₂	Burkina Faso, Burundi, Niger, Nigeria, Senegal, Togo	6
Rice Cultivation	Agriculture	CH ₄	Benin, Chad, Côte d'Ivoire, Mali, Nigeria	5
Solid Waste Disposal	Waste	CH ₄	Côte d'Ivoire, Ghana, Nigeria, Senegal	4
Energy industries	Energy	CO ₂	Gabon, Niger, Nigeria, Senegal	4
Emissions and removals from soil	LUCF	CO ₂	Chad, Gambia, Nigeria, Mali	4
Wastewater handling	Waste	N ₂ O	Burkina Faso, Burundi, Gambia, Nigeria	4
Forest and Grassland Conversion	LUCF	CH ₄	Benin, Mali, Guinea	3
Savannah burning	Agriculture	N ₂ O	Burundi, Chad, Ghana	3
Agricultural soils	Agriculture	N ₂ O	Burkina Faso, Burundi, Niger	3
Agricultural waste burning	Agriculture	CH ₄	Burkina Faso, Côte d'Ivoire, Ghana	3
Biomass	Energy	CH ₄	Côte d'Ivoire, Ghana	2
Other	Energy	CO ₂	Côte d'Ivoire, Senegal	2
Stationary Combustion	Energy	CO ₂	Ghana, Niger	2
Agricultural soils	Agriculture	CO ₂	Niger	1
Agricultural waste burning	Agriculture	N ₂ O	Burundi	1
Rice Cultivation	Agriculture	CO ₂	Niger	1
Savannah burning	Agriculture	CH ₄	Ghana	1
Manufacturing industries and Construction	Energy	CO ₂	Gabon	1
Fugitive Emissions: Oil and Natural Gas	Energy	CH ₄	Nigeria	1
Fugitive Emissions: Oil and Natural Gas	Energy	CO ₂	Nigeria	1
Residential sector	Energy	CH ₄	Burundi	1
Residential sector	Energy	CO ₂	Guinea	1
Residential sector	Energy	N ₂ O	Burundi	1
Small combustion	Energy	CO ₂	Nigeria	1
Small combustion	Energy	CH ₄	Nigeria	1
Mineral products	Industry	CO ₂	Togo	1
Abandoned lands	LUCF	CO ₂	Burundi	1
Land use change and management	LUCF	CO ₂	Togo	1
Animal husbandry	Agriculture	CH ₄	Burkina Faso	1
Manure management	Agriculture	CH ₄	Burkina Faso	1
Industrial waste water	Waste	N ₂ O	Burkina Faso	1
Changes in Forest and other Woody Biomass Stocks	LUCF	CO ₂	Nigeria	1

Notes:

1. As the LUCF sector has been included in the key source analysis for this project, the pre-determined threshold of 95% that was used may need to be re-evaluated. Input shall be sought from the IPCC Inventories Technical Support Unit during the project start-up.

ANNEX R: REGIONAL PRIORITIES FOR IMPROVING EMISSION FACTORS

At the Project Development Workshop held in Benin (16-18 October 2001), countries identified a number of priority emission factors to improve at the regional or sub-regional level, consistent with IPCC guidelines. Given the resource constraints, four priority areas for improvement were finally selected. These were, in descending order of priority:

- Combustion from road vehicle transport;
- Enteric fermentation;
- Use of biomass-energy (fuelwood, charcoal, etc.);
- Public Electricity and Heat Production.

These four key priorities for improving emission factors at regional level were determined on the basis of three approaches :

- Priority determination resulting from the Accra Expert Workshop;¹⁸
- A qualitative assessment based on expert judgement; and
- A quantitative assessment based on key source analysis.

The workshop on emission factors and activity data for the improvement of GHG inventories, held in Accra, Ghana,¹⁹ undertook a consultation among experts, aimed at a first carbonization of areas for improving emission factors in Africa. The four top priorities in the energy sector were the following :

- Biofuel transformation (carbonisation) ;
- Biomass combustion in households (woodfuel, charcoal, etc.);
- Energy consumption in transport sector (road vehicles);
- Public Electricity and Heat Production;

The qualitative assessment reflects the attending experts' judgement on the priority area to improve emission factors.²⁰ The ranking of the priority sources was made by using two different approaches:

- a) A priority ranking given by country experts to sources for which improvement of emissions factors was relevant in their own country. The ranking includes only the 11 top priority sources. The aggregate ranking, for a given source, is determined by adding the ranking figures across the 12 countries, and then sorted.
- b) Same as above, but the aggregate ranking, for a given source, determined according to the number of countries for which a source is listed among the 11 top priorities.

The following table presents the results of the two approaches.

Priority Sources	Priority ranking	
	Approach (a)	Approach (b)
Mobile Combustion: Road Vehicles (including motorcycles)	1	1
Emissions from Enteric Fermentation in Domestic Livestock	2	1
Savannah Burning	--	2
Biomass Combustion (Woodfuel, Charcoal, etc.)	3	3

Finally, the following table presents the results of the key source analysis,²¹ which involved 12 countries.

¹⁸ UNFCCC workshop on emission factors and activity data for the improvement of GHG inventories. Accra, Ghana, 4-6 August 1999.

¹⁹ 4-6 August 1999.

²⁰ Based on a survey undertaken during the Project development workshop held in Cotonou, Benin, 16-18 October, 2001.

Priority areas identified for development of emission factors, by country, based on IPCC key source analysis

Key source category (not necessarily EF priorities)	Direct GHG	Countries identifying key source
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