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NATIONAL POUR L'ENVIRONNEMENT  
ET LE DEVELOPPEMENT DURABLE**  
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**BURKINA FASO**

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Unité - Progrès - Justice  
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**PROGRAM FOR TECHNOLOGICAL NEEDS AND CONDITIONS OF  
ECOLOGICALLY RATIONAL TRANSFER OF TECHNOLOGIES AS  
PART OF THE UNITED NATIONS FRAMEWORK CONVENTION ON  
CLIMATE CHANGE**

**FINAL REPORT**

BY

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## ABBREVIATIONS AND ACRONYMS

<b>ABN</b>	Autorité du Bassin du Niger – Niger Basin Authorities
<b>AC</b>	Activités Conjointes – Joint activities
<b>BF</b>	Burkina Faso
<b>BD</b>	Banque de données – Database
<b>BE</b>	Bureau d'études – Consultancy firm
<b>BV</b>	Bassin versant – Catchment area
<b>CCVA</b>	Centre National de Contrôle des Véhicules Automobiles – Automobiles Control Centre
<b>CILSS</b>	Comité permanent Inter - Etats de Lutte contre la Sécheresse au Sahel - Inter-State Committee for Drought Control in the Sahel
<b>CIMAC</b>	Comité Inter-Ministériel pour la Mise en œuvre des Actions de la Convention – Inter-Ministerial Committee in charge of the Implementation of the Actions of the Convention Framework on Climate Change
<b>CNP</b>	Comité National de Pilotage – National Steering Committee
<b>CNRST</b>	Centre National de la Recherche Scientifique et Technologique – National Centre for Scientific and Technological Research
<b>CONAGESE</b>	Conseil National pour la Gestion de l'Environnement – National Council for the Management of the Environment
<b>CONEDD</b>	Conseil National pour l'Environnement et le Développement Durable - National Council for the Environment and Sustainable Development
<b>CREPA</b>	Centre Régional de l'Eau Potable et de l'Assainissement – Regional Centre of low cost Potable Water and Sanitation
<b>CSLP</b>	Cadre Stratégique de Lutte contre la Pauvreté – Strategic Framework for Poverty Alleviation
<b>CTI</b>	Climate Technology Initiative
<b>DCIE</b>	Direction des Conventions Internationales en matière d'Environnement – Department for international environmental conventions
<b>DE</b>	Droits d'Emissions – Emission Rights
<b>DGE</b>	Direction Générale de l'Energie – General Headquarters of Energy
<b>DHD</b>	Développement Humain Durable – Sustainable Human Development
<b>FASONORM/ONAC</b>	Direction de la Normalisation et de la Promotion de la Qualité / Office National du Commerce Extérieur – Department for Standardization and Quality Promotion / National Agency for External Trade
<b>FCCD</b>	Fonds Canadien de soutien à la Convention internationale de lutte contre la Désertification – Canadian Support Fund to International Convention on Desertification Control
<b>FIE</b>	Fonds d'Intervention sur l'Environnement – Environmental Intervention Fund
<b>FND</b>	Fonds National de lutte contre la Désertification – National Fund for Desertification Control
<b>FSCC/FEM</b>	Fonds Spécial Changements Climatiques / Fonds pour l'Environnement Mondial – Climate Change Special Fund / Global Environment Facility
<b>GHG</b>	Gaz à effet de serre – Greenhouse Gas
<b>Gg</b>	Giga gramme (1 Gg = 10 <sup>9</sup> g)
<b>GIEC</b>	Groupe Inter-gouvernemental d'Experts sur l'Evolution du Climat – Inter-Governmental Panel on Climate Change
<b>GIRE</b>	Gestion Intégrée des Ressources en Eau – Integrated Management of Water Resources
<b>GRN</b>	Gestion des Ressources Naturelles – Natural Resources Management
<b>GWP/WATAC</b>	Global Water Partnership / West Africa Technical Advisory Committee
<b>HIPC</b>	Heavily Indebted Poor Countries
<b>IDH</b>	Indice de Développement Humain Durable – Sustainable Human Development Index
<b>IEC</b>	Information, Education and Communication
<b>INERA</b>	Institut de l'Environnement et de Recherches Agricoles - Institute for Environment and Agricultural Research
<b>INSD</b>	Institut National de la Statistique et de la Démographie – National Institute for Demography

<b>IRSAT</b>	Institut de Recherche en Sciences Appliquées et Technologies – Institute for Applied Sciences and Technologies
<b>MDP</b>	Mécanisme de Développement Propre – Clean Development Mechanism
<b>MDE</b>	Maîtrise de l'Energie – Energy Control
<b>MECV</b>	Ministère de l'Environnement et du Cadre de Vie – Ministry in charge of the Environment
<b>MESSRS</b>	Ministère des Enseignements Secondaire, Supérieur et de la Recherche Scientifique – Ministry in charge of Secondary and Higher Education and Scientific Research
<b>MO</b>	Maîtrise d'Ouvrage – Contractor
<b>NGO</b>	Non Governmental Organisation
<b>NTIC</b>	Nouvelles Technologies de l'Information et de la Communication – New Technologies of Information and Communication
<b>OCB</b>	Organisation Communautaire de Base – Grassroots Community Organisation
<b>ONAPAD</b>	Observatoire National de la Pauvreté et du Développement Durable – National Observatory for Poverty and Sustainable Development
<b>PANE</b>	Plan d'Action National pour l'Environnement – Environmental National Plan of Action
<b>PAN-LCD</b>	Programme d'Action National de Lutte Contre la Désertification – Program for National Plan of Action for Desertification Control
<b>PD</b>	Plan de Développement – Development Plan
<b>PNGIM</b>	Programme National de Gestion de l'Information sur le Milieu – National Program for the Management of Milieu Information
<b>PNGT</b>	Programme National de Gestion des Terroirs – National Program of Land Management
<b>PSB</b>	Programme Sahel Burkina – Burkina Sahel Program
<b>RAF</b>	Réorganisation Agraire et Foncière – Agrarian and Land Reform
<b>SNDD</b>	Stratégie Nationale de Développement Durable – National Strategy for Sustainable Development
<b>SNMOCCC</b>	Stratégie Nationale de Mise en Œuvre de la Convention sur les Changements Climatiques – National Strategy for the Implementation of the Convention on Climate Change
<b>SPADB</b>	Stratégie et Plan d'action sur la Diversité Biologique – Strategy and Action Plan on Biological Diversity
<b>SP/ CONAGESE</b>	Secrétariat Permanent du Conseil National pour la Gestion de l'Environnement – Permanent Secretariat of the National Council for the Management of the Environment
<b>SP/CONEDD</b>	Secrétariat Permanent du Conseil National pour l'Environnement et le Développement Durable - Permanent Secretariat of the National Council for Sustainable Development
<b>TOD</b>	Textes d'Orientation de la Décentralisation – Texts of Decentralization Guidelines
<b>UACP</b>	Unité Autonome de Co-ordination du Programme – Program Autonomous Co-ordination Unit
<b>UNDP</b>	United Nations Development Program
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change

## **DEFINITIONS**

For a common understanding, the following terms of the Inter-governmental Panel on Climate Change (IPCC) have been used:

- **Technology** means an equipment, a technique, a knowledge or practical tools for the realisation of a specific activity ;
- **Technology transfer** designates a whole range of procedures covering the exchange of knowledge, money, and goods between the various parties involved in the dissemination of adaptation and mitigation technologies to climate change. In the context of a broad and inclusive usage effort, the term «transfer» includes both the dissemination of technologies and co-operation between and within countries ;
- **Ecologically rational technologies** are technologies that protect the environment, are less polluting, use all resources in a sustainable way, recycle the maximum of waste and products, treat waste residues in the most sustainable way, and are in accordance with national socio-economic, cultural and environmental priorities. Ecologically rational technologies take into account greenhouse (GHG) emission mitigation technologies and adaptation technologies to the effects of climate change. This term includes soft technologies and hard technologies.

## **DESCRIPTION OF PROGRAM BRIEF**

The program aims at contributing to the stabilisation of emissions of greenhouse gases in Burkina Faso at a level, which prevents any harmful human disruption of the climatic system.

It constitutes a medium and long-term program (by the year 2025) whose pilot phase covers three years. This program, which comes as a supplement to the implementation of the Rio conventions in general, and to the United Nations Framework Convention on Climate Change in particular, should eventually meet the technological needs and conditions of transfer of clean technologies, so as to make it possible to (i) reduce the country's vulnerability, (ii) reinforce communities' adaptation capacity and (iii) reinforce information and systematic observation systems, confronted with the adverse effects of climate change.

The estimated global cost of the program by the year 2025 (2003-2025) is 55 534.700.000 F CFA (fifty-five billion, five hundred and thirty-seven million CFA francs). The detailed budget for the pilot phase and the first five years' phase is estimated at 16.971.050.000 F CFA (sixteen billion, nine hundred, seventy-one million, fifty thousand CFA francs).



## INTRODUCTION

This report results from a study concerning the development of a medium and long-term national program for technological needs, conditions of ecologically rational transfer of technologies and institutional needs. Based on the current situation of climate change, legal and regulatory measures, constraints and advantages, this integrated program defines priority guidelines and activities related to needs, responsible structures and/or organisations susceptible of playing a crucial role in its implementation. They must contribute to the reduction of emissions of greenhouse gases in the country.

Commissioned by SP/CONEDD (former SP/CONAGESE), the study is based on the sectorial reports validated in the domain of water, forestry, agriculture, livestock raising, energy and systematic observation. Its hypotheses come from the various national programs for the environment and development (biological diversity, climate change, desertification control, joint implementation of the three conventions of Rio, PANE, Strategic Framework for Poverty Alleviation ...).

The priority sectors are those that were the object of vulnerability and mitigation studies in Burkina Faso national communication as part of climate change, i.e.: water forestry, agriculture and livestock raising and energy.

This report is organised as follows:

- Methodology used for data collection and processing ;
- Context of the study ;
- Program description ;
- Steering and management conditions ;
- Hypotheses and risks ;
- Follow-up and evaluation ;
- Support measures.

## 1 METHODOLOGY

The methodology was largely inspired by CTI (Climate Technology Initiative) approach, approved by West African countries in March 2002. This approach is adapted to climate change and has been already tested in many developing countries (DC).

The study was conducted in accordance with the following step:

- Discussion with SP/CONEDD on the terms of reference ;

- Drafting and approval of a schedule of activities submitted to SP/CONEDD for approval ;
- Data collection ;
- Bibliographical research ;
- Processing and analysis of the various data collected ;
- Formulation of program's logical framework ;
- Program formulation.

However, this work encountered many difficulties:

On the one hand, the aim was to formulate for the first time a multidisciplinary program concerning climate change in Burkina Faso. This accounts for the difficulties inherent to a first experience to deal with the subject in all its reasonable dimensions: everything seems important and information, in the event it is available, is sometimes contradictory.

On the other hand, the consultant team had to take into account the results of reports from sectorial studies, which were validated before. Although they complied with SP/CONEDD respective terms of reference, unfortunately, most of these reports do not contain an outline of a specific program concerning climate change.

The consultant team had to undertake their own enquiries in connection with other reports in order to define an integrated multidisciplinary program, without however constituting counterparts to the regalian activities of ministries.

As a cautious measure, it did not quantify some indicators for which there was no precise information.

## **2 CONTEXT OF THE STUDY**

### **2.1 General context**

Similar to many African countries, Burkina Faso has been confronting, for many decades, degradation and management problems of its natural resources and environment. The impact of the efforts it made did not live up to the expectations, and one is obliged to admit that these scourges still persist.

Conscious of the need to increase the quality of human resources in order to improve the global yield of natural resources, Burkina Faso, with support from development partners initiated a policy of sustainable human development covering the period 1998-2005.

In front of the ecological imbalance, a political will to protect and safeguard the environment was asserted and defined in the statement on the policy of sustainable human development. Similarly, the country developed a strategic framework for poverty alleviation, Cadre Stratégique de Lutte contre la Pauvreté (CSLP), whose priorities aim at addressing social

challenge, food security, and access to drinking water for the poor. In order to significantly reduce the incidence of poverty, a high economic growth based, among others, on a rational management of natural resources is needed. This strategic framework was chosen by Burkina Faso to become the backbone of the coming national strategy for sustainable development, *Stratégie Nationale de Développement Durable (SNDD)*.

It is also worth mentioning that Burkina Faso undertook an ambitious exercise of conducting a prospective study within a generation, i.e. by the year 2025. This instrument, called national prospective study "Burkina 2025", aims at reinforcing management and development capacities through the establishment of a framework for social dialogue concerning major development problems in view of defining a consensual future vision for the country.

In order to materialise all these planning efforts, the country formulated and adopted many plans and programs including PANE, PNGT, SPADB, SNMOCCC and PAN – LCD whose objectives, among others, are the reinforcement of institutional and human capacities as well as the transfer of technologies. One must admit that technological needs are still on the increase. They cover both aspects related to existing technologies and their adaptation to the various contexts, technical knowledge, as well as their transfer and access conditions.

At the same time, with the various national efforts in favour of environmental policies and legislation, Burkina subscribed, in partnership with the international community, to many conventions including those concerning desertification control, the conservation of biological diversity and climate change.

The convention commonly known as the United Nations Convention Framework on Climate Change (UNFCCC) was formulated by the international community following scientific evidence which indicated an average rise in earth temperature of about 0.5 degree Celsius every decade (2<sup>nd</sup> evaluation report, GIEC 1996), the extension of sahelian and desert zones, emigration of populations due to the decline in agricultural productions and water resources. It was ratified by Burkina Faso on September 02 1993, and came into force on March 21 1994. It assigns signatory countries obligations to meet in accordance with some of its provisions.

As part of this Convention, Burkina formulated and adopted in 2001 a national implementing strategy, as a reference and planning framework for on-going and future actions in the domain of climate change, and a national communication on climate change. It also formulated in July 2002 an implementation strategy for the three conventions of Rio.

The Kyoto Protocol, which results from UNFCCC was adopted by the government of Burkina Faso in December 1997 and approved by the National Assembly in 2002. On the one hand, it demands that the Government conduct scientific studies, adopt measures for reducing repercussions and facilitating adaptation to climate change, contribute to the Clean Development Mechanism, and, report on these measures, on the other hand.

In 1994 an inventory of greenhouse gases (GHG) indicated those emission sources mainly come from the agricultural sector (agriculture, livestock raising, and forestry), followed by the energy sector through the sub-sector of transports, and from waste. Besides, this inventory revealed a sequestration capacity of carbon dioxide by the country's plant formations.

In the same way, a preliminary vulnerability study covering the three priority sectors that are agriculture, forestry and water resources were conducted. These sectors were considered as being very sensitive at environmental, economic and sociocultural levels in the event of climate change. The preliminary study of the country's vulnerability to climate change dealt with the following three units:

- cotton in the agricultural sector in the western part of the country ;
- forestry resources in the western part of the country ;
- Potable water supply in the city of Ouagadougou.

The approach followed in this study is based on the determination of the basic situation of these units, of which the most important components are rainfall and temperature, to make projections into the year 2025 in order to grasp the incidences, which would result from a possible change on their future. The natural trend for these two components by the year 2025 is that of a rise in temperature and a decline in rainfall. This could result in adverse effects for the development of the concerned units, if no action is undertaken to reverse the trend.

Mitigation studies were conducted in the energy and forestry sectors, because of the high potential for GHG emissions of the first and the degradation of the second under the threefold effect of farming practices, exploitation and desertification.

Therefore, in the domain of energy, planned actions deal with the promotion of (i) energy saving through the dissemination of efficient and saving techniques / technologies, (ii) the enforcement of measures with energy efficiency in various sectors (industrial, tertiary, building, households and of (iii) renewable energies for a reduction of emissions in this sector.

In the domain of forestry, planned actions deal with forestry protection, reforestation and regeneration of forest massifs.

Based on these results, additional studies were conducted in view of facilitating the implementation of adaptation options and GHG mitigation measures. They dealt with the inventory, the needs, transfer and importation procedures of ecologically rational technologies in the sectors of water, forestry, agriculture and livestock raising, energy and systematic observation.

## **2.2. Brief characteristics of priority sectors concerned by climate change**

The water resources sector, which is very dependent on temporal and spatial climatic variations, presents identical characteristic features to those of agriculture. It is worth mentioning a fall of 15 % in water runoff as compared with observed normal values (0.5 litre/s/km<sup>2</sup>). An implementation of techniques is planned in view of reducing the various losses (through evaporation and infiltration) of lakes and water reservoirs and increasing storage capacities.

Because of its extensive character, agriculture, in the broad sense of the term, constitutes the first emitter of greenhouse gases (4708 Gg equivalent of CO<sub>2</sub> in 100 years; Cf. Communication nationale, page 73). Indeed, the need of new land and production methods (burning, non rational use of chemicals...) are carried out at the detriment of natural formations, highly degrading in this way production potential, and causing GHG emissions and reducing sequestration capacity. To this, must be added the weakness of the system of transfer of clean technologies to producers as well unfavourable climatic, socio-economic and institutional factors.

In the domain of forestry, non-rational exploitation practices are harmful to the conservation of forests and, they have a direct incidence on their residual capacity of remaining absorption sinks for GHG (-1388.7 Gg equivalent of CO<sub>2</sub>; Cf. Communication nationale, page 73).

In livestock raising, successive droughts and localised overgrazing have led to a reduction both in quantity and quality of available fodder resources in pastoral zones. In agro-pastoral

zones, the extension of croplands at the detriment of pastoral areas, the high degradation of pastures, the invasion of ranges by non appetent species, and the land system constitute so many constraints, which militate in favour of an optimisation of livestock raising through consistent improvements in favour of this sector.

In the energy sector, the national energy balance shows the predominance of traditional energies (consisting mainly of biomass) by 84%. The increasing demand in this sector requires a rational exploitation of ligneous resources to ensure a regular supply in domestic energies, an extension of the forestry cover to reinforce its sequestration capacity and the valorisation of other forms and sources of energy (solar and wind energy, hydroelectricity, electric inter-connections, agricultural and industrial waste).

This sector, through the motorised transport component, accounts for the second source of GHG emission in the country after agriculture (902 Gg equivalent of CO<sub>2</sub> ; Cf. communication nationale).

### **2.3. Justification**

This program, which is integrated to technological needs, and ecologically rational transfer of technologies, represents an opportunity of synergy between the three conventions of Rio. It puts forward actions and measures, which will certainly contribute to create the conditions required for the success of their implementation.

It is also formulated in order to take into account the commitments of Burkina Faso concerning the convention on climate change and the Kyo Protocol, i.e., the establishment of a national program for the reinforcement of capacities, technology transfer, systematic research and observation, protection of zones prone to desertification, public education and sensitisation.

As a support to the implementation of the United Nations Framework Convention on climate change, this program aims to meet the technological needs and conditions of transfer of clean technologies. In the long run, its implementation will permit to (i) reduce the country's vulnerability, (ii) reinforce the adaptation capacity of the populations and (iii) reinforce systematic information and observation systems, confronted with the adverse effects of climate change. Indeed, the various studies conducted on clean technologies in the domains of water, forestry, agriculture and livestock raising, energy and systematic observation made it possible to identify a real need in information and in access to high performance technologies.

### **2.4. Main actors**

Considering the transversal character of the climate change issue, the various participants can be classified according to their level of contribution : direct involvement, facilitation, and consultation.

#### **2.4.1. Direct participants**

- The ministries in charge of the Environment, Health, Water, Industry, Transports, Agriculture and Livestock raising, etc..
- Local organisations and communities ;
- NGOs

### 2.4.2. Facilitating partners

- Ministries in charge of Finances, Infrastructures, Higher Education and Scientific Research, Information, etc..
- The Inter-Ministerial Committee in charge of the Implementation of the Actions of the Convention (CIMAC) established on January 1 1995 in order to ensure the follow-up of climate change related issues and the Kyoto protocol, and in this way better observe commitments made by Burkina ;
- Financial and technical co-operation partners.

### 2.4.3. Consultation partners

- Ministry in charge of Trade ;
- NGOs.

## 3. PROGRAM DESCRIPTION

The program is formulated for the medium and long term (by the 2025). The choice of 2025 is motivated by the various projections of vulnerability and mitigation studies, on the one hand, and by the horizon of the prospective study "Burkina 2025", on the other.

### 3.1. Problems to solve

On the basis of the preliminary studies already conducted, the main concerns of the country are :

- At the global level, the country's vulnerability, the low capacity of populations to adapt to the adverse effects of climate change and the lack of awareness of national opinion concerning climate change ;
- At the agro-pastoral level, agricultural clearing, which destroy natural forests as sequestration sinks for carbon, and pruning ;
- At the level of energy, the over-exploitation of forests reducing in this way GHG sequestration as carbon sinks, the lack of valorisation of other sources of energy such solar energy, hydroelectricity, as well the low adoption rate of energy saving technologies ;
- At the level of human resources, the weakness of national expertise both in quantity and quality in climate change to manage the implementation of the convention ;
- At the level of work conditions, a qualitative and quantitative insufficiency of equipment ;
- At the level of appropriate decision-making in climate change, difficulties related to the acquisition of data, their reliability and processing ;
- At the level of technologies, the weakness of the transfer of ecologically rational technologies ;
- At the level of sub-regional, regional and international co-operation, difficulties to establish efficient and viable frameworks, especially in the domains of scientific research, follow-up and transfer of adapted technologies.

The analysis of these problems to solve requires the adoption of mitigation measures with the following main components :

- information, education, communication ;
- political, legal and regulatory measures ;

- transfer of ecologically rational technologies ;
- reinforcement of capacities ;
- support measures in favour of populations.

As the program cannot implement all the activities concerned in the various domains, it will focus on those considered as having priority in the realisation of its development objective.

### 3.2. Program components

The program centres on six components that are water, forestry, agriculture and livestock raising, energy, systematic observation, and the management of the program. It includes :

- on the one hand, activities common to the first five components, i.e. :
  - development and implementation of IEC strategies ;
  - reinforcement of human and institutional capacities ;
  - support to the implementation of micro-projects.  
 These micro-projects may come from Grassroots Community Organisations (groups, associations, peasant organisations, etc.), any individual acting as model (leader) in his / her environment or any other structure with an experience in collaboration with OCB. For this purpose, a Climate Change Adaptation Fund will form an essential item of the program's budget. The Kyoto protocol makes provision for this type of fund for the implementation of adaptation projects in developing countries.
- On the other hand, activities specific to each of the components, i.e. :
  - "Water" component
 

In this sector, the program proposes activities that are mainly focused on the integrated management (evaluation, exploitation, and protection...) of water resources. Actions in favour of the dynamisation of the system of knowledge of water resources are planned in order to better ensure sustainability in the collection of reliable data and to better manage water resources. Sanitation related activities and preventive strategies are also proposed.
  - "Forestry" component
 

Activities proposed in this sector concern up-dating the database, sustainable management of forest ecosystems (development, exploitation, ecological follow-up, and protection...), dissemination of more efficient and ecologically rational technologies and the formulation of access norms.
  - "Agriculture and Livestock Raising" component
 

Activities aim at improving agricultural and pastoral yields by taking into account endogenous knowledge. For this purpose, an important mission is assigned to research in order to develop new speculations, which are ecologically adapted and economically profitable, and to adapt technologies to socio-economic realities.
  - "Energy" component
 

Activities aim at reducing pressure on resources, controlling GHG emissions and the formulation of norms and standards for energy equipment. Thus, the

rational use of available resources, of more efficient traditional technologies, and new and renewable energies is taken into account.

A special emphasis is put on the domain of transports by motorised vehicles, particularly in big urban centres in order to reduce the pollution problems they cause.

A provision is made for a teaching program on efficient and clean technologies in the various teaching establishments, from primary education to higher education, and in vocational schools.

- Component concerning the "Reinforcement of systematic observation structures"

Considering the weakness of institutional capacities (data collection equipment and human resources) for undertaking activities concerning the production and /or data collection and systematic observation throughout the country, this program aims, on the one hand, at networking the various structures in charge of systematic observation, and on the other, at reinforcing centres and structures in charge of systematic observation.

- "Program management" component

Activities for this component concern the establishment of adequate institutional framework for the implementation, management and follow-up of the program.

### 3.3. Program objectives

The objectives of the program are as follows :

- Global objective :

The living conditions of the population of Burkina are improved.

- Development objective :

Emissions of greenhouse gases in Burkina Faso are controlled at a level, which prevents any harmful human disruption of the climatic system.

- Specific objectives : they are six :

- A preventive and adaptation strategy to climate change is developed and implemented in the domain of water ;
- The contribution of forest formations to the storage of carbon dioxide (CO<sub>2</sub>) has increased ;
- Clean technologies in agricultural and pastoral productions are transferred to various users ;
- The rational use of energy contributes to the protection of the environment ;
- Climate change is apprehended in order to provide indispensable tools for decision-making ;



- The program is efficiently managed.

### 3.4. Expected results and activities

Expected results and program activities are as follows by thematic domain:

#### 3.4.1 Water component

***RESULT 1: Up-dating the database on clean technologies concerning the collection, storage and distribution of water is reinforced***

##### **ACTIVITIES**

- Make an inventory of clean technologies of water collection, storage and distribution ;
- Reinforce the data bank on hydraulic resources ;
- Produce and disseminate in almost real time information in favour of various users ;
- Reinforce the national information and early warning system ;
- Establish a synergy with GWP/WATAC ;
- Reinforce and optimise measurement networks.

***RESULT 2: Models and techniques of integrated management of water resources are implemented (SMAP, MIKE BASIN, ...)***

##### **ACTIVITIES**

- Conduct studies of vulnerability and control of Burkina Faso main water courses ;
- Disseminate water collection systems ;
- Support the national Committee on the management of basins ;
- Monitor the hydrological cycle of four representative catchment basins ;
- Formulate and implement a defence and protection plan against floods;
- Develop climate and integrated management models of water resources ;
- Conduct impact studies on the vulnerability of water courses ;

***RESULT 3 : Clean technologies and strategies are promoted***

##### **ACTIVITIES**

- Develop and implement an IEC strategy concerning clean technologies ;
- Promote and disseminate technologies and strategies ;
- Evaluate endogenous knowledge on climate and adaptation techniques ;
- Adapt technologies to socio-economic realities ;
- Follow the implementation of micro-projects.

***RESULTS.4 : The competencies of actors and users are reinforced in the use of efficient and clean technologies***

##### **ACTIVITIES**

- Organise specialised workshops in favour various actors ;
- Train specialists qualified in climate change related to water;

- Sensitise the various actors on the management of water resources.

### 3.4.2 Forestry component

***RESULTS 5 : Up-dating of the data bank on clean technologies concerning the management of forest resources is reinforced***

#### **ACTIVITIES**

- Up-date the data bank on clean technologies concerning the management of forest resources;
- Reinforce the national information and early warning system.

***RESULT 6 : Development plans for forest ecosystems are formulated***

#### **ACTIVITIES**

- Contribute to the design of development plans for forest ecosystems.
- Develop an extension and sustainable management strategy for forest ecosystems ;
- Contribute to the realisation of a national forest inventory ;
- Support the rehabilitation of the plant cover.

***RESULT 7 : Potential access norms and procedures for technologies and their adaptation conditions are recorded***

#### **ACTIVITIES**

- Promote and disseminate technologies and strategies ;
- Develop local conventions on the management of natural resources ;
- Adapt regulatory texts concerning access to technologies.

***RESULT 8.: The competencies of actors and users in the use of efficient and clean technologies are reinforced***

#### **ACTIVITIES**

- Sensitise the various actors on the management of forest ecosystems ;
- Develop and implement an IEC strategy concerning clean technologies ;
- Organise specialised workshops in favour of various actors ;
- Train specialists qualified in the domain of climate change related to forestry.

***RESULT 9: Well adapted transfer mechanisms in favour of producers are implemented***

**ACTIVITIES**

- Adapt technologies to socio-economic realities
- Promote income generating activities in favour of the most underprivileged groups.
- Follow the implementation of micro-projects

**3.4.3 Agriculture and Livestock Raising component**

***RESULT 10 : Up-dating of data banks on agro-pastoral productions and clean technologies is reinforced***

**ACTIVITIES**

- Up-date data banks on agro-pastoral productions ;
- Reinforce the national information and early warning system.

***RESULT 11 : Well adapted transfer mechanisms in favour of producers are implemented***

**ACTIVITIES**

- Set up a follow-up/warning system concerning extreme climatic conditions;
- Conduct studies on the evolution of agricultural and pastoral yields ;
- Adapt technologies to socio-economic realities ;
- Develop new speculations ;
- Promote and disseminate technologies and strategies ;
- Follow the implementation of micro-projects.

***RESULT 12: The competencies of actors and users in the use of efficient and clean technologies are reinforced***

**ACTIVITIES**

- Develop and implement an IEC strategy on clean technologies ;
- Sensitise various actors on the management methods of agricultural and pastoral ecosystems ;
- Organise specialised workshops in favour of various actors ;
- Train specialists qualified in the domain of climate change concerning agriculture and livestock raising.

**3.4.4 Energy component**

***RESULT 13: Up-dating of the data bank on clean technologies is reinforced***

**ACTIVITIES**

- Up-date the data bank on clean energy technologies ;
- Reinforce the national information and early warning system.

***RESULT 14 : Norms and standards concerning energy equipment and systems are available***

***ACTIVITIES***

Develop norms and standards on energy technologies and equipment ;

***RESULT 15.: Quality labels for equipment are available***

***ACTIVITIES***

Undertake performance measurement of equipment ;

***RESULT 16.: A National Plan for Energy Control is formulated and implemented***

***ACTIVITIES***

- Formulate an energy efficiency code
- Contribute to the development of a national policy concerning energy planning and control.

***RESULT 17: Pollution rate in the transport sector is reduced***

***ACTIVITIES***

- Undertake a study in order to evaluate the reduction of pollution rate in the transport sector ;
- Disseminate new sources or technologies concerning transport (bio-fuel, catalytic converters, ...) ;
- Support the development plan for the fluidification of motorised traffic in big urban centres ;
- Adopt regulatory measures for the importation of automobile vehicles.

***RESULT 18. Adapted technology transfer mechanisms are developed and implemented***

***ACTIVITIES***

- Develop and promote vulgarisation strategies for energy technologies ;
- Promote the transfer of technologies concerning energy production through the valorisation of the potential for renewable energies based on agro-industrial waste and by-products ;
- Promote efficient techniques of carbonisation ;
- Follow the implementation of micro-projects.

***RESULT 19: The competencies of actors and users in the use of efficient and clean technologies are reinforced***

**ACTIVITIES**

- Develop and implement an IEC strategy concerning clean technologies ;
- Reinforce research structures about the establishment of emission factors, simulation models and the organisation of energy audits and planning ;
- Inform and sensitise decision-makers and users about the rational use of energy ;
- Train specialists qualified in the domain of climate change related to energy ;
- Organise specialised workshops in favour of various actors.

***RESULT 20 : A coherent program about the teaching of clean technologies is provided in establishments from primary education to higher education and in vocational schools***

**ACTIVITIES**

Develop a teaching program concerning the use of clean technologies.

**3.4.5. Component concerning the reinforcement of systematic observation structures**

***RESULT 21.: An integrated database on systematic observation is set up***

**ACTIVITIES**

- Establish the database ;
- Develop and up-date data banks ;
- Network the various computer units ;
- Organise information workshops about data evolution

***RESULT 22.: Adaptation or re-adjustment measures are adopted during the program***

**ACTIVITIES**

Propose prevention and mitigation strategies for the adverse effects of climate change.

***RESULT 23: Early warning systems are developed for situations of climate change and variability***

**ACTIVITIES**

- Organise information workshops about the possible occurrence of climatic phenomena and evolution
- Develop efficient models of early warning concerning natural disasters
- Establish a permanent measurement mechanism of greenhouse gas emissions.

***RESULT 24. The co-ordination of activities related to systematic observation is efficient***

**ACTIVITIES**

- Organise regular meetings on systematic observation ;
- Technically support structures in charge of the production of information and systematic observation

***RESULT 25.: The capacities of structures in charge of systematic observation are reinforced***

**ACTIVITIES**

- Recruit additional staff for systematic observation ;
- Reinforce structures in charge of systematic observation with high performance computer equipment and hardware;
- Organise specialised workshops in favour of various actors ;
- Develop and implement an IEC strategy concerning climate change ;
- Train specialists qualified in the domain of climate change related to systematic observation (management of databases, ...).

**3.4.6. Program management component**

***RESULT 26: Program management structures are set up***

**ACTIVITIES**

- Restructure CIMAC in such a way that it has the constitution of an operational multidisciplinary body
- Set up CNP technical committees on systematic observation, vulnerability analysis, micro-projects selection, and on any other specific activity as the needs arise ;
- Set up decentralised advisory committees on the Adaptation and Climate Change Fund ;
- Set up support relay organisations in favour of the beneficiaries of micro-projects ;
- Set up UACP.

***RESULT 27.: The follow-up of the program is operational***

**ACTIVITIES**

- Develop procedure manuals for the follow-up / evaluation and management of the program ;
- Review regularly the program's logical framework ;
- Prepare and disseminate at regular intervals national communications on climate change ;
- Monitor the impact of climate change on the evolution of natural resources ;
- Organise periodical internal and external evaluations and audits of the program ;
- Hold CNP bi-annual meetings ;
- Write regularly CNP activity reports;
- Organise a national planning workshop at the end of the program's pilot phase.

### 3.5. Program phases

It has been proposed that the program be implemented in five phases : a pilot phase of three years and four other subsequent phases of five years each.

The pilot phase, covering a three years' period will permit to:

- establish the program's institutional framework ;
- conduct the main studies in order to be able to better grasp reference situations. It will consist of :
  - developing IEC strategies ;
  - making an inventory of clean technologies in each component of the program ;
  - making an inventory of endogenous knowledge in each component of the program ;
  - conducting further vulnerability studies on the control of big water courses and/or up-dating them ;
  - designing development plans for forest ecosystems ;
  - defining follow-up and early warning plans concerning extreme climatic conditions ;
  - supporting the development of the national policy on energy control ;
- develop procedure manuals for the follow-up/evaluation and management of the program ;
- reinforce institutional and human capacities in the domain of systematic observation ;
- refining the content of the following phases of the program ;
- quantifying the various indicators (Cf. Logical framework),
- determining the "triggering" indicators for the passage from one phase to another considered as critical thresholds of program performance and impact.
- develop a procedure manual for program follow-up/evaluation.

As far as the other phases of the program are concerned, they will take into account the gains of the pilot phase. Their contents and priority intervention zones will be determined by a national planning workshop, which will be held at the end of the pilot phase.

## 4. STEERING AND MANAGEMENT CONDITIONS

### 4.1 Co-ordination institutional framework

This program includes many sectors and dimensions. It aims at (i) reducing the vulnerability of Burkina to climate change by the development and implementation of new technologies and measures, (ii) setting up a database in order to reinforce information and systematic observation system in climate change, (iii) improving local communities' adaptation through the transfer of clean technologies and financing micro-projects and (iv) reinforcing institutional and human capacities.

Following this perspective, the program will be structured around three poles:

- As pointed out above, all the ministries are concerned by the implementation of the framework convention on climate change, as direct actors, or facilitators, or consultation actors. A deliberate choice of the institutional framework is organised around the following actors, in accordance with their involvement in climate change related issues :

- Le Ministère de l'Environnement et du Cadre de Vie – Ministry in charge of the environment

The structures involved are :

- The Department for international conventions on the environment, Direction des Conventions Internationales en matière d'Environnement (DCIE), which is responsible for the implementing activities of conventions.
- The National Council for the Environment and Sustainable Development, Conseil National pour l'Environnement et le Développement Durable (CONEDD), resulting from a restructuring of CONAGESE ( the national structure, which conducted all planning and implementation activities of the Rio conventions) after the first conference on the environment, which was held in March 2002. CONEDD has a mandate of mission administration. It is responsible for the promotion of environmental policy and legislation, and sustainable development. It comprises three bodies: the conference, the permanent secretariat and the specialised committees. In connection with the six main problems identified, including climate change, the first conference established four specialised committees whose global mission is to reflect over major environmental concerns and sustainable development. These concerns are those related to environmental education, the management of natural resources, environmental evaluations and legislation, natural and technological risks, and consumption patterns. All these committees, particularly the one concerning the management of natural resources, must be taken advantage of in order to deal with issues related to climate change. It should be pointed out that the number and nature of these committees are not limited. They may be up-dated regularly by the various conferences as the needs arise.

This ministry is also involved in the transfer of technologies and the production of information.

- The ministry in charge of agriculture and hydraulic resources  
This ministry is very close to producers and is involved in the transfer of technologies and the problem of communities' adaptation to the effects of climate change. It also produces information. It forms with the ministry of animal resources the sector, which emits GHG the most ;
- The ministry in charge of animal resources.  
It is also involved in the production of information, transfer of technologies and the problem of communities' adaptation to climate change ;
- The ministry in charge of education and scientific research  
Although it is not directly involved in the transfer of technologies, this ministry (i) is closely associated with the development and analysis of norms and the adaptation of technologies, (ii) produces information and (iii) contributes to the analysis of vulnerability. It is worth remembering that the first national communication of Burkina Faso on climate change ( page 23) was assigned to CNRST, a structure from this ministry. Its mission was to create within CNRST a structure responsible for the development of vulnerability/adaptation models and the establishment of an observatory for the determination of various GHG emission coefficients. This structure should be made responsible for vulnerability analysis.
- The ministry in charge of transports  
This ministry produces climate information and undertakes observation through the department for meteorology, Direction de la Météorologie. It also owns one the most polluting and GHG emitting sectors formed by transports.



- The ministry in charge of Energy  
This ministry produces information and is involved in the transfer of technologies. It can contribute to the mitigation of the effect of climate by the adoption of appropriate policy and regulatory measures.
  - The ministry in charge of industry and trade  
It contributes to the formulation of industrial development policies and the transfer of technologies ;
  - The ministry in charge of health  
This ministry is responsible for health problems related to the environment.
- Grassroots Community Organisations and communities for the implementation of micro-projects using clean technologies and aiming at reducing their vulnerability vis-à-vis climate change ;
  - Private operators, NGOs and agricultural professional organisations will intervene on the basis of contracts in the following areas: (i) community support / advice concerning the transfer of technologies, (ii) studies and (iii) various training courses.

Considering the transversal character of these activities, the general co-ordination of the program will be given to a Program's Autonomous Co-ordination Unit, Unité Autonome de Co-ordination du Programme (UACP) The program approach being getting things done, the attachment of UACP should (i) allow it to be autonomous, (ii) save it from the temptation to implement itself activities (iii) be accepted by other actors as a transversal and impartial partner. The most appropriate supervisions prove to be those with a co-ordination mission. On the basis of these criteria, two structures from the ministry in charge of the environment might be eligible. They are CONEDD and the Direction des Conventions Internationales en matière d'Environnement (DCIE). However, it must be noticed that in the new organisation chart of the ministry in charge of the environment, all projects and programs are attached to the office of the secretary-general. The above attachment proposals do not question the provisions of the organisation chart, but rather take into account the scope and the transversality of the program, which might result in a volume of work, considerable enough for a secretary-general. But the possibility that the secretary-general delegate some of his/her prerogatives to technical structures cannot be excluded.

#### **4.2. Steering and management conditions**

It is hoped that the Government, with a high involvement of NGOs and the private sector, will implement the program.

The implementation mechanism rests on the following principles :

- Central and light steering under a National Steering Committee, Comité National de Pilotage (CNP) resulting from a deep restructuring of CIMAC. In fact, organisational and institutional difficulties did not allow this body to fully play its role. Its restructuring was proposed by Burkina first national communication on climate change ;
- An operationalisation in accordance with the program's various components ;
- External control mechanisms through technical audits and independent evaluations.

The steering and management mechanism will be structured around CNP relay Organisations.

- *The National Steering Committee, Comité National de Pilotage (CNP)*  
CONAGESE first conference established four specialised committees, which must reflect over the various environmental problems, including the one related to climate change. Therefore, opportunity is given to these committees to work within a coherent framework of environmental management and sustainable development in Burkina Faso. The most obvious committee to ensure data collection and supervision roles for activities concerning climate change is the one on the management of natural resources. In this way, the chairperson of the GRN committee will lead CNP. Considering the «transversality» of the problem of climate change, CNP membership will come from the four committees, and resource people from other horizons. The number of members may be between ten at least, and fifteen at the most. CNP will be governed by clear and precise terms of reference in the same way as its members. This proposal comes from a lesson learnt from institutional and organisational obstructions in the functioning of the current CIMAC (difficulties of data collection in involved structures). It will establish every year a work schedule, which must be reproduced at the level of the work schedule of each member. This will make it possible to better judge the results of the work of CNP and its members.

This structure will meet twice a year to provide main guidelines for the program, validate work schedules and activity reports and make recommendations about some urgent matters, and approve the funding of micro-projects. In order to be more functional, CNP must set up within CNP itself technical committees (groups of experts) according to the problem to be dealt with. CNP members must chair technical committees. At the beginning of the program three committees will be set up :

- A committee on issues related to systematic information chaired by the Department for Meteorology, Direction de la Météorologie ;
  - A committee on issues related to the development of vulnerability/adaptation models chaired by CNRST ;
  - A committee called Comité National Aviseur (National advisory committee) in charge of assessing and giving technical opinions on micro-projects applications submitted to CNP for approval and final selection. At the regional level, branches, known as Comités Régionaux Aviseurs (Regional Advisory Committee) in charge of the preselection of micro-projects will support this technical committee. The members of the advisory committees are experts, chosen because of their competencies and knowledge of the rural world and local development. The composition of these committees will take into account the gains of projects and programs, which have experimented similar approaches (FCCD, PNGT2, PSB, etc..). Advisory committees, in connection with relay organisations, must be involved in the follow-up of financed projects.
- *Relay Organisations* are proximity and support structures for OCB in the development, implementation and follow-up/evaluation of micro-projects. They are paid on the basis of a percentage (10 à 15 %) of project budgets. They may be NGOs or associations.

➤ *Program's Autonomous Co-ordination Unit, Unité Autonome de Co-ordination du Programme (UACP)*

At the operational level, the program will rely on a program Autonomous Co-ordination Unit structured as follows:

- (i) A national co-ordinator ;
- (ii) A follow-up/evaluation service including two experienced executives ;
- (iii) An administrative and accounting service including an administrative officer, a manager, and two accountants ;
- (iv) A support staff (5 technicians in climatology, 5 technicians in hydrology, 2 secretaries, 1 liaison officer, 1 caretaking contract, 4 drivers) ;
- (v) An adviser-specialist in systematic observation for the pilot phase ;
- (vi) A developer ;
- (vii) A caretaking/cleaning contract.

The Program's Autonomous Co-ordination Unit will benefit from the services of national and international consultants and must develop collaboration protocols with public structures and sign contracts with NGOs and the private sector.

### **4.3 Intervention strategy**

At the strategic level, the program will be based mainly on on-going gains and experiences. It will be implemented in five phases: a three years' pilot phase and four subsequent phases of five years each. The "triggers" will determine the passage from one phase to another.

The intervention strategy of the program will be mainly focused on the following approaches:

- Development of the consultation-participation approach will be established as key methodological principle of the Program in the design, implementation and follow-up of all field actions ;
- Grassroots program planning ;
- Gender approach ;
- Establishment of a multimedia communication strategy and development of proximity communication tools, on the understanding that the climate change problem requires important efforts in information, training and sensitisation in favour of communities ;
- Support to communities' self-promotion by the reinforcement of their operational capacities at institutional, organisational, technical and financial levels ;
- Development of partnership and consultation between various development partners ;
- Contractualisation of actions (the getting things done approach) and their co-financing with the main beneficiaries ;
- Support to community management of resources by homogeneous entities sharing in common the same resources, and having the same development sensibilities and problems ;
- Flexibility in the approach (adaptation to change in contexts).

#### **4.4. Collaboration partners**

The collaboration partners for this program are State structures (ministries, research centres, municipalities,...), NGOs, the Private Sector, grassroots communities, the Convention Secretariat, sub-regional agencies (CILSS, ABN, UEMOA, Liptako-Gourma, GWP/WATAC,...) financing structures (FSCC / FEM, MDP, World Bank, UNDP, bilateral and multilateral co-operation,...).

#### **4.5 Human and physical resources**

##### **4.5 1. Human resources**

All human resources (full time or contractual) will be recruited by means of call for applications on the basis of specific terms of reference. This particularly concerns the program co-ordinator, the administrative officer, the manager, the accountants, the follow-up/evaluation officer, the socio-economist, the forestry development specialist, the expert in systematic observation, the support staff, the climatology and hydrology technicians and the various (international and national) consultants

##### **4.5.2 Physical resources**

The hardware, equipment and logistics needed for the implementation of the project (cf. detailed in annex) will be purchased according to the procedures in force.

#### **4.6 Financing mechanism and plan**

##### **4.6.1 Financing mechanism**

Many financing opportunities must be exploited by developing countries in order to fund activities related to climate change and the Kyoto protocol. They are:

- The Clean Development Mechanism, Mécanisme de Développement Propre (MDP) ;
- FSCC/FEM ;
- Bilateral co-operation ;
- Multilateral co-operation ;
- Internal mechanisms (national budget, eco-taxes of the polluter-payer principle, forestry funds, FND, FIE, debt conversion or HIPC, etc..).

##### **4.6.2 Financing plan**

In order to have an idea about the amount for the global financing in the long run an indicative financing plan was formulated for a three years' pilot phase and a first five years' phase. These two phases represent the nature and the scope of the activities concerned.

The estimated global cost of the program by the year 2025 (2003-2025) is evaluated at 55 534.700.000 F CFA (fifty-five billion, five hundred and thirty-four million CFA francs). The detailed budget for the pilot phase and the first five years' phase is estimated at 16.971.050.000 F CFA (sixteen billion, nine hundred and seventy one million, fifty thousand CFA francs).

The experience of the pilot phase must make it possible to specify the financing plan for the remaining four phases.

## 5.HYPOTHESES AND RISKS

The sustainability of the program is related to the success of the reinforcement of institutional capacities, and the availability of the required human and financial resources.

The risks related to the implementation of the program are :

- Occurrence of natural disasters ;
- Low commitment of the Burkinabé State ;
- Lack of support from the various actors (state structures, NGOs, the private sector, grassroots communities, international financial and technical partners) ;
- Failure to enforce regulatory texts in the management of natural resources.

## 6 FOLLOW-UP AND EVALUATION

The program follow-up and evaluation system will be defined in a procedure manual concerning:

- the follow-up of the implementation of the program (implementation follow-up) ;
- the follow-up of the evolution of the main "triggers" ;
- the follow-up of the dynamics of GHG emissions ;
- the follow-up of the impacts of actions, and adaptation and mitigation measures ;
- the follow-up of vulnerability.

## 7 SUPPORT MEASURES

The implementation of the program assumes the prior harmonisation of sectorial policies by taking into account the problem of climate change in development plans and programs.

At the level of the supervision, the co-ordination of implementing activities will be CNP responsibility.

At the technical level, the functionality of the technical committees will be determinant in the implementation of the program;

At the level of the management of the program, the various actors should work in synergy. Specific provisions must be made by the supervising structure to lighten the procedures and hand over the maximum of responsibility to the partners.

At the regulatory and organisational level, it is important to effectively enforce the regulation concerning the protection of the environment, adopt a national legislation on the transfer of ecologically rational technologies and formulate regulatory texts concerning product quality control.

## CONCLUSION

At the institutional level CIMAC has been managing actions concerning climate change since 1995. Institutional obstructions did not allow it to fulfil its mission properly. Therefore, in order to attain more efficiency, it is necessary to undertake a deep restructuring of this structure into a sustainable national executing institution to permit it to play a role of sensitisation, organisation, and education and ability creation at local level in the problem of climate change. This structure will call, without exception, on all socio-professional structures, including the civil society, individual and legal entities by the establishment of groups of experts for the supervision of the decision-making process.

The success of this program requires a prior integration of the climate change problem into the planning process of the various sectors of national life in order to master the formulation techniques and approaches of inventories and specific mitigation and adaptation studies.

Besides, the implementation of this program will make it possible to develop national expertise and to reinforce the country's capacities to comply with UNFCCC measures.

The development of sub-regional, regional and international co-operation in scientific and technical research will make it possible to avoid duplication of efforts and permit to have means of actions for the mitigation of the effects of climate change. This co-operation will also make it possible to ensure a transfer of technical and technological innovation and the dissemination of other research products. For this purpose, a close collaboration must be established between national and international research structures, GIEC, financing projects and organisations such as UNDP.

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## **ANNEXES**

## **ANNEX 1: PROGRAM LOGICAL FRAMEWORK**

**ANNEX II: PROGAM BUDGET (PILOT PHASE AND FIRST  
FIVE YEARS' PHASE)**

**ANNEX III: TERMS OF REFERENCE OF THE STUDY**

