GLOBAL ENVIRONMENT FACILITY

MOHAMED T. EL-ASHRY
CHIEF EXECUTIVE OFFICER AND CHAIRMAN

May 14, 1996

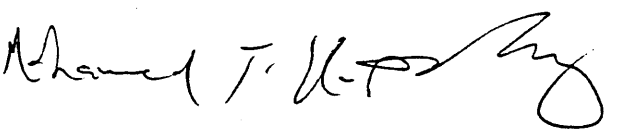
Dear Council Member:

UNDP, as the Implementing Agency for *Enabling Brazil to Fulfill its Commitment to the United Nations Framework Convention on Climate Change Project,* has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

Over the next four weeks, the Secretariat will be reviewing the project document to ascertain that it is consistent with the proposal included in the work program approved by the Council in October 1995, and with GEF policies and procedures. The Secretariat will also ascertain whether the proposed level of GEF financing is appropriate in light of the project's objectives.

If by June 12, 1996, I have not received requests from at least four Council Members to have the proposed project reviewed at a Council meeting because in the Member's view the project is not consistent with the Instrument or GEF policies and procedures, I will complete the Secretariat's assessment with a view to endorsing the proposed project document.

Sincerely,



cc: Alternates, Implementing Agencies, STAP

GEF SECRETARIAT, 1818 H STREET NW, WASHINGTON, DC 20433 USA
TELEPHONE (202) 473 3202 FAX (202) 522 3240/3245

5.4. CEPETEC/INPE (Remote Sensing and Global Climate Model Research)

5.5. Bilateral Agreements

5.6. MERCOSUL (Free Trade Block formed by Argentina, Brazil, Paraguay and Uruguay)

bcc: Ian Johnson, Patricia Bliss-Guest, Ali Azimi, Al Duda, Avani Vaish,
Sam Fankhauser

PETROBRÁS / SERPLAN (Planning)
PETROBRÁS / GASB (Assessor for the importation of Bolivian Gas)
COMGÁS (São Paulo State Gas Company)
CEG (Rio de Janeiro State Gas Company)

3.6. PROCONVE (National Program for Pollution Control of Vehicles)
CETESB (Environmental Pollution Control and Sanitation Company of São Paulo State)
IBAMA (Brazilian Institute for Environment and Renewable Resources) / Ministry of Environment
MICT (Ministry of Industry)
PETROBRÁS / SERPLAN (Planning)
PETROBRÁS / DEPIN (Industrial Department)

3.7. Deforestation
MMA (Ministry of Environment)

3.8. Savanna Burning (PREVFOGO Project)
IBAMA (Brazilian Institute for Environment and Renewable Resources) / Ministry of Environment
EMBRAPA (Brazilian Agricultural Research Corporation)/ CNMA(Environmental Center)

3.9. National Parks
MMA (Ministry of Environment)
IBAMA (Brazilian Institute for Environment and Renewable Resources) / Ministry of Environment

3.10. Semi-Arid Region (Practical application of ENSO Predictive Information)
FUNCEME (Ceará State)

4. Education, Awareness and Disclosure
MEC (Ministry of Education)
Agência Estado (Newspaper disclosure of savanna burning information)
NGOs (Vitae Civilis, etc)
Others

5. International Cooperation and Scientific Initiatives
5.1. Existing studies of future emission evaluations for the energy sector
COPPE (BNL, RISO)
USP
Others

5.2. IPCC (Intergovernmental Panel on Climate Change)
WG I (Co-chairman)
Lead authors

5.3. IAI (Inter American Institute for Climate Change)

United Nations Development Programme
GLOBAL ENVIRONMENT FACILITY (GEF)

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G E F SECRETARIAT

1 May, 1996

Dear Mr. El-Ashry,

Please find attached copy of the UNDP/GEF Project document entitled: ***BRA/95/G31 - Enabling Brazil to Fufill its Commitment to the United Nations Framework Convention on Climate Change (UNFCCC)***, approved by the GEF Executive Council in October 1995.

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

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

Yours sincerely,

Emma Torres
Officer-in-Charge

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

Street Address: 304 East 45th Street, 10th Floor
Mail Address: 1 U.N. Plaza, Room FF 1094, New York, N.Y. 10017
Telephone: (212) 906-5044/6028
Fax: (212) 906-6998

2.5.3.5. Caatinga (Brazilian semi-arid region)

2.5.4. Methane emissions from hydropower plants reservoirs
ELETROBRÁS
ELETRONORTE(ELETROBRAS subsidiary company for the North region)
ITAIPU (Binational company)
Unicamp (University of Campinas)
COPPE (Energy Planning team of Rio de Janeiro Federal University)

2.6. Waste Treatment

CETESB (Environmental Pollution Control and Sanitation Company of São Paulo State)
SMA/SP (São Paulo Environment Secretary)
SMA/Other 10 most populated States

2.6.1. Methane emissions from land disposal of solid waste (landfills)

2.6.2. Methane emissions from wastewater treatment
2.6.2.1. Domestic and Commercial Wastewater
2.6.2.2. Industrial Wastewater

3. Policy and Measures

3.1. Pro-Alcohol Program
MICT (Ministry of Industry)
CINAL(Interministerial Commission for the Alcohol Program)
COPERSUCAR (Alcohol Industry)
PETROBRÁS / SERPLAN (Planning)
PETROBRÁS / DECOM (Commercial Department)

3.1.1. Steam and electricity cogeneration from bagasse
COPERSUCAR (Alcohol Industry)

3.2. Brazilian Energy Conservation Program
Ministry of Mines and Energy
PROCEL / ELETROBRAS (Electric Sector Conservation Program)
CONPET / PETROBRAS (Oil and Natural Gas Sector Conservation Program)

3.3. Electric Generation
ELETROBRÁS

3.4. Wind and Solar Energy (Prodeem Program)
Ministry of Mines and Energy

3.5. Natural Gas

UNITED NATIONS DEVELOPMENT PROGRAM
GLOBAL ENVIRONMENTAL FACILITY
PROJECT OF THE GOVERNMENT OF BRAZIL
PROJECT DOCUMENT

Number:	BRA/95/G31/A/1G/99
Project Title:	Enabling Brazil to Fulfill its Commitment to the United Nations Framework Convention on Climate Change
Duration:	18 months
ACC/UNDP Sector and Subsector:	Environment (200)
GEF Theme:	Climate Change
Government Implementing Agency:	Ministry of Science and Technology
Executing Agency:	Government of Brazil/Ministry of Science and Technology
UNDP/GEF Financing:	U$1,500,000.00
Estimated Starting Date :	May 1996

Brief Description: The project is aimed to prepare the first National Communication of Brazil to the Conference of the Parties in accordance with Article 12 of the UN Framework Convention on Climate Change, and to build capacity to fulfill Brazil's commitments to the Convention on a continuous basis. The communication will consist of an inventory of greenhouse gases in 1990 made in accordance with the IPCC guidelines, general description of steps taken or envisaged by the Party to implement the Convention and other relevant information on the policy measures, technologies and research related to climate change. The Ministry of Science and Technology will establish a coordinating advisory unit for climate change issues that will be responsible for the coordination of all activities related with the implementation of the Convention in Brazil and, in particular, for the preparation of the national communication.
The activities of the project were organized to focus mainly on the preparation of the national communication. Additionally, activities for setting up a small administrative staff for the coordination and workshops for information exchange, capacity building of the participating teams and for a final discussion were included.

On behalf of:	Signature	Date	Name/Title
The Government :			
Executing agency:			
UNDP :			

United Nations official exchange rate at date of last signature of project document US $ 1.00 = R$ 0.98

2.4.4.1. Sugar cane
COPERSUCAR (Alcohol Industry)
2.4.4.2. Other crops

2.4.5. N_2O emissions from fertilizer uses

2.4.5.1. Nitrogen fertilizers
MICT (Ministry of Industry)
Fertilizer producer association

2.4.5.2. Vinasse (alcohol distillation residue)
MICT (Ministry of Industry)
COPERSUCAR (Alcohol Industry)

2.5. Land use changes and Forestry

FUNCATE (Foundation for Space Science, Applications and Technology)
INPE (National Institute for Space Research)
MMA (Ministry of Environment)
IBAMA (Brazilian Institute for Environment and Renewable Resources) / Ministry of Environment
INPA (National Institute for Amazon Research)
UnB (Brasilia Federal University)
UFV (Viçosa Federal University)
USP (São Paulo State University)
FBDS (Brazilian Foundation for Sustainable Development)
IEF/MG (Minas Gerais State Forestry Institute)
IEF/SP (São Paulo State Forestry Institute)
SMA/SP (São Paulo Environment Secretary)

2.5.1. Changes in forest and other woody biomass stocks
2.5.1.1. Above ground
2.5.1.2. Below ground

2.5.2. CO_2 emissions from forest and grassland conversion
2.5.2.1. Legal Amazon
2.5.2.2. Cerrados (Brazilian savanna)
2.5.2.3. Atlantic Forest
2.5.2.4. Pantanal (Brazilian swamp region)
2.5.2.5. Caatinga (Brazilian semi-arid region)

2.5.3. Abandonment of managed land
2.5.3.1. Legal Amazon
2.5.3.2. Cerrados (Brazilian savanna)
2.5.3.3. Atlantic Forest
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IBAMA (Brazilian Institute for Environment and Renewable Resources) / Ministry of Environment

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2.1.4.1. Methane emissions from coal production
SNIEC (Coal producer association)
2.1.4.1.1. Underground mining
2.1.4.1.2. Open mining
2.1.4.1.4. Activities beyond mining
2.1.4.1.4. CO_2 emissions from burning coal deposits
2.1.4.1.5. CO_2 emissions from "SO_2 scrubbing"

2.1.4.2. Methane emissions from oil and natural gas production, transportation and distribution
PETROBRÁS / DEPIN (Industrial Department)
PETROBRÁS / DEPRO (Production Department)
PETROBRÁS / DETRAN (Transportation Department)
COMGÁS (São Paulo State Gas Company)
CEG (Rio de Janeiro State Gas Company)

2.2. Industry
2.2.1. CO_2 emissions from cement production
SNIC (Cement producer association)
2.2.2. CF_4 e C_2F_6 emissions from aluminum production
ABAL(Aluminum producer association)
2.2.3. SF_6 emissions from electronic industry and electric sector
ELETROBRÁS
2.2.4. N_2O emissions from adipic acid and nitric acid production
ABIQUIM(Chemical Industry Association)
RHODIA (adipic acid producer)

2.3. Solvents
PETROBRÁS / SUSEMA (Environment Department)

2.4. Agriculture
EMBRAPA (Brazilian Agricultural Research Corporation)/ CNMA(Environmental Center)
2.4.1. Livestock
2.4.1.1. Enteric fermentation
2.4.1.2. Manure management

2.4.2. Rice cultivation

2.4.3. Prescribed burning of savannas

2.4.4. Field burning of agricultural residues (where applicable)

ABBREVIATIONS

CIDES	Inter Ministerial Committee for the Sustainable Development
COP	Conference of the Parties of the UNFCCC
GEF	Global Environment Facility
GHG	Greenhouse Gas
GNP	Gross National Products
IPCC	Intergovernmental Panel on Climate Change
NGOs	Non-Government Organizations
PC	Project Coordinator
PCU	Project Coordination Unit
PSC	Project Steering Committee
MCT	Ministry of Science and Technology
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

ANNEX V

Tentative Summary for the Brazilian National Communication under the United Nations Framework Convention on Climate Change

09/15/95

1. National Circumstances
1.1. Geography
1.2. Climate
1.3. Social and economical indicators

2. Inventory
2.1. Energy Sector
2.1.1. CO_2 emissions - Reference Method (Top-down approach)
Ministry of Mines and Energy.(National Energy Balance)
COPPE (Energy Planning team of Rio de Janeiro Federal University)
PETROBRÁS / CENPES (Research Center)
PETROBRÁS / SERPLAN (Planning)

2.1.2. Greenhouse gas emissions - (Bottom up approach)
2.1.2.1. Stationary sources
2.1.2.1.1. Technology categories (industry, commercial and domestic sectors)
Ministry of Mines and Energy (Useful Energy Balance)
2.1.2.1.2. Oil Refining, Oil and Natural Gas Production
PETROBRÁS / DEPIN (Industrial Department)
2.1.2.1.3. Thermoelectric Power plants
ELETROBRÁS

2.1.2.2. Mobile sources
2.1.2.2.1. Road transportation
PETROBRÁS / SERPLAN (Planning)
PETROBRÁS / CONPET (Energy Conservation Program)
GEIPOT (Ministry of Transportation)
CETESB (Environmental Pollution Control and Sanitation Company of São Paulo State)
MOBILE4 (USCS)/COPERT (EU)
2.1.2.2.2. Other transportation

2.1.3.
Other greenhouse gas emissions from biomass fuel combustion (firewood, bagasse and charcoal)
Ministry of Mines and Energy
COPPE (Energy Planning team of Rio de Janeiro Federal University)

A. CONTEXT

1. Subsector Description

Greenhouse gases are emitted in a range of social-economics activities in Brazil. The main sectors that are sources of greenhouse gas emissions are the forestry sector, the energy sector and the agricultural and livestock sector. There are also sources of greenhouse gas emissions in some industries as byproducts (like in cement and aluminum industries) and in the waste treatment but these sources are less significant in the case of Brazil.

Forestry

Approximately 40 % (3.5 million km^2) of the total land area of Brazil is covered by the Amazon Forest, of which 2 million km^2 is composed of dense forest and 1.1 million km^2 of open forest. In addition, Brazil has a large savanna area ("cerrado", over 2.5 million km^2), a semi-arid vegetation region ("caatinga", over 1.5 million km^2), a remaining part of the Atlantic Forests and also an important swamp region called "pantanal".

Brazil has also 6.5 million ha planted forests mainly composed of Eucalyptus and Pinus species. Two Brazilian States alone - Minas Gerais and Espírito Santo in the South-East Region - comprise 43 % of the total reforested area in the country. Half of this reforested area was planted before 1980 and yield low productivity. These areas are being reformed to increase their productivity (over 21 % of reforested area has already been reformed).

The total carbon content of Brazilian forest is the highest among tropical countries (over 100 PgC), followed by Zaire and Indonesia (over 30 PgC, FAO 1992).

The biomass content of the different kinds of forests were estimated in two main forestry inventories. The first inventory, called "Radam Brazil Project" was prepared by the Brazilian Government during the period from 1973 to 1983. The project set down different codes for each type of vegetation, drew vegetation maps in the scale 1:250,000, printed then in a scale 1:1,000,000 and presented all data and information collected in a set of over 50 books.

The vegetation classification was done by IBDF (now IBAMA) and IBGE (the Brazilian Geography and Statistical Institute) later on and was presented on maps in the 1:5,000,000 scale. Classification done in this manner - not very detailed - indicates 28 types of vegetation only for the legal Amazon region, of which 19 types refer to types of forests.

The second inventory was elaborated by the Food and Agriculture Organization (FAO) and was published during the 1950's under the title "Florestas Tropicais Latifoliadas Produtivas Não-Pertubadas das Américas".

ANNEX IV

EQUIPMENTS

Budget Line 40 Equipment:

041-001 Computer pentium with accessories (16 Mbytes Ram, HD 1620 Mbytes, 2 x FD 1.44 Mbytes, CD rom quad set, SVGA color video with accelerator card, fax 28,800 bps) and software (windows 95, microsoft office professional 95) - 1 unit.

041-002 Notebook computer 486 (50 Mhz or better) with accessories and software (1 unit)

041-003 Copier/fax/printer color machine (HP)

Energy Sector

The total primary energy consumption in Brazil in 1990 was 183.6 Mtoe of which petroleum accounted 30.0%, natural gas 2.0%, coal 5.0%, nuclear 0.3%, hydropower 36.9%, ethanol 9.9%, fuelwood 14.9% and others 1.0%. The share of renewable sources of energy has traditionally been high in Brazil and thus CO_2 emissions per energy consumed compared to many others countries are considerably lower. Main source of CO_2 emissions in the energy sector are the petroleum products used in industry and transportation. The total installed electric power capacity in Brazil has reached nearly 60,000 MW, over which 90% of hydroelectric power plants. Although still a net importer, Brazil has developed rapidly its domestic oil production and reached the goal of producing more than 750,000 barrels of oil per day in 1994, a figure greater than some OPEC countries. In the transportation sector petroleum products are used together with ethanol, which was launched 20 years ago through a National Alcohol Program, PRO-ALCOHOL, to reduce the dependency of Brazil of imported oil and to provide a cost-effective alternative for the, at that time expensive oil. Mainly as a consequence of the sharp decrease of oil prices in the 80's, the program started to face difficulties and the continuation of it was questioned. Thus the future of the program is at the moment somewhat unclear. Most of the present Brazilian production of 11 billion liters of alcohol is driven to over 5 millions cars fueled with pure ethanol.

Brazil has launched also a number of other ongoing programs in the energy sector. These are, *inter alia,* PROCEL (National Programme for Conservation of Electricity), CONPET (National Programme for the Rational Use of Natural Gas and Petroleum Products), PRODEEM (National Programme for Wind and Solar Energy) and PROCONVE (National Programme for Pollution Control of Vehicles).

Brazil has been publishing National Energy Balances annually since 1972. After 1981, the Ministry of Mines and Energy adopted the Energy Balance Methodology developed by OLADE, the Latin-American Energy Organization. The Energy Balance presents all the information needed for the evaluation of the inventory of greenhouse gas emissions in the energy and industry sector using the "top-down" approach. Using the "bottom-up" approach of the IPCC methodology needs, however, additional data collection and analysis.

Agriculture and Livestock

The agriculture and livestock sector is a very important one in Brazil, not only given the necessity of feeding the Brazilian population but also because its large extension allows enhancing production for exportation. As far as climate change is concerned, Brazil is one of the largest (8th)rice producers in the world, although its contribution to greenhouse gas emission is very small (rice is produced mainly in dry fields), and it has one of the largest cattle population in the world (over 156 million heads or, in relative terms, more than one head per capita). Poultry is very numerous in Brazil as well (over 600 million heads).

Several of the permanent cultures, like coffee (production of over 2.5 million tons, representing presently only a small part, approximately 2 %, of Brazilian exports), oranges, cocoa, cashew nuts and bananas are produced over 500,000 ha each. Seasonal cultures like sugar cane (over 270 million tons),

- aggregate the results to obtain a complete inventory (with respect to available financial resources) of CO_2 emissions from land use changes in all geographical areas and forest types of Brazil.
- estimate the methane emissions from the hydroreservoirs build for the hydropower production.
- publish a full detailed description of the methodology for the estimation of net emissions from land-use changes.
- estimate the emissions/uptake of planted forests in Brazil

021-004 Agricultural sector

- estimate a preliminary inventory of emissions three months after the beginning of the project.
- undertake the inventory of GHG emissions from the domestic livestock.
- estimate the CH_4 emissions from rice cultivation.
- evaluate the applicability of IPCC methodology and the default emission factors with respect to savanna burning, collect data using satellite images and other available information, undertake studies to fill the existing data or information gaps, and undertake the inventory of the emissions from savanna burning.
- evaluate the applicability of IPCC methodology and the default emission factors with respect to burning of agricultural residues, collect data and other available information, undertake studies to fill the existing data or information gaps, and undertake the inventory of the greenhouse gas emissions of burning agricultural residues.
- estimate the N_2O emissions from vinasse use as fertilizer.

21.05 Waste sector

- estimate a preliminary inventory of emissions three months after the beginning of the project.
- collect data of the amount and type of waste as well as disposal methods in the 11 main States covering 80% of the population of Brazil.
- evaluate the applicability of the IPCC default emission factors with respect to the specific characteristics of Brazil and undertake studies to fill the existing data or information gaps.
- undertake the inventory of greenhouse gas emissions from waste disposal.

cassava and crops (like soya, corn, wheat and rice) are also very important. Brazilian total crops production amount over 75 million tons.

Due to raw material availability for lime and fertilizers and low land costs, the "cerrado" is the region where agriculture activities are growing and it has become the new agriculture frontier of Brazil.

Brazil Overview

The total population of Brazil, according to the 1991 census, was 146 million inhabitants. The growth rate of the population is 1.93 %, decreasing, fast approaching the European rate of 1.2%. Over 75 % of the population lives in urban areas. The main cities are São Paulo (9,6 million inhabitants) and Rio de Janeiro (5,5 million inhabitants). The economy of Brazil is the 10th largest in the world with a Gross National Product in 1992 amounting US$ 417 billion (agriculture 11.1 %, industry 35.4 % and services 53.5 %). Export amounts US $ 36 billion in the same year.

Brazil is located in the central eastern part of South America between 5 degrees Latitude North and 33 degrees Latitude South and between 34 and 73 degrees Longitude West. It has an area of 8,511,996 km^2 being the 5th largest country in the world and occupying 47.7% of the South American continent. Geographically Brazil is divided into five main regions: the North, with equatorial climate, where the Amazon forest is located; the North-East, with a semi-arid climate, the South-East, concentrating all the main states of Brazil and industrialized cities (67 % of Gross National Product); South Region with a subtropical climate and the Central-West Region with tropical climate. Administratively Brazil consists of 26 states plus a federal district, in the middle of the country where is located Brasilia, Brazil's capital. The national language is Portuguese and the national currency is Real (R$).

2. Host Country Strategy

The project will directly support the strong and permanent commitment by the Government of Brazil to promote conservation and sustainable development. This commitment was demonstrated by its sponsoring of the Earth Summit, held in Rio de Janeiro in Brazil in June 1992. At this Summit, Brazil was the first country to sign the United Nations Framework Convention on Climate Change, which it has subsequently ratified. As a Party to the Convention, Brazil has accepted the commitment to produce a national communication to the Conference of Parties by May of 1997. Brazil also endorses the principles and the objectives that were set down in the Convention.

The initial commitment of Brazil, being a developing country, is to prepare the Brazilian National Communication. A fundamental component of this communication is a National Inventory of Greenhouse Gases following the guidelines developed by the Intergovernmental Panel on Climate Change (IPCC). The steps taken or envisaged by Brazil in its sustainable development strategy also constitute another very important part of the communication.

The preparation of the Brazilian inventory of greenhouse gas emissions is seen as a first step in the actual implementation of the Convention in Brazil. It will allow the development of Brazilian expertise in each sector involved in the preparation of the inventory in climate change related issues, it will

- preparation of report on thermal power plants emissions.
- preparation of inventory of fugitive methane emissions in the oil and natural gas sector.
- preparation of inventory of fugitive methane emissions in the coal sector
- preparation of detailed study biomass energy uses

021-002 Industry sector

- estimate the GHG emissions from industrial processes including:

  CO_2 from cement production,
  CF_4 and C_2F_6 from aluminum production,
  SF_6 from electronic industry and electric sector, and
  N_2O from adipic acid and nitric acid production

- estimate the emissions from solvents and other product use.

021-003 Forestry sector

- estimate a preliminary inventory of emissions three months after the beginning of the project.
- digitize the available vegetation maps of areas outside the Amazon forest, prepared in the 1970's (comprising tree volume information, which can be interpreted in terms of carbon density). In the region of Brazil where the Amazon forest is found, retrieve such data from existing data set in the scale 1:1,000,000 or alternatively, if an independently funded FUNCATE/SAE project proceeds at a sufficiently fast rate, retrieve better data in the scale 1:250,000.
- retrieve data on the geographical distribution of gross deforestation in the Amazon, for the period 1974-1994 - of which 9 years data sets are available from existing data sets (up to 1991) and other 2 years data sets will be produced by the on-going, independently funded, INPE/MCT project (data for 1992-1994) and combine it with the best available information on forest classes to produce a time-evolution table of gross deforestation stratified by carbon density.
- obtain and analyze LANDSAT satellite imagery in the scale 1:250,000 in two different years (mid 1980's and mid 1990's) for a representative random sample of the portion of Brazil covered by vegetation in the broad classes of Atlantic forest, "cerrado" and "caatinga", in order to produce maps of vegetation change. Combine such maps with the available information on vegetation classes to produce tables of changes of land-use stratified by carbon density class.
- apply existing methodology developed in independently funded research projects to analyze existing LANDSAT satellite images in terms of forest regeneration and interpret the results for carbon uptake.
- evaluate the available material and undertake selected field studies in order to fill major data gaps in the carbon density or regrowth rate of some specific type of the vegetation or forest or provide other information needed for the inventory.

enhance the existing institutional capacity in these fields, and it will increase the awareness of people and institutions concerning the existence of the Framework Convention on Climate Change and of the global warming problem.

3. Prior or Ongoing Assistance

Brazil is participating in the second round of the U.S. Country Study Initiative. Under this programme, an agreement providing US$ 400,000 to prepare a "first step" inventory (or US$ 270,000 allocated directly for the inventory) has been signed. The implementation of the project is expected to start in the beginning of 1996.

The U.S. Initiative for Country Studies will cover only the initial steps needed to prepare a national emission inventory for Brazil. In order to complete the inventory, numerous Brazilian institutions will be involved in the project (eg., Ministries, State Companies, Universities and also Non Governmental Organizations and Private Sector Associations). Nevertheless, the funds provided under the US Programme are not sufficient to prepare the Brazilian inventory to the level of detail deemed acceptable for the national communication. Because of Brazil's vast area, its complexity, and global importance, additional support is needed to complete the national inventory.

In order to complete the first national communication of Brazil to the CoP, the Brazilian Government has requested GEF funding to complement the work undertaken under the U.S. Country Study Initiative. A mission of UNDP/GEF to Brazil was undertaken in August 1995 in order to clarify linkages with the U.S. Country Study project and prepare a project brief for submission to the GEF Council. These two projects will be managed as one national intiative, so no duplication of efforts will take place.

4. Institutional Framework

Following the United Nations Conference on Environment and Development, called "Earth Summit" held in Rio de Janeiro, in 1992, the Government of Brazil has established an Inter Ministerial Committee for the Sustainable Development - CIDES by a President's Decree (Decree 1,160 in June 21, 1994) aiming at adopting all the necessary policies and measures to endorse Agenda 21, considering also that the complexity of the measures for sustainable development need to bring together a great number of institutions in different areas.

CIDES is led by the Ministry of Planning and is constituted by all the other Ministers. It was formed with three Coordination bodies:

- Coordination of Foreign Affairs, under the responsibility of Ministry of Foreign Affairs; is responsible for the international negotiating process of the conventions signed in Rio;

013-001 Technical-administrative agent (level B II)

Duties:

-assist the PC and TAM in having an overall control of the execution and expenditures of the contracts by the participating institutions.

- organize the office work and be in charge of scheduling and controlling the contacts and meetings of all staff (coordination and institutions/experts involved).

- contact people in foreign institutions and organisms like UNDP, GEF, US Country States, Secretariat of the Convention, most in English and also contact people in Latin American countries, especially in MERCOSUL.

- help preparing the reports using computer software, especially word processors and spreadsheets.

Qualifications:

013-002 Technical-administrative agent (level A III)

Duties:

- take care of administrative activities
- organize data and information (file management, digitization and typewriting).
- prepare the output reports for presentation in the internet/wide world web pages.

Qualifications:

020 Subcontracts

021-001 Energy sector

- estimate a preliminary inventory of emissions three months after the beginning of the project.
- preparation of the inventory in the top-down methodology.
- preparation of the inventory in the bottom-up methodology.
- coordination of expert group for studying vehicular emissions.

- Ø Coordination on Climate Change, under the responsibility of Ministry of Science and Technology, is responsible for the implementation of the UN Framework Convention on Climate Change; and

- Ø Coordination of Biological Diversity, under the responsibility of the Ministry of Environment, Water Resources and Legal Amazon is responsible for the implementation of the Biological Diversity Convention.

Regarding the land-use and forestry sector, there are a number of institutions which have different responsibilities in this area. The Ministry of Agriculture is responsible for agricultural land use (including animal husbandry) and under it works also the state owned company EMBRAPA - National Company for Agricultural and Livestock Research. With respect to forestry there are several institutes in different Ministries. In the Ministry of Environment, Water Resources and the Legal Amazon, the IBAMA - Brazilian Institute for the Environment and Renewable Resources has the responsibility for forestry. In the Ministry of Science and Technology, the INPE - National Institute for Space Research and a "non-profit" institute FUNCATE have responsibilities for the development of technology and for the operational application of remote-sensing technology for forest monitoring using satellite images. The INPA - National Institute for Amazon Research does research in the Amazon region, including also forestry.

The energy sector in Brazil is under the responsibility of Ministry of Mines and Energy - MME. MME has three National Departments, two dealing with regulatory issues related with water and electric energy (DNAEE) and fuel (DNC) and one in charge of energy planning (DNDE). The two main state-owned companies in the energy sector are Petróleo Brasileiro S.A. - PETROBRÁS which has the constitutional monopoly in the oil and natural gas sector and has a distribution company (in a free market) responsible for 37% of the market and ELETROBRÁS - Centrais Elétricas Brasileiras which is a holding company responsible for the coordination and operation of the electricity sector in Brazil and owns four subsidiary companies FURNAS (Southeast region and Central-western region), CHESF (Northeast region), ELETROSUL (South region) and ELETRONORTE (North and Central-western region).

The waste management is responsibility of the states and counties and there are sanitation companies in almost all the main states. The two biggest are in the states of São Paulo (CETESB) and in Rio de Janeiro (FEEMA).

B. PROJECT JUSTIFICATION

1. Problems to be Addressed; Present Situation

The initial Brazilian commitment under the UN Framework Convention on Climate Change is to prepare the first National Communication of Brazil to the Conference of the Parties in accordance with the Article 12. A fundamental component of this communication is a National Inventory of Greenhouse Gases following the guidelines developed by the Intergovernmental Panel on Climate Change (IPCC).

ANNEX III

TERMS OF REFERENCE

017-001 Technical Activity Manager (level F I)

Duties:

- assist the project coordinator in preparing the Terms of Reference for the subcontracts, monitoring the execution of the subcontracts, and evaluating the final outputs of the studies
- assist the project coordinator, in particular in the discussion and review of the text, in preparing the policies and measure chapter of the communication
- coordinate the communication networking to keep information available to all institutions permanently through internet/web.
- coordinate the work and establish the interface between sectoral coordinators and the project coordinator.

Qualifications:

017-002 Expert in electronic networks and computer programming (Internet/www) (level C II)

Duties:

- assist the PCU to evaluate and potentially establish the tele- and videoconfrencing facilities to coordinate the prpject activities

- assist the project team in the preparation of the html programs for presenting the Brazilian national communication and related information in the Internet (world wide web).

- coordinate updating, alterations or corrections to the available pages in the internet.

- coordinate the information exchange with the participating institutions

Qualifications:

Brazil has never prepared a complete greenhouse gas emission inventory before. Thus, there are a number of data gaps and methodological issues to be addressed. One should mention especially the end-use fuel consumption and technology data in the energy sector, including transport sector (needed in the bottom-up approach of the IPCC methodology) and much of the basic data needed in the agricultural and waste sector for the inventory. With respect to land use change, the IPCC methodology and default factors are still fairly inaccurate, and additional work is needed to develop the methodology further.

Beside making the inventory for the base year 1990, there is a need for regular and periodic updating of

the inventory in order to determine emissions trends and impacts that the different measures might have to the emissions. Therefore, it is important to establish permanent mechanisms to manage the data and the information already obtained, and to build capacity to periodically update it.

Due to the size of the country and insufficient or inaccurate data and information in many areas, the costs to produce even a comparatively credible inventory in Brazil are relative high. Already the domestic travel cost in order to allow the project personnel to cooperate with the other institutions, to coordinate the tasks, and gain information for the inventory will make a notable part of the budget, even a part of the cost can be covered associated to other official travel and are thus not charged from the project budget.

It should be noted that there are few activities related to climate change issues being developed currently in Brazil. Thus, one of the objectives of the project is to enhance general awareness and knowledge of climate change related issues in Brazil, strengthen the institutions and build capacity in order to take views and ideas related to climate change into account in the different sectors of economy. A part of this task is to develop an institutional mechanism/framework to strengthen the dialogue, information change and cooperation among all the relevant stakeholders. This will include governmental, non-governmental, academic, private and "grassroots" sectors.

2. Expected Situation at the End of the Project

It is expected that in the end of the project, Brazil will have a complete inventory of net emissions of greenhouse gases not controlled by the Montreal Protocol, Brazilian institutions will become aware of the Convention and the Brazilian commitments under the Convention, and the global warming issue will be increasingly understood by the society, by the Government and the economic sectors that will take part into the project.

After the project has ended and the first communication for the Conference of the Parties has been finalized, the Government will take responsibility to regularly update the inventory and prepare further communications to the COP, in accordance with agreements reached by the COP.

Considering the institutionalization of the activities covered during the proposed project, one main objective is to establish permanent mechanisms to manage the data and update it on a regular basis as needed for the inventories. Through the Project Steering Committee as well as bringing otherwise all the relevant stakeholders together, the project will also help to establish permanent links to continue the

ANNEX II

SCHEDULE OF PROJECT REVIEWS, REPORTING AND EVALUATION*

Project Starting Date:	May 1997
Description	Date
1. Inception report	X July 1996
2. Project Performance Evaluation Report (PPER)	XX November 1996
3. Midterm Evaluation Report	XX January 1997
4. Terminal Report	XX August 1997
5. Terminal TPR	XX October 1997

*The National Project Manager will prepare the details at the outset of project operations.

work with the climate change related issues including the identification and implementation of potential mitigation or adaptation measures on a "win-win" or "no-regret" basis..

3. Target Beneficiaries

The project will contribute to the global effort to increase the knowledge, build capacity and raise awareness of climate change related issues, and thus the target beneficiaries must be seen in a global context, including the people of Brazil. A better understanding of greenhouse gas emission patterns in Brazil, will reduce considerably the global uncertainties of these emissions, and provide information for potential follow-up measures. The project will also strengthen Brazil's role in the international negotiation processes and scientific floras dealing with climate change.

Beside the various aspects related directly to climate change, the results of the project can be used for general planning and strategy formulation in the economic sectors involved, in particular in the energy and forestry sectors.

4. Project Strategy and Institutional Arrangements

The strategy of the project is to involve a large set of national institutions of the relevant sectors in the preparation of the inventory and to build capacity in these institutions to update the inventory on a regular basis.

The preparation of the national communication, and the inventory as a part of it, is seen as the first step to increase the awareness of people to global warming and climate change. It provides also an unique opportunity to increase the Brazilian participation in the scientific flora, in particular in the Intergovernmental Panel on Climate Change. This will create the necessary conditions for further development of the Brazilian expertise in these fields and to proceed in the future understanding of the adaptation and mitigation options available in Brazil.

The institutional framework was set down with the following objectives:

a) capacity building in all participating institutions;

b) complete coverage of all relevant sections of IPCC methodology;

c) introduction of sources not covered in the IPCC methodology that were thought relevant in the Brazilian case;

d) special treatment of the forestry sector, mainly because its size and diversity of vegetation/forest types;

e) increasing education and awareness of people in climate change matters and accomplishing outreach of the national communication document;

f) involvement of the private sector and non governmental organizations.

Output 4: The first national communication of Brazil to the COP

No.	Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4.1.1	Prepare a draft national communication to the COP																		
4.1.2	Organize a workshop to present and review the draft national communication																		
4.1.3	Finalize, print and distribute the first national communication of Brazil to the COP																		

Output 5: Education, disclosure and public awareness

No.	Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3.1.1	Prepare educational and outreach material																		
3.1.2	Enhance information disclosure on climate change related matters through the internet/world wide web																		
3.1.3	Participation in public events																		

The project will be executed by the Government of Brazil through the Ministry of Science and Technology (MCT), which has responsibility for coordinating the issues related to Climate Change Convention in Brazil under the Inter Ministerial Committee for the Sustainable Development - CIDES.

The MCT will facilitate the implementation of the project by establishing a Project Coordination Unit (PCU), led by a Project Coordinator (PC) representing the MCT. Other staff of the PCU will consist of a Technical Activity Manager and two Administrative Assistants. An expert on telecommunications and networking (Internet) will also be hired to assist the PCU to set up the network for information exchange and communication between the participating institutions.

In addition to the PCU, a Project Steering Committee (PSC) will be established. The PSC will be charged with overseeing, coordinating and advising project execution and will have decision making power over all aspects of the project. The PSC consist of, in addition to the Project Coordinator, the individuals and organizations taking lead responsibility for key areas of work (energy, forestry, agriculture and waste treatment). It is expected that the PSC will continue to work also after the project to support smooth transition from this enabling activity to the potential follow-up measures.

A number of institutions will participate in technical aspects of the study, under the guidance and coordination of the PCU and PSC. These will include:

I. Energy Sector and Industry

1. National Department of Fuels - DNC/Ministry of Mines and Energy
   - National Fuel Regulatory Entity responsible for the regulations and price control of some fuels, like oil products, natural gas and alcohol as fuel for vehicles.
2. PETROBRÁS - Oil State Company.
   - responsible for generation of information in the oil and natural gas sector.
3. National Department of Water and Electric Energy - DNAEE/Ministry of Mines and Energy
   - National Electric Sector Regulatory Entity responsible for the regulations and price control in the electric sector.
4. ELETROBRÁS - Holding of Electric Sector Companies
   - main source of information in the electric sector.
5. CEMIG - Energy Company Minas Gerais
   - Minas Gerais State Energy Company has a large experience in energy planning in Brazil.
6. COPPE/UFRJ - Energy Department/Federal University of Rio de Janeiro
   - COPPE has several studies done in the area of greenhouse gas emissions in Brazil, in collaboration with foreign institutions like LBL - Lawrence Berkeley Laboratories (Berkeley, U.S.), CIRED (France) and RISO (Denmark).

ANNEX I

WORKPLAN

The timetables for project activities are sorted by activity for each output and are shown in the following tables.

Output 1: Information and Communication Links / Review of the Workplan and Methodologies for the Inventory

No.	Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.1.1	Identify potential partners and sources of information.																		
1.1.2	Further develop the www-site of the MCT on climate change related issues																		
1.1.3	Evaluation the potential of using tele- and videoconferencing for communication needs of the project																		
1.1.4	Organize a Project Initation Workshop																		

Output 2: Greenhouse Gas Inventory

No.	Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2.1.1	Inventory in the land use and forestry sector.																		
2.1.2	Inventory in the energy sector																		
2.1.3	Inventory of GHG emissions from industrial processes																		
2.1.4	Inventory of GHG emissions from solvent and other product use																		
2.1.5	Inventory in the agricultural sector																		
2.1.6	Inventory in the waste sector																		

Output 3: A Final Report of the Inventory

No.	Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3.1.1	Prepare a draft report of the inventory																		
3.1.2	Organize a workshop to present and review the results of the inventory																		
3.1.3	Finalize, print and distribute the final report of the inventory																		

77. USP - Energy Institute/University of São Paulo
    - University of São Paulo has several studies done in this area.

8. SNIEC - Coal Producers Association
    - The association is responsible for the generation of data in the coal sector.

9. ABRACAVE - Charcoal Producers National Association
    - association of charcoal producers is responsible for the generation of information for this industry branch.

10. SNIC - Cement Producers National Association
    - association of cement producers is responsible for the generation of information for this industry branch.

11. ABAL - Aluminum Producers National Association
    - association of aluminum producers is responsible for the generation of data of aluminum production. It will be important in the discussion of fully fluorinated compounds gas emissions.

II. Forestry Sector

1. FUNCATE, the Foundation for Space Science, Applications and Technology (a non profit organization)
    - FUNCATE is specialized in satellite imagery of the Amazon forest, which is complementing the satellite surveys to produce a fully geo-referenced database (under the contract with the Ministry of Science and Technology/National Institute for Space Research - MCT/INPE. FUNCATE has been working with INPE in the development of a digital database on the scale 1:250,000, with an effective resolution of 100 meter, for the evolution of forest cover of Legal Amazon (400,000,000 out of 500,000,000 ha) with highest vegetation density, for the period 1974/94, based on the interpretation of LANDSAT satellite imagery. The theme mapped from LANDSAT images is the gross deforestation, i.e., the conversion from forest to other low-density vegetation cover. This effort will produce estimates of the evolution of the extent and rate of gross deforestation stratified by vegetation classes for the 20 year period. Under the coordination of the Secretariat for Strategic Affairs - SAE, which is responsible for the ecological and economic zoning of the Brazilian territory and Amazon, in particular, FUNCATE has also developed a joint pilot project with FBDS - Brazilian Foundation for Sustainable Development, which will result in the superposition upon the satellite land-use change database, of the available vegetation maps of the region which contain information that can be interpreted in terms of carbon density. This effort involves the use of the RADAM database and other regional studies and at present covers a small portion of the Amazon region.

2. INPE - National Institute for Space Research, Ministry of Science and Technology
    - INPE has been developing technology for the survey of the gross deforestation in Legal Amazon with the use of satellite images which is applied for comprehensives surveys by FUNCATE, as well as conducting field surveys of the carbon density in the forest in cooperation with INPA. This work is at present being conducted by the FUNCATE, which has been involved in all of the previous INPE surveys. INPE is also developing methodology based an automatic digital classification of satellite data with the

K. ANNEXES

aim of developing techniques to map forest re-growth thus allowing for the estimation of net deforestation.

3. IBAMA - Brazilian Institute for the Environment and Renewable Resources, Ministry of Environment
   - IBAMA is working on the identification of vegetation classes of the Amazon forest to be incorporated into the RADAM classification. The relationships between forest classes and carbon density will be established by the use of statistical relationships between tree volume and carbon content obtained in field experiments. IBAMA intends to organize new field campaigns for this purpose, with a view to producing better samples with emphasis on the areas where the deforestation rate is higher, as opposed to the presently available samples which tend to concentrate in forest areas where there is an interest for other reason, and which do not coincide with the areas where deforestation actually occurs. Similar work will be conducted to estimate the carbon density of the re-growth vegetation, including the tree -ring works of IBAMA.

4. INPA - National Institute for Amazon Research, Ministry of Science and Technology

5. FBDS - Brazilian Foundation for Sustainable Development

6. EMBRAPA - Brazilian Agricultural Research Corporation
   - EMBRAPA is a state company responsible for agricultural and livestock research in Brazil.

7.. USP - University of São Paulo
   - USP is studying methane emissions from the hydroelectric power plants reservoirs

III. Agricultural and Livestock Sector

1. Ministry of Agriculture

2. EMBRAPA - Brazilian Agricultural Research Corporation
   - The evaluation of emissions from the agricultural and livestock sector will be conducted by EMBRAPA, the Stated-owned Brazilian Corporation for Agricultural and Livestock Research, of the Ministry of Agriculture, with the use of statistical data collected by IBGE, the Brazilian Institute of Geography and Statistics. Together, these two institutions have the necessary knowledge of the processes and of the intensity of agricultural activities in the country, which are needed for the inventory. The structure of EMBRAPA, with almost 40 country-wide specialized centers, devoted to specific products, is such that a series of visits and workshops will be necessary to ensure the engagement of appropriate technical staff. EMBRAPA has all the technical data related with methane emissions from livestock, flooded rice paddies, nitrous oxide emissions from fertilizers use and also emissions from burning of agricultural crops residues.

IV. Waste Management

1. São Paulo State Secretary of Environment

2. CETESB
   -- the São Paulo State Company responsible for waste management in the most important State of Brazil.

J. BUDGET

With the exception of the "in-kind" contribution of the Government of Brazil, GEF is being requested to fund the full amount of the project.

Country : BRAZIL						
Project Number : BRA / 95/ G31/A/1G/99						
Project Title: Enabling Brazil to Fulfill its Commitments to the United Nations Framework Convention on Climate Change						
Project Budget covering UNDP contribution (in U.S. dollars)						
Project Component	**Total**		**1996**		**1997**	
	m/m	**US $**	**m/m**	**US $**	**m/m**	**US $**
010 Project Personnel						
013 Administrative support personnel						
013-001 Technical-administrative agent (level B III)	18	21,300	9	10,650	9	10,650
013-002 Technical-administrative agent (level A III)	18	15,300	9	7,650	9	7,650
015 Official travel						
015-001 National Expert travels		8,100		5,000		3,100
017 National Experts						
017-001 Technical activity manager (level F I)	18	62,000	9	31,000	9	31,000
017-002 Expert in electronic networks (level C II)	18	25,800	9	12,900	9	12,900
019 COMPONENT TOTAL	**72**	**132,500**	**36**	**67,200**	**36**	**65,300**
020 Subcontracts						
021-001 Energy sector inventory		170,000		85,000		85,000
021-002 Industry sector inventory		50,000		25,000		25,000
021-003 Forestry sector inventory		740,000		370,000		370,000
021-004 Agricultural and livestock sector inventory		170,000		85,000		85,000
021-005 Waste treatment sector inventory		85,000		43,000		42,000
029 COMPONENT TOTAL		**1,215,000**		**608,000**		**607,000**
030 Training						
032-001 Project Initiation Workshop		15,000		15,000		
032-002 Inventory Workshop		20,000				20,000
032-003 National Communication Workshop		15,000				15,000
039 COMPONENT TOTAL		**50,000**		**15,000**		**35,000**
040 Equipment and office supply						
041-001 1 computer pentium with acessories and software		4,000		4,000		
041-002 1 notebook 486 50Mhz with acessories and software		4,000		4,000		
041-003 1 copier/fax/printer machine (HP)		2,000		2,000		
049 COMPONENT TOTAL		**10,000**		**10,000**		
050 Miscellaneous						
052-001 Reporting Costs		20,000		10,000		10,000
053-001 Sundry		27,500		14,000		13,500
054-001 Project Support Services		45,000		25,000		20,000
059 COMPONENT TOTAL		**92,500**		**49,000**		**43,500**
099 UNDP TOTAL		**1,500,000**		**744,200**		**755,800**

5. Reasons for UNDP/GEF Assistance

As an enabling activity, this project would not take place without the UNFCCC. Therefore, the full costs of the project equal the incremental costs of the project. With the exception of the "in-kind" contribution of the Government of Brazil, GEF is being requested to fund the full amount of the project.

The GEF funds requested will complement the funds provided under the U.S. Country Study Initiative by involving a wider range of relevant institutions to start the work with the climate change related issues and undertake more "in-depth" studies in each sector in order to fill the existing data and information gaps, evaluate the reliability of the data and the IPCC default emission factors and thus produce a fully credible and consistent inventory following the IPCC guidelines. By involving a larger number of institutions, the project will also enhance the general knowledge and awareness in Brazil, of the formation mechanisms, specific technologies and practices related to the sources and sinks of greenhouse gases as well as their relative importance from the global point of view, and thus establish a basis for the future work with the potential measures to mitigate these gases. The approach of combining these two sources of funding (or three with the Government contribution) has been used also in order to prepare the project budget. At first the total amount of funds needed to complement each task to produce a "full scale" inventory has been estimated, and of this amount the expected U.S. Country Study contribution for each task has been subtracted, the remaining part being the requested GEF funding.

Making a thorough inventory in a country like Brazil will contribute directly on the development and evaluation of the IPCC methodology and default factors, which in many areas are still fairly inaccurate, especially with respect to land use change and emissions of other GHGs than CO_2. As a developing country covering a very variable geographical area, a broad field of economical activities and possessing remarkable technical capacity and number of institutions to undertake, if needed, very demanding research, Brazil is in excellent position to contribute through this project to the overall effort of IPCC to produce more reliable estimates of the sources and sinks of greenhouse gases, and the climate change phenomena itself. For instance, considering that Brazil has about one-third of the world's tropical forests and that the net emissions from tropical deforestation are one major source of uncertainty of the global carbon cycle (of the order of plus or minus 1 billion tons of carbon a year), more reliable estimates of the GHG emissions in Brazil will have a remarkable effect on the credibility of the estimates of greenhouse gas emissions also globally.

Beside reducing directly the uncertainties of the global estimates of sources and sinks of greenhouse gases, the project will contribute to the overall development of the IPCC methodology and emissions factors and their applicability in developing countries, and thus enhance the credibility of the inventories also in other developing countries. In that context, specific attention will be paid to publish and distribute the results of the project regionally as well as internationally. Therefore the timing of the project is equal important since most of the developing countries are either in the process of preparing their national inventory for their National Communication or just going to start it.

I. LEGAL FRAMEWORK

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Brazil and the United Nations Development Programme signed by the Parties on XX/XX/XX. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

The following types of revisions may be made to this project document with the signature of the UNDP resident representative only, provided he or she is assured that the other signatories of the project document have no objections to the proposed changes:

(a) Revisions in, or additions of, any of the annexes of the project document.

(b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of a project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation; and

© Mandatory annual revisions which rephase the delivery of agreed project inputs, or reflect increased expert or other costs due to inflation, or take into account agency expenditure flexibility.

6. Special Considerations

The Government of Brazil prefers in this stage to request funds only for the preparation of the National Communication in accordance with the Article 12.1 of the UNFCCC, taking into account the decision of not including the vulnerability assessment or mitigation analysis to the project. If the final decisions on the content of the Communication of the non-annex I countries will include these additional elements, the Government of Brazil has endorsed that they will be paid out of Brazil's own resources.

The time scale of the project is largely determined by the due date of the National Communication of Brazil which is May, 1997. Thus the time scale of the project is 18 months and it is expected that the tasks to be undertaken will be finalized inside this time frame, since a lot of preparatory work has already been done in Brazil to start the effective implementation of the project as soon as possible.

7. Coordination Arrangements

The implementation of the project will be coordinated by the Project Coordination Unit, led by the Project Coordinator and overseen by the Project Steering Committee.

The PCU will be responsible (with the help of PSC and CIDES) of assisting the participating institutions in establishing working links with all the national and international partners relevant to the project in order to ensure effective change of information and appropriate implementation of the project. It will also make available an Internet facility (www home page) to facilitate the coordination and communication among all the institutions and experts involved.

During the project, three workshops will be organized in order to exchange information, and to review and discuss the work plan, the methodologies and the final results of the project. The scope and objectives of each workshop will be described more in detail under the specific activities of the project.

The Inter Ministerial Committee for the Sustainable Development - CIDES will provide a mechanism for coordination with other work on Climate Change in Brazil and will formulate strategies and national policies, taking into account sustainable development in accordance with "Agenda 21"

Considering the regional cooperation one should mention especially the collaboration and consultations with the MERCOSUL countries (including Argentina, Brazil, Paraguay and Uruguay) to exchange information and evaluate technical data that will be contained in the draft national communications. Thus the results of this projects will be directly distributed and utilized also in other MERCOSUL countries having ongoing enabling activities or ones just to be started (like in Argentina and Uruguay). A peer review among the development teams of other MERCOSUL countries and Brazilian experts will be sought.

With these arrangements the project seeks to establish close links with other climate change related activities being carried out by other GEF implementing agencies or by other multilateral and bilateral organizations. It will do so practically as described under the specific activities of the project, and also by participating in the informal consultative mechanism, CC:FORUM, being set up by the UNFCCC secretariat, to ensure that results and outputs of this project will be shared among all actors involved in climate change activities in order to enable such actors to mutually benefit from one another's activities for the present and for the future.

8. Support Capacity of the Counterpart

reliable data as possible for the inventories, evaluating the IPCC methodology and default factors in a developing country like Brazil, and establishing a basis for future work by establishing an institutional framework for cooperation and involvement of all the relevant partners in order to identify and raise awareness of the sources and sinks of greenhouse gases, their relative importance from the global point of view, and to identify potential measures to mitigate these gases on a "win-win" or "no-regret" basis.

Considering the immediate results of the project, the crucial element determining its success will be a close collaboration between the different institutions implementing the project activities as well as international collaboration, when preparing a work plan for and implementing the research oriented activities. During this process, common methodologies (with respect to the specific characteristics of Brazil) will be used and among others IPCC and UNEP will be consulted to ensure that the methods and details of the subjects are appropriate also from the global point of view. The project will also use the results of ongoing or finalized projects to avoid duplication of effort and ensure an effective implementation of the project.

G. PRIOR OBLIGATIONS AND PREREQUISITES

The Federative Republic of Brazil has signed the Convention in June 4, 1992. The Brazilian Congress ratified the Convention in February 28, 1994 and it entered into force for Brazil in May 29, 1994 when Brazil became a non annex I Party to the Convention. As a Party to the Convention, Brazil has accepted the commitment to produce a national communication to the Conference of Parties by May 29, 1997.

The Government of Brazil will provide professional and national support personnel, as well as the premises and other logistical support to implement the project as described in chapter E, as described under the Brazilian Government Inputs.

The Project Document will be signed by the UNDP Resident Representative, and GEF resources will only be provided if the prerequisites have been completed. When anticipated fulfilment of one or more prerequisites fails to materialize, UNDP may, at its discretion, either suspend or terminate its assistance.

H. PROJECT REVIEW, REPORTING AND EVALUATION

After a detailed work plan for the project has been prepared, it will be reviewed in a workshop organized in the beginning of the project (activity 1.1.4). The purpose of the review is to identify in the very early stage of the project the eventual gaps, overlaps and other risks of successful implementation as well as to identify potential national and international partners and sources of information which could benefit the project.

The Project Steering Committee will be responsible for monitoring the project on a continuous basis. In order to do this, the Project Coordinator with the help of other staff of the PCU and the leaders of the research teams will prepare regular reports on the progress of the project as a whole and the different activities under it. In addition to this, an external midterm evaluation will be conducted about 9 months after the start of the project. The purpose of the evaluation is to review the overall success of the project and suggest modifications to the implementation of the project for the remaining part. It is vital that the recommendations from the evaluation are disseminated immediately, so that appropriate action can be undertaken without delay. A joint meeting of the evaluators together with the Project Steering Committee has been designed for this purpose.

For the remaining part the project will rely on the common UNDP monitoring and evaluation practices.

The Ministry of Science and Technology (MCT) has a specific share of the Government budget which comprises funds that amounts US$ 1.2 billion. The MCT has skilled and trained personnel, premises, administrative support facilities that ensure the support capacity in the Brazilian side to the normal development of the necessary activities for the preparation of the national communication. The INPE - the Brazilian Space Research Institute, the FINEP - Brazilian Studies and Projects Financing Agency and the CNPq - National Council for Scientific and Technological Development are under the Ministry responsibility and also possess personnel and administrative capacities that can be used in this project.

C. DEVELOPMENT OBJECTIVE

The Government of Brazil has a strong and permanent commitment to support the United Nations Framework Convention on Climate Change and to promote conservation and sustainable development in order to help the achievement of the ultimate objective of the Convention, which is to stabilize the greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

The Government of Brazil fully supports the objectives of this project and gives a very high priority to it due to the reasons previously stated. The Government has also stated that the project outputs will be used for the National Communication in compliance with the UN Framework Convention on Climate Change.

D. IMMEDIATE OBJECTIVES, OUTPUTS AND ACTIVITIES

The immediate objective of the project is to prepare the first National Communication of Brazil to the Conference of the Parties in accordance with Article 12 of the UN Framework Convention on Climate Change, and to build capacity to fulfill its commitments to the Convention on a continuous basis. The communication will consist of an inventory of greenhouse gases in 1990 made in accordance with the IPCC guidelines, general description of steps taken or envisaged by the Party to implement the Convention and other relevant information on the policy measures, technologies and research related to climate change. A tentative content of the communication is presented in Annex IV.

The greenhouse gases that will be addressed in the study will include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), carbon monoxide (CO), nitrogen oxides (NO_x) and in addition, assistance is requested for the development and application of inventory methodology related to fully fluorinated compounds (FFCs).

Immediate Objective 1

Facilitate the access and strengthen the links to both national and international sources of information (such as the US Country Study Program and other bilateral programmes, UNEP, IPCC, CC:TRAIN, international research institutes, and ongoing or finalized national projects and programmes dealing with inventories and emission coefficients or other climate change related issues) in order to learn from experiences and ideas of similar kind of projects elsewhere, to avoid duplication of effort, and to create links for internationally distribution and review of the results of the project.

Output 1.1 Established information and communication links / Review of the work plan

The information links between the Brazilian institutions and the international institutions and organizations relevant to the project have been established or strengthened in order to exchange information, to coordinate the

2.4 Coordination/Capacity building activities

2.4.1 Attending the Project Initiation Workshop (with local participation of key people and relevant international inventory experts) to present the IPCC methodology and to discuss the work plan in the beginning of the project.

2.4.2 Attending the "Inventory Workshop" (with wide local participation and relevant international partners) to present and review the results of the Inventory, together with the results or status of other ongoing projects relevant to the issue.

2.4.3 Attending the "National Communication Workshop with participation of the Project Steering Committee, other local counterparts, and counterparts in the MERCOSUL region to present and review the draft national communication and discuss about the potential follow-up measures.

2.5 Office equipment

2.5.1 Stationery

There will be some office supply requirement under item "2.3 Contracts", that will be covered specifically in each contract budget.

2.5.2 Equipment

There will be some equipment requirement under item "2.3 Contracts", that will be covered specifically in each contract budget.

It is also envisaged the necessity of up to date computer system (fast computer, notebook and copier/fax/printer machine) for the PCU support as additional and supplemental (to the existing Brazilian system) equipment for the sake of compatibility and availability of modern equipment in order to be able to dialog with other advanced computer centers during the project time frame.

2.6 Other

2.6.1. Preparation and publishing of the final report of the national communication, including the inventory of greenhouse gas emissions of Brazil.

2.6.2. Administrative costs to be supported by UNDP.

2.6.3. Costs of project reviews and monitoring.

F. RISKS

The ultimate criteria of success will be, how the project will contribute to the long term capacity building related to environmental and climate change related issues in Brazil, contribute to the efforts of IPCC to produce more reliable estimates of sources and sinks of greenhouse gases, and finally how the project will contribute on the global effort to reach the ultimate goal of the Convention, which is to stabilize the greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The project tries to address this by involving a number of institutions in order to produce as

activities. The work plan of the project have been presented and reviewed with relevant national and international experts.

Activity 1.1.1 By reviewing the literature, and using other sources of information, identify relevant international partners to exchange ideas and cooperate with (in addition to those that the Brazilian institutions are already working with).

Activity 1.1.2 Facilitate the access to both national and international sources of information and promote the information exchange by developing further the World Wide Web site of the MCT.

MCT will build in its own web site a climate change home page. This home page will be the host of this collective job spread all over Brazil, and will be permanently developed by several institutions and experts from energy, industry, forestry, agricultural and livestock and waste management sectors, coordinated by MCT.

This activity aims at lowering distances (and costs...), allowing a close and permanent contact among all experts and people interested in this subject in Brazil or abroad. Not only national and international relevant information on climate change and related matters (e.g. maps of savanna burning or satellite imagery of Amazon forest) will be found in this site, but also legal texts on this subject (as the Montreal Protocol and the integral text of the Framework Convention on Climate Change).

Activity 1.1.3 Evaluate the potential of using tele- and videoconferencing for immediate coordination purposes of the project, and to the extent feasible use them to save both domestic and international travel costs (which might be considerably high, due to the large number of institutions involved and the scattering of the institutions to the different main cities across the Brazil.

Activity 1.1.4 Organize a Project Initiation Workshop (with local participation of key people and relevant international inventory experts) to present the IPCC methodology, to present and review the work plan of the project, and to clarify the institutional and other practical arrangements considering the implementation of the project.

Immediate Objective 2

Prepare Brazil's first comprehensive inventory of net emissions of greenhouse gases not controlled by the Montreal Protocol.

Output 2.1 Greenhouse Gas Inventory

A comprehensive inventory of net emissions of greenhouse gases not controlled by the Montreal Protocol following the IPCC Guidelines for National Greenhouse Gas Inventories.

Activity 2.1.1 Inventory in the Land Use and Forestry Sector

information permanently available to all institutions, e.g. through Internet/www. The TAM will be the interface between sectoral coordinators and the Project Coordinator, and he will assist the PC in preparing the Terms of Reference for the subcontracts, monitoring the execution of the subcontracts, prepare regular progress reports of the project, and evaluating the final outputs of the studies.

2.1.2.2 An expert in electronic networks and computer programming (level C II)

This person will assist the Project Coordination Unit to evaluate and potentially establish the tele- and videconferencing facilities to coordinate the project activities in a cost-effective manner, and assist the PCU to develop further its www-site for the climate change and project related activities.

2.1.3 Administrative staff

2.1.3.1 A technical-administrative agent (level B II)

This person will organize the office work and will be in charge of scheduling and controlling the contacts and meetings of all staff (coordination and institutions/experts involved), and assist the Project Coordinator and Technical Activity Manager in having an overall control of the status of execution and expenditures of the project. It is necessary that this person speaks fluently English and Spanish besides Portuguese, due to the needs of the work (contacts not only with UNDP, GEF, US Country Study Program, Secretariat of the Convention, most in English but also contact with people speaking Spanish in Latin American countries and, especially in MERCOSUL). This agent should be able to use computer software, especially word processors and spreadsheets.

2.1.3.2 A technical-administrative agent (level A II).

This person will take care of administrative activities and organize data and information (file management, digitization and typewriting). This person should speak at least one foreign language (preferentially English) and should be able to use computers.

2.2 Service Travel

Travel expenses will be covered in the contracts signed by the intervening companies in the project. Some travels will also be necessary for the realization of scheduled workshops and occasionally for supporting the project's coordination.

2.3 Sub-Contracts

2.3.1. The implementation of the main activities in the project, especially activities 2.1.1 to 2.1.6 listed before, and also each respective report preparation will be undertaken under several contracts with leading institutions in those areas.

2.3.2. The printing of the final reports will also be contracted to guarantee the quality of the document.

Activity 2.1.1.1 Digitize the available vegetation maps of areas outside the Amazon forest, prepared in the 1970's (comprising tree volume information, which can be interpreted in terms of carbon density). In the region of Brazil where the Amazon forest is found, retrieve such data from existing data set in the scale 1:1,000,000 or alternatively, if an independently funded FUNCATE/SAE project proceeds at a sufficiently fast rate, retrieve better data in the scale 1:250,000.

Activity 2.1.1.2 Retrieve data on the geographical distribution of gross deforestation in the Amazon, for the period 1974-1994 - of which 9 years data sets are available from existing data sets (up to 1991) and other 2 years data sets will be produced by the on-going, independently funded, INPE/MCT project (data for 1992-1994) and combine it with the best available information on forest classes to produce a time-evolution table of gross deforestation stratified by carbon density.

Activity 2.1.1.3 Obtain and analyze LANDSAT satellite imagery in the scale 1:250,000 in two different years (mid 1980's and mid 1990's) for a representative random sample of the portion of Brazil covered by vegetation in the broad classes of Atlantic forest, "cerrado" and "caatinga", in order to produce maps of vegetation change. Combine such maps with the available information on vegetation classes to produce tables of changes of land-use stratified by carbon density class.

Activity 2.1.1.4 Apply existing methodology developed in independently funded research projects to analyze existing LANDSAT satellite images in terms of forest regeneration and interpret the results for carbon uptake.

Activity 2.1.1.5 Evaluate the available material and undertake selected field studies in order to fill major data gaps in the carbon density or regrowth rate of some specific type of the vegetation or forest or provide other information needed for the inventory.

Activity 2.1.1.6 Aggregate the results to obtain a complete inventory (with respect to available financial resources) of CO_2 emissions from land use changes in all geographical areas and forest types of Brazil.

Activity 2.1.1.7 Estimate the methane emissions from the hydro reservoirs build for the hydropower production.

Activity 2.1.1.8 Publish a full detailed description of the methodology for the estimation of net emissions from land-use changes.

Activity 2.1.2 Inventory in the Energy Sector

Activity 2.1.2.1 Using the "top-down" approach of the IPCC guidelines, evaluate the greenhouse gas emissions in the energy sector.

Activity 2.1.2.2 Using the "bottom-up" approach of the IPCC guidelines, evaluate the existing data gaps and establish a permanent data collection and management system to provide fuel consumption

1.3 Office equipment

All furniture and four computers (2xpentium 100MHz, 1x486 66MHz and 1x386 25MHz) will be available for the project. An additional pentium computer, a notebook and a printer/fax/copy machine are being requested in this project.

1.4 Premises

The place for the coordination of the project will be allocated by the Brazilian government in the Ministry of Science and Technology (including all communication and other facilities available in the Ministry's building).

1.5 Other

Electric energy, water and telecommunication facilities and all operational, maintenance and cleaning services of the installations and equipment will be supplied.

Government is also contributing to the most expensive part of the inventory in the land use sector providing the LANDSAT satellite images for the inventory (annual costs US $ 1 million) as well as launching a project to estimate the geographical distribution of gross deforestation rate on the basis of the LANDSAT images (estimated costs US $ 1 - 1.5 million).

In the waste sector Governments of the Brazilian States are covering the major part of the cost (including personnel) of the data collection of amount and type of wastes (total estimated costs close to US $ 900,000).

2. UNDP/GEF inputs

2.1 Personnel

2.1.1 International Experts

The Brazilian government will have some technical support in the scope of the US Country Studies Program, in particular concerning the inventory methodology and in addition, assistance is requested for the development and application of inventory methodology related to fully fluorinated compounds (FFCs). Brazil has also requested assistance for the analysis and application of transportation models to have more information on vehicle emissions.

2.1.2 National Consultants

2.1.2.1 A Technical Activity Manager (level F I)

The Technical Activity Manager (TAM) will support the preparation of the national communication and will assist the project coordinator, in particular in the discussion and review of the text, in preparing the policies and measures chapter of the communication and will be in charge of coordinating the communication to keep

and technology data of stationary sources by different economical sectors for the inventories and undertake the inventory of greenhouse gas emissions from stationary sources.

Activity 2.1.2.3 Evaluate the applicability of the existing emission calculation models for road transportation sector like US/MOBILE and EU/COPERT with respect to the availability of data and other specific characteristics of Brazil.

Activity 2.1.2.4 Select an appropriate model to calculate the emissions from road transportation, establish a permanent data collection and management system to fulfill the eventually existing data gaps, and undertake the inventory of greenhouse gases from transportation.

Activity 2.1.2.5 Establish a permanent data collection and management system to gain fuel consumption and technology data from the transportation sector other than road transportation, and undertake the inventory of greenhouse gas emissions from transportation other than road transportation.

Activity 2.1.2.6 Collect and improve the quality of data of biomass fuels, especially charcoal, bagasse and fuelwood in the Energy Balance, and evaluate the applicability of IPCC default emission factors in that context, in order to undertake the inventory and reduce the uncertainties of GHG emission from this source.

Activity 2.1.2.7 Estimate the fugitive emissions from coal mining and handling as well as from oil and natural gas activities.

Activity 2.1.3 Inventory of GHG emissions from Industrial Processes

Estimate the GHG emissions from industrial processes (including CO_2 from cement production, CF_4 and C_2F_6 from aluminum production, SF_6 from electronic industry and electric sector, and N_2O from adipic acid and nitric acid production)

Activity 2.1.4 Inventory of GHG emissions from solvents and other product use

Estimate the emissions from solvents and other product use.

Activity 2.1.5 Inventory in the Agricultural Sector

Activity 2.1.5.1 Evaluate the existing information and applicability of the IPCC default factors related to domestic livestock, and undertake studies to fill the major data or information gaps. Undertake the inventory of GHG emissions from the domestic livestock.

Activity 2.1.5.2 Estimate the CH_4 emissions from rice cultivation.

Activity 2.1.5.3 Evaluate the applicability of IPCC methodology and the default emission factors with respect to savanna burning, collect data using satellite images and other available information, undertake studies to fill the existing data or information gaps, and undertake the inventory of the emissions from savanna burning.

Immediate Objective 5

Education, disclosure and public awareness

Output 5.1 Education, disclosure and public awareness

A wide access to climate change related information in Brazil including the text of the UNFCCC, Brazil's first National Communication to the COP, and the final report of the inventory in Portuguese, Spanish and English, and linkages to other national and international climate change related information.

Activity 5.1.1 Prepare educational and outreach material, as e.g. the text of the Convention and the draft and final report and methodology texts, in Portuguese for wide distribution in Brazil (and also if support is available for other Portuguese speaking countries).

Activity 5.1.2 Based on the work already done by MCT and other Brazilian institutions, enhance the disclosure of information on climate change matters through the Internet/www.

Activity 5.1.3 Participate in public events organized by public, private or non governmental organizations in Brazil presenting the project and the results achieved.

E. INPUTS

1. Brazilian Government inputs

1.1 Personnel

1.1.1 Project Coordinator (PC)

The Project Coordinator will be responsible for involvement of the institutions to undertake the different activities of the project , and coordination of the implementation of those activities in order to achieve the expected outputs. The PC will authorize expenditures in all the contracts under this project and control the execution of the contracts by the participating companies. He will also have an overall responsibility of controlling the project budget. The PC will be assisted in these tasks by the other PCU staff listed under the UNDP/GEF inputs and by the UNDP Field Office. The costs of the Project Coordinator will be paid by the Brazilian Government as in-kind contribution to the project. This will be the case also considering the costs of convening the Project Steering Committee, including travel expenses where appropriate.

1.1.2 Others

Since several state owned companies and institutions will take part in the process of preparing the national communication, some part of its personnel's time will be shared by the project and by their normal activities. This will be another indirect form of in kind contribution of the Brazilian government to the project.

1.2 Stationery

All the office material and services will be paid by the government of Brazil, as in kind contribution to the project.

Activity 2.1.5.4. Evaluate the applicability of IPCC methodology and the default emission factors with respect to burning of agricultural residues, collect data and other available information, undertake studies to fill the existing data or information gaps, and undertake the inventory of the greenhouse gas emissions of burning agricultural residues.

Activity 2.1.6 Inventory in the Waste Sector

Activity 2.1.6.1 Collect data of the amount and type of waste as well as disposal methods in the 11 main States covering 80% of the population of Brazil.

Activity 2.1.6.2. Evaluate the applicability of the IPCC default emission factors with respect to the specific characteristics of Brazil and undertake studies to fill the existing data or information gaps.

Activity 2.1.6.3. Undertake the inventory of greenhouse gas emissions from waste disposal.

Immediate Objective 3

Prepare a final report of the inventory

Output 3.1 A final report of the inventory

Activity 3.1.1 Prepare a draft report of the inventory presenting in detail the different methodologies and practices used to prepare the inventory, emission factors used in the different areas and discussion about the applicability of the IPCC methodologies and the default emission factors in the Brazilian conditions.

Activity 3.1.2 Organize a workshop with wide local participation and relevant international partners to present and review the results of the inventory (together with the results or status of other relevant ongoing projects), and to discuss about the results considering the potential follow-up measures.

Activity 3.1.3 Finalize, print and distribute the final report of the inventory

Immediate Objective 4

Prepare the first national communication of Brazil to the Conference of the Parties (COP)

Output 4.1 The first national communication of Brazil to the COP.

Activity 4.1.1 Prepare a draft national communication to the COP.

Activity 4.1.2 Organize a workshop with participation of the PSC, other local counterparts, and counterparts in the MERCOSUL region to present and review the draft national communication and discuss about the potential follow-up measures.

Activity 4.1.3 Finalize, print and distribute the first national communication of Brazil to the COP.