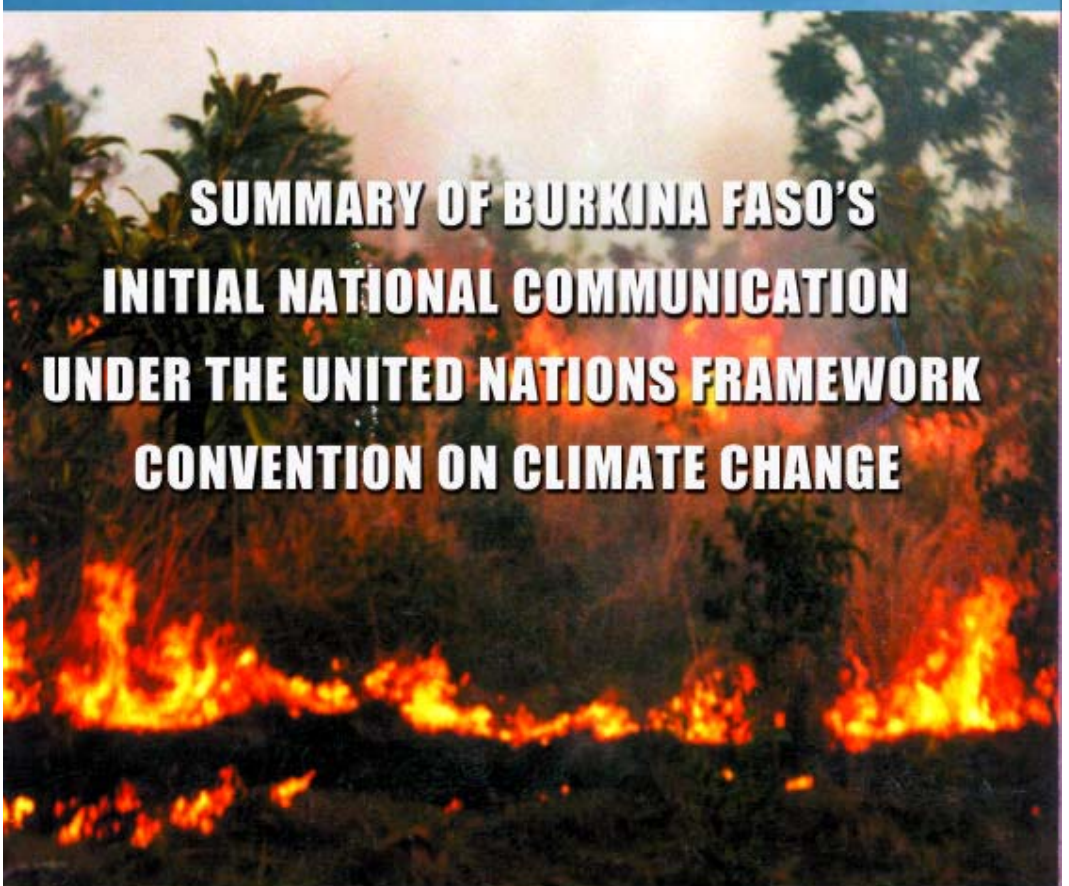
Burkina Faso



SUMMARY OF BURKINA FASO'S INITIAL NATIONAL COMMUNICATION UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

UNFCCC

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1. GEOGRAPHICAL AND SOCIO-ECONOMIC SITUATION

Burkina Faso is a landlocked Sahelian country in West Africa with an area of 274 000 Km2. Its population is estimated at 10.32 million inhabitants with an average density of 37.6 per Km2 according to the 1996 population census. The country is steeped in a dry tropical climate of a harsh Sudanese type. The rainfall is very erratic and decreases from the South-West to the North. The temperature experiences big seasonal variations and high ranges at night, particularly in the North of the country. However, the hydrographic network of Burkina Faso is quite dense, but not navigable.

The socio-ecological characteristics of Burkina Faso have been defined according to physical environment, population and systems of exploitation of natural resources. Thus, the country is characterised by five socio-ecological regions: The Sahel, the East, the Centre, the West and the South-West. These characteristics naturally affect the country's economy which is dominated by the agricultural sector and the tertiary sector.

Agriculture accounts for 60% of total exports. Despite the fact that it provides work for more than 80% of the population, this activity remains backward and largely dependent on rainfall. The Letter on Agricultural Development Policy approved by the country should make it possible to overcome some difficulties encountered by the population through food security, improvement of incomes, diversification of agricultural production, and a better conservation of natural resources.

The commercial sector is the favoured domain for informal activities, and, therefore, difficult to control. It provides work for an important section of the population which is illiterate, constraining in this way its expansion. Export commodities are hardly varied and concern cotton, food and various products such as cereals and tubers, groundnuts, shea nut, sesame, fruits and vegetables and animal products.

The other activities from the primary sector (breeding, forestry), secondary sector (industry and mining) and tertiary sector (transport) are relatively hardly developed and less organised. This situation is aggravated by a poor health coverage and a school rate which is quite low. This accounts for the position of Burkina Faso among poor countries.

Temperatures are quite high from March to September. The gradual disappearance of the vegetation for multiple reasons (cropland, energy and welfare need, rudi-

mentary agricultural practices) does not favour a sustainable exploitation of natural resources. The deterioration of the plant cover increases the fragility of the soil and favours the appearance of a surface crust which constitutes an obstacle for soil humidification and diminishes on the same occasion the possibility for ligneous and herbaceous vegetation of growing again.
The human determining factors are rather characterised by a very irregular population density, with an average growth of 2.38%. An important migration, both internal (towards under-exploited zones) and external (towards neighbouring countries), can be noticed. It represents a major concern as it brings about a gradual deterioration of fragile ecosystems and leads to the flight abroad of the able-bodied population.

The national nomenclature in terms of health care, nutritional condition, illiteracy, creation of jobs is worrying, and it accounts for the classification of the country among the least developed countries.

The primary sector largely predominates the national economy. Unfortunately, it is a traditional type and uses less than the third of croplands with very few competitive cash crops on the international market which can allow to reach a margin of financial security.

2. INVENTORY OF EMISSION SOURCES AND REMOVAL SINKS OF GREEN HOUSE GASES IN BURKINA FASO

The inventory of emission sources and removal sinks of greenhouse gases in Burkina Faso was conducted by a group of national experts chosen in accordance with their special fields and according the classification recommended by the 1996 revised guidelines of the Intergovernmental Panel on Climate Change (I.P.C.C.).

The methodology for making the inventories of greenhouse gases dealt with the sectors of energy, industrial processes, solvents, agriculture, land and forest utilisation and wastes. It requires huge data which have not always been available or accessible, leading in this way to extrapolation and approximation in order to make its application possible.

In the absence of some national scientific information on the coefficients and parameters involved in the calculations of emissions, those proposed by the I.P.C.C instructions were applied. In this way, based on the technical recommendations related to the inventory model, the environmental factor and the availability of data, the year 1994 was chosen as reference basis for the collection of information and calculations. The following results reflect the situation of emissions and removal sinks of greenhouse gases in Burkina Faso.

2.1 The energy sector

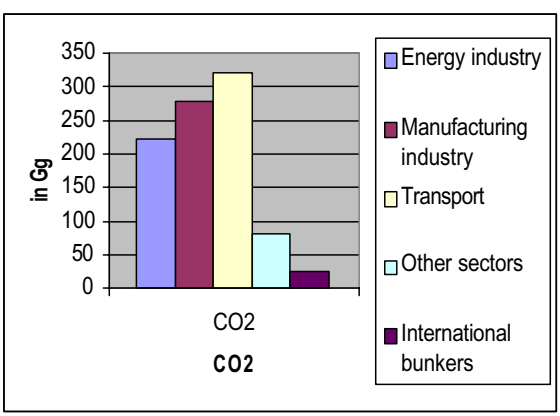
The energy sector is one of the domains that is blamed the most in inventory studies because of discharges from the combustion of fossil fuels. In Burkina Faso, emissions from this sector are quite significant with a contribution of 902 Gg of carbon dioxide. Transports represent the most polluting sub-sector, with 322 Gg including 309 for road transport, predominated by two-wheeled vehicles running with a mixture of petrol and oil.

Manufacturing industries, predominated by the agro-food and energy industries come respectively second and third among the sub-sectors representing polluting sources. As for the other sectors, including the housing sector (discharges from the utilisation of paraffin), their level of emissions of 81 Gg of carbon dioxide cannot be neglected. Figure f-1 presents the domains and sources of discharges.

Other trace gases are also emitted during the incomplete combustion of fuels. The levels of discharges have been aggregated and they show results which seem relatively low as compared with estimates:

N_2O : 0.01 Gg CO : 29 Gg MNVOC : 5 Gg
NOx : 4,26 Gg CH_4 : 0.14 Gg

Figure f-1: Emissions of CO2 in the energy sector



Source : SP/CONAGESE, 1999

2.2. The sector of industrial processes

In fact, the cement producing company (CIMAT) is the only industrial unit concerned with the analyses of carbon dioxide discharges. CIMAT uses in its process of making cement a mixture of local raw materials (tufa, schist, granite filaria) and imported raw materials (clinker, gypsum). The production of clinker is the phase where CO2 emissions are recorded.

In comparison with the methodology for the inventory of greenhouse gases ascribing CO2 emissions to the producing country and in the absence of chemical industries, Burkina Faso, therefore, does not have any emissions in the sector of industrial processes.

2.3. The agricultural sector

The evaluation of greenhouse gases in the agricultural sector deals with agricultural and breeding activities. Indeed, Burkina Faso is an agro-pastoral country with practices that still remain rudimentary.

The emissions of greenhouse gases in agriculture are largely predominated by methane discharges, that is 4 494 C02 equivalents including 96% from agriculture (data from
Figure f-2). The other trace gases emitted, i.e. nitrogen protoxide and nitrogen oxides come from burning practices. The livestock, including 18 641 000 heads of bovine, ovine and caprine (1997 statistics), accounts for about 4 326 C02 equivalents. The long tradition of savannah fires still goes on and it continues to compromise efforts undertaken in favour of the conservation of the environment. The level of 126 CO2 equivalents is a warning signal for action.

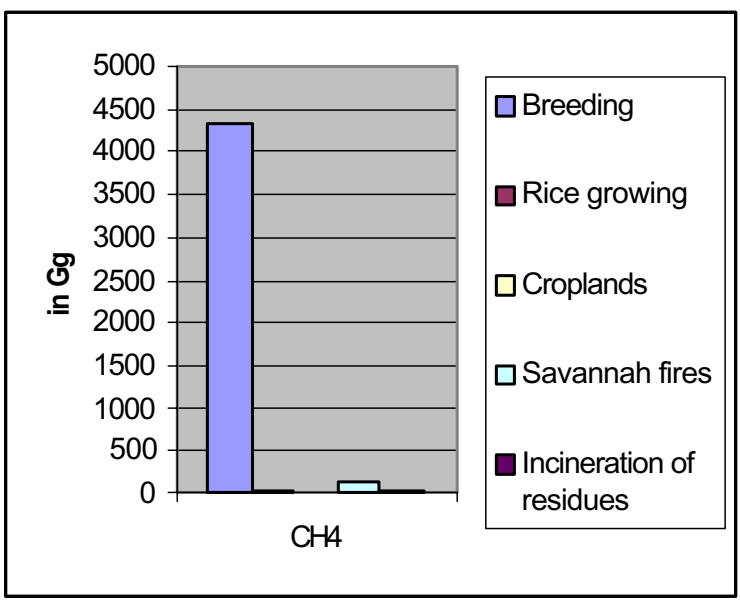
Discharges of nitrous oxides, nitrogen oxide and carbon oxide in the domains of biomass incineration through savannah fires or burning of agricultural residues in response to acute needs in fuelwood are shown in table t-1 below.

Table t-1 : Emissions of greenhouse gases in agriculture (GgECO2)

	CH4	N_2O	NOx	CO
Breeding	**4326**			
Rice growing	**21**			
Croplands		**310**		
Savannah fires	**126**	**0**	**3**	**167**
Incineration of residues	**21**	**0**	**1**	**26**
TOTAL	**4494**	**310**	**4**	**193**

Source : SP/CONAGESE, 1999

Figure f-2 : Emissions of Methane in agriculture



Source : SP/CONAGESE, 1999

2.4. The sector of land and forestry exploitation

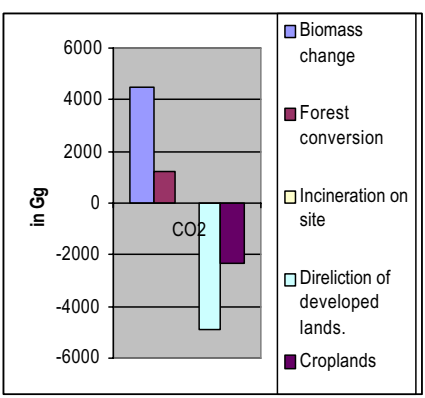
The estimate for discharges of greenhouse gases in the area of changes in land and forestry exploitation was not an easy task. The shortage of satellite evaluation tools or aerial photography led to estimates based on comparative techniques of cartography. An adaptation of the national nomenclature and the classification of plant covers in view of complying with I.P.C.C. instructions had to be made.

Greenhouse gas generating practices which were the object of analysis deal with ligneous biomass stock, dereliction of developed lands, soils undergoing agricultural exploitation. The evaluation and results show that in spite of the geographical situation of Burkina Faso, measures and policies allowed the constitution of a net removal sink for greenhouse gases for about 1 482 Gg. Indeed, dereliction of developed lands for regeneration and improved management of croplands represents removal sites of carbon dioxide.

Concerning exploitation activities of forests and their conservation for various purposes, they represent emission sources of gases. Besides, emissions of trace gases such methane, nitrous oxide and nitrogen oxide and polluting carbon monoxide occur during the incineration of plants on site in forest formations.

To summarise, carbon dioxide remains the most discharged gas in the sector of changes in land and forestry exploitation which, in terms of discharges is the most polluting domain among the five categories of emission sources established by I.P.CC. Figure f-3 shows removal activities and discharge activities.

Figure f-3: Discharges of CO2 resulting from the forestry sector



Source : SP/CONAGESE, 1999

2.5. Waste sector

Waste sector in Burkina Faso experiences enormous institutional, legal, technical and scientific difficulties. Very few studies have been conducted in the area of (industrial, domestic and commercial) sewage, household refuse and special wastes. Thus, many data and coefficients were borrowed from I.P.C.C as default values in order to produce results. Therefore, an effort was made to adapt national information to I.P.C.C classification, particularly at the level of industrial sewage.

In general, the waste sector discharges more methane resulting from anaerobic fermentation of refuse in open dumps.

3. PRELIMINARY VULNERABILITY STUDIES IN BURKINA FASO

The realisation of a preliminary vulnerability study in Burkina Faso made it possible to cover three priority activity sectors that are agriculture, forest and water resources. These sectors have been found very sensitive at the environmental, economic and socio-cultural levels in the event of climatic changes. In this way, this first vulnerability study of the country to climatic changes dealt with the following three units:

- cotton in the agricultural sector at the level of the western region of the country;
- forest resources in the designated forest of Maro in the forestry sector also in the western part of Burkina Faso;
- drinking water supply (AEP) for the city of Ouagadougou for the sector of water resources in the central part of the country.

The approach adopted in this study starts from the establishment of the baseline situation of the concerned units and makes projections in the horizon 2025 in order to grasp the incidences which will would result from a probable change in climate on their future. By so doing, adaptation measures and strategies are proposed in order to face possible climatic changes.

3.1. Baseline situation

For the establishment of the baseline situation, the two most important components of our climate were analysed. They were the rainfall and the temperature. For these two components the natural trend in the horizon 2025 is an increase in temperature and a decline in rainfall.

For the agricultural sector, two (2) components characterise the previous and present change in the cotton unit:

- the increase in cotton production from 90 000 tons in 1985 to 350 000 tons in 1996,

that is a monetary value of receipts ranging from 11.66 billion to 74.63 billion CFA F for the same periods;

- a contribution in form of taxes in favour of the public treasury for about 3.5 billion CFA F in 1996.

The past trends at the level of the designated forest of Maro reveal its importance from the viewpoint of its present contribution (4%) to the energy needs of the city of Bobo-Dioulasso. Moreover, its exploitation favoured the generation of local incomes for 16 groups of forest operators and other users of forest products. The various incomes derived from the forest between 1992 and 1997 add up to 223.6 million CFA F including 72 million for village incomes.

As far as the Nakanbé basin is concerned, its importance comes from the fact that it shelters most of the country's big dams and the diversity of the climatic regions which form it. The Loumbila dam, which now represents the source of drinking water supply for the city of Ouagadougou, is located in this basin.

Between 1981 and 1995, the annual runoff experienced a deficit of 20% which had an important impact on water consumption.

From the baseline situation of the units concerned, projections made it possible to appreciate their future in the context of climatic changes.

3.2. The situation with climatic changes in the horizon 2025

It varies from one unit to another:

- At the level of the cotton unit, an increase in production is expected due to a rise in rainfall and a moderate increase in temperatures. This increase in production will permit to pump into the burkinabè economy a monetary value of about 12.2 billion in current value of CFA francs of 1985. Producers might face difficulties because of unfavourable change in cotton prices on the international market.

- At the level of the forest resources unit of the designated forest of Maro, positive effects are expected in spite of the negative evolution of human caused actions. The negative effect of the climate will not be very harmful, but a deficit in fuelwood of about 2.3 million in current value of CFA francs of 1985 might affect the consumption of firewood in the region.

- For the supply in drinking water of the city of Ouagadougou, the deficit in water resources might lead to water rationing, particularly for big consumers including industrial units. This rationing would result in the decline of the level of their activities and thus would generate a loss in

incomes and jobs.

In the objective of preparing the country to fight some unfortunate effects, adaptation measures and strategies have been recommended.

3.3. Recommended adaptation measures and strategies

At the level of the cotton unit, the planned measures and strategies aim at:

- The intensification of production and the selection of seeds with adapted cycles;
- The development of substitution crops for cotton;
- The setting up of stimulating measures in view of increasing production;
- A strict follow-up of change in climatic conditions in view of taking them into account in the cultivation of cotton.

At the level of forestry resources unit, the priority will be:

- to reinforce the socio-economic provisions in place;
- to better integrate the overall activities in the zone at the technical level;
- to favour an improvement of incomes by introducing promising activities.

At the level of the AEP unit, the objectives of measures and strategies are as follows:

- to better plan the management of water resources through management agencies of river basins;
- to reorganise and reinforce the system of knowledge in water resources;
- set up mechanisms for the prevention and management of disasters.

The results make it possible to observe a certain number of repercussions on the future of the units concerned. It is recommended that for the continuation of the exercise other parameters be integrated in the approach. In the same way, target units such as grain crops, water quality, ground water and ovine breeding should be the object of further studies.

4. ANALYSES OF THE MITIGATION OF EMISSIONS IN THE ENERGY SECTOR

Their objective is the development of a scenario aiming at mitigating the emissions of greenhouse gases in the energy sector and the corresponding financial evaluation.

There is no doubt that the consumption of energy constitutes the second source of greenhouse gases in agriculture. However, it is technically possible to realise substantial reductions in the emissions of greenhouse gases by complying with the planning for the renewal of used or obsolete infrastructures and equipment. The mitigating measures in the domain of energy are varied. They include, among others, more efficient conversion of fossil fuels, the use of hydrocarbons with a low carbon content, the enforcement of efficient energy measures in various sectors (industrial, building, households, promotion of renewable energies etc..)

In the first place, the study dealt with the mitigation methodological approach. The basic and mitigation scenarios were then presented. An evaluation and analysis of the costs of the various scenarios completed the study.

4.1. Analysis methodology

For the implementation of the mitigation scenarios, the LEAP methodological approach was adopted. LEAP is a model which allows not only to set up a data bank but above all to undertake energy planning. One of its features is its capacity to integrate economic and environmental parameters in future analyses of the environment impacts of energy utilisation.

The use of LEAP requires the collection and processing of information on:

- socio-economic data
- energy data
- energy and environmental programs

4.2. Scenarios

Two scenarios have been considered, i.e.:

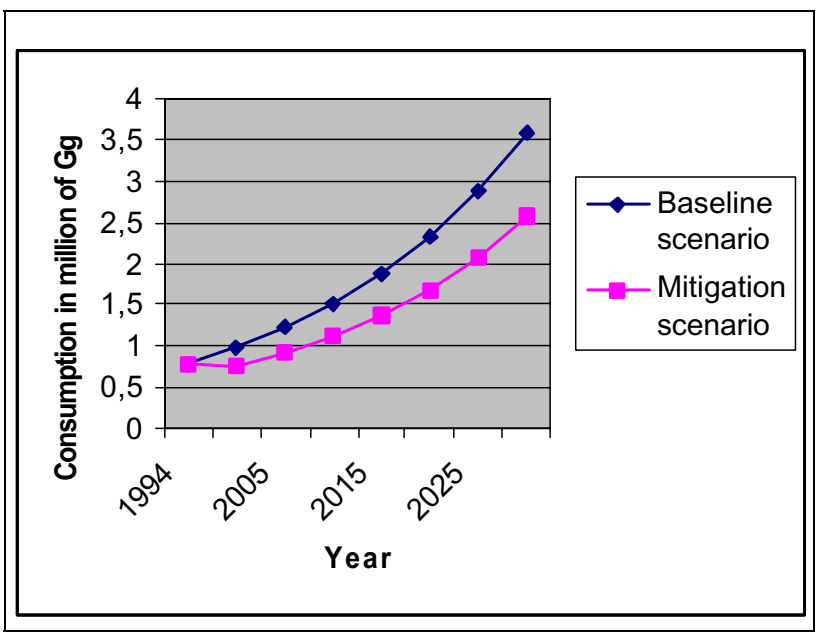
- the baseline scenario having as reference year 1994 which can be identified as a scenario where no specific measure is taken by the

authorities of Burkina Faso in order to limit emissions of greenhouse gases;
- the mitigation scenario where actions through programs that are likely to reduce emissions of greenhouse gases are implemented.

Actions planned for this purpose are actions for controlling electric energy in the two sectors, i.e. households and commerce, even if it is the transport sub-sector which is the most polluting in the energy sector in Burkina Faso. This choice was guided by the fact that the rational management of electricity is one the priorities of the Ministry in charge of Energy and Mining.

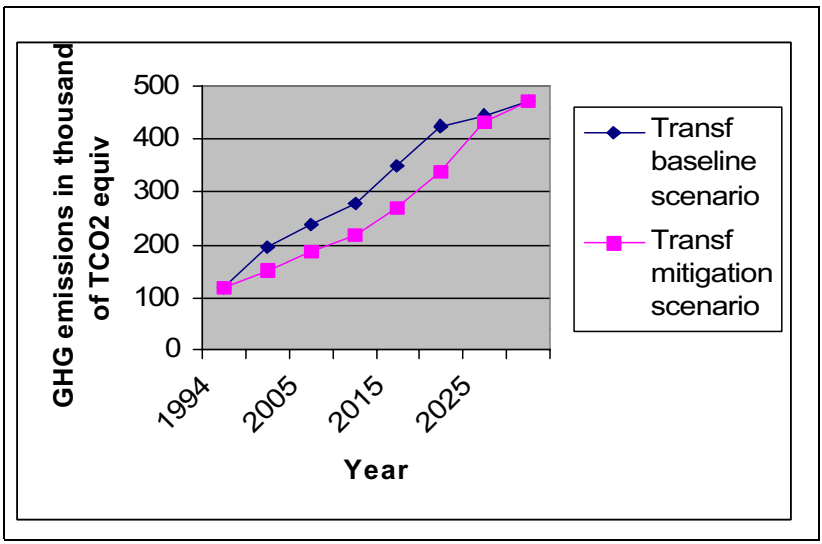
The comparative results of these two scenarios are illustrated by figures f-4 and f-5. The comparison of electricity consumption between the baseline scenario and that of the mitigation scenario shows that the measures have had a noticeable impact (figure f-4). The average annual growth rate declines by 22% as compared with the baseline scenario.

Figure f-4: Electric consumption for baseline scenario and mitigation scenario



Source : SP/CONAGESE, 1999

Concerning emissions of greenhouse gases, the use of fuel-efficient electric appliances such as low consumption lamps, sodium lights and air conditioners combined with sensitisation actions and regulatory measures allows the reduction of GHG emissions as shown in figure f-5 below.



Source : SP/CONAGESE, 1999

The avoided aggregate GHG for this period is 362.260 TCO2. The effects of mitigation actions beyond 2020 diminish as a result of the fall in the yields of facilities in the long run. Stimulating measures must be taken from the year 2020 in order to favour above all the renewal of equipment in order extend in time the efficiency of actions.

4.3. The determination of the costs of avoided TCO_2.

The cost estimate for the two scenarios was made on the basis of the costs of imported equipment and the other costs, constituted mainly by SONABEL investments and operating costs. These costs include maintenance costs of imported equipment as well as those resulting from regulatory measures and sensitisation actions.

The drafting of a management chart bringing together the costs of the two scenarios makes it possible to point out the additional cost generated by

the choice of options as part of the mitigation. This additional cost as shown in the table below resulting from the mitigation options can be obtained by operating the mathematical difference between the costs of the two scenarios.

Table t-2: Estimate of the additional cost resulting from the mitigation (billions of CFA F)

Year	1994	1999	2000	2005	2010	2015	2020	2025	2030
Cost of basic scenario	21.94	28.60	30.04	38.44	49.25	63.18	81.12	104.26	134.14
Cost of mitigation scenario	21.94	28.60	35.59	45.51	58.25	71.20	91.35	117.32	150.83
Additional cost	0	0	5.55	7.06	9	8.02	10.23	13.06	16.68

Source : SP/CONAGESE, 1999

The updated aggregate additional costs in current value of 1985 francs amounts to $US 3.85 million. The comparison between this additional cost and the quantities of avoided GHG produces the cost for TCO2 which is estimated at $US 10.63.

Control and rational management as mitigation scenario, although limited to two sectors, opens positive perspectives for Burkina Faso at both financial and environmental level. Indeed, it appears from the example dealt with that the mitigation options represent alternative solutions for the reduction of the consumption of electric energy at the level of household and tertiary sectors. This fall in consumption leads either, to a decrease in the level SONABEL's electricity output which makes, in this way, savings in both its fixed and variable operating costs, or an extension of SONABEL services to other users with a minimum investment. For the present case, savings amount to 30.44 billion in current value of CFA F of 1985; to this amount must be added incomes resulting from job creation for sensitisation actions, benefits coming from the effective enforcement of regulatory measures, etc.

5. ANALYSIS OF EMISSION MITIGATION IN THE FORESTRY SECTOR

The mitigation study of emissions of greenhouse gases in the forestry sector was conducted on two sites having very different biophysical and socio-economic characteristics from the medium of the COMAP (Comprehensive Mitigation Assessment Process) model. It is a tool for evaluating mitigation options of emissions of greenhouse gases which permits to measure the potential contribution of the forestry sector to the reduction of gaseous discharges at low costs.

The two sites which were the object of the study are as follows:

- The designated forest of Gonsé; with an area of 6 500 ha, located in a zone prone to human pressure with a very high agricultural pressure. Plant formations are poor shrubby savannahs. The site is less than 30 km from Ouagadougou, the political capital of Burkina Faso.

- The designated forest of Maro; with an area of 53 000 ha, the Maro site is in the South-Sudanese zone, the rainiest zone of the country has an average rainfall of more than 900 mm, a very rich forest cover comprising tree savannahs. There is less human pressure. The site is located 60 km from the city of Bobo-Dioulasso, the country's second city.

In the past, the two sites have experienced the realisation of large scale industrial farms with the exploitation of fast growing exotic species. Now, they are intervention sites for pilot projects on land management and combined development of forests and lands, and for this purpose, development and management plans are being implemented.

For this study, two options have been selected with 1994 as the starting year:

- forestry protection in the designated forest of Maro:;
- the afforestation/regeneration option in the designated forest of Gonsé.

As recommended by COMAP, two scenarios have been studied:

- the baseline scenario where it is assumed that no specific measure is taken in order to reverse the current trend of GHG emissions;
- the mitigation scenario where specific measures tending to limit emissions of gases are undertaken for a period of 30 years.

Following the input of biophysical and socio-economic data, the following results were recorded:

5.1. Evaluation of carbon

The results show that forestry protection as mitigation option significantly contributes to the increase in the total density of carbon. This increase can be explained, on the one hand, by the rise in the level carbon density in the biomass and, on the hand, by the rise in carbon density in the soil.

The environmental advantages of the forestry production system makes it possible to keep existing carbon stocks and to increase removal capacities and sinks.

For the regeneration / afforestation option, there is also an increase in the total density of carbon. Thus, carbon density which is 79 T carbon / ha at the level of the baseline scenario rises to 190 T carbon / ha in the mitigation scenario.

5.2. Benefits and costs of mitigation options

The economic and financial analysis of mitigation options permit to realise that the net current value of profits in dollars per ton of carbon and/or hectare is positive for both options, but with higher amounts for the forestry protection option. As far as the afforestation / regeneration option is concerned, investments are important from the start and anticipated profits, although perceptible in the long term, must not be neglected.

The profits from the reduction of atmospheric carbon are positive for both options (0.0165 $ and 0.0003 $ / ton of carbon). This means that the reduction of atmospheric carbon in the mitigation options is a profitable action from the viewpoint of cost effectiveness.

Concerning the financial evaluation related to the mitigation options, carbon removal costs were reviewed. Thus, analyses have revealed that carbon removal costs are interesting, particularly in the case of " regeneration / afforestation " option which generates relatively low costs, i.e. $ 0,0204 / ton of carbon and $ 2.2703 / ha of forest as compared with the " forestry protection " option with $US 1.302 / TC and $US 338 / ha of forest.

On the whole, the two options present important reduction / removal capacities of greenhouse gases. However, it appears that it is necessary to analyse the other indirect effects related to this initiative. This is possible within the framework of an in-depth study which would permit to better appreciate the importance of jobs and incomes created because of mitigation, contribution to biological diversity, soil conservation and as well as other secondary positive effects.

6. THE NATIONAL STRATEGY NOTICE ON THE IMPLEMENTATION OF UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATIC CHANGES IN BURKINA FASO

6.1. Situation

Burkina Faso is a landlocked Sahelian country in the heart of West Africa. It is facing a vicious circle characterised by precarious social conditions, a low level of professional education and training, a poor health coverage, a low productivity, a slow economic growth and a pronounced and widespread poverty.

The environmental factors and international context contribute to make fragile an economy that is mainly dependent on the products of primary and tertiary sectors.

Conscious of the need to increase the quality of human resources in order to raise the overall productivity of factors Burkina Faso, with support from its development partners, initiated in 1991 a policy of sustainable human development, which was renewed in 1995 through the letter of intent on sustainable human development policy for the decade 1995-2005.

The reforms already carried out made it possible to stabilise the macroeconomic framework. Indeed, the results recorded at the economic level allowed the growth rate to reach 5.5% the last two years and to bringing inflation down to 2.3% in 1997.

In spite of these performances, Burkina Faso has been classified among the least developed countries in the world with a sustainable human development index of 0.219 (172nd. out of 174).

Faced with ecological imbalance, a political will to protect and safeguard the environment was asserted and defined in the letter of intent on sustainable human development policy. It was translated into the formulation and adoption of many plans and programs.

The 1994 GHG inventory shows that sources of emissions come mainly from the agricultural sector (agriculture, breeding, forests) with 72%, followed by energy with the transport sub-sector and wastes. Moreover, it reveals the removal capacity of carbon dioxide by the country's plant formation.

The fragility of its production system mainly based on the agricultural sector makes the country very vulnerable in the event of climatic change. Indeed, as a Sahelian country with limited development resources, largely dependent on natural resources, a change in climatic evolution would be harmful for realising the strategic objectives of food self-sufficiency and security. In the same way, the situation of the main cash crop, cotton, will be jeopardised.

The adaptation of strategies identified at the agricultural level involve the introduction of adapted crop and seed varieties by pursuing and intensifying research in this domain. A diversification of cash crops is also recommended so as not to aggravate the trade deficit. This concerns groundnut, niebe, sesame and forest products such as shea nut.

As far as breeding is concerned, of which Burkina Faso displays big potentials, this activity must be developed, even modernised through the practice of intensive breeding in view of preventing the fall in foreign currency which will result from a possible cotton crisis.

The water resources sector, very dependent on temporal and spatial variations in climate, presents features that are similar to those in agriculture. The decline by 15% in water runoff, as compared with the normal values observed, 0.50 litre/s/Km2, is worth noting. One of the consequences will be the increase in price, and, therefore an impact on the national economy through a fall in production following the lack of this important production factor.
In view of limiting the impact of the permanent decline of this resource, there is a plan to implement techniques in order to reduce the many losses (evaporation and infiltration) of lakes and dams and increase their storage capacities.

Mitigation studies were carried out in the sectors of energy and forestry because of the high potential of emissions of greenhouse gases for the former and the serious deterioration for the latter due to the threefold effects of cultural practices, exploitation and desertification. Planned actions deal with forestry protection and/or afforestation and regeneration

of forest massifs. In the domain of energy, the promotion of fuel savings through the dissemination of

effective and fuel-efficient techniques for administrative buildings is the means for reducing emissions in this sector.

The agricultural sector, although being the main emitter sector of pollutants was not selected because of its highly sensitive characteristics and particularly because of the uncertainties the current models represent.

6.2. Policies and measures

The ultimate objective of the United Nations Framework Convention On Climatic Changes (UNFCC) consisting of stabilising concentrations of greenhouse gases in the atmosphere at a level which would prevent any harmful human disruption of the climatic system, the daily policy, however, shows that mitigation actions to climatic changes do not represent an absolute priority for Burkina Faso, as in most developing countries.

Burkina Faso made commitments it must honour vis-à-vis the international community while remaining coherent with its objective of sustainable development and food security. For this purpose, it is necessary to anticipate measures, which respond ever so slightly to commitments and/or efforts to reduce emissions of these polluting gases.

So, in a context where the majority of the population is poor, potential measures in order to take into account considerations related to climatic changes within planning and development can only be preventive. By taking into account the economic realities and development programmes of Burkina Faso, the policies and measures below will contribute to establish food and social security, but they can also be viewed as options for reducing emissions of polluting gases.

For this purpose, the national strategy is based on the orientation guidelines, which can be summarised as follows:

- the creation of an appropriate legal and institutional framework;
- the promotion of the rational management of natural resources: agriculture, breeding, water and forests;
- the development of national competences and capacities;
- the implementation of a sub-regional, regional and international cooperation.

At the financial level and by virtue of the provisions of the Convention which state that the countries in Annex 1 must, on the one hand, provide

new and additional financial resources to developing countries in order to help them honour their commitments and, on the other hand, promote, facilitate and finance the transfer of environmentally friendly technologies towards these countries and also make efforts to reinforce their technological capacities, and based on the analysis of existing financial mechanisms which have been already tried by the country, Burkina Faso has chosen:

- a bilateral co-operation in order to reinforce institutional and human capacities;
- a reinforcement of the forestry planning fund for development;
- the creation of an energy fund for the implementation energy control policy;
- request of funds from the Convention mechanism, i.e. the Global Environmental Fund (GEF) and the contribution of the three mechanisms of the Kyoto Protocol, particularly that of Self-Development Mechanism (S.D.M.);
- the exploitation of all the other traditional sources of financing.

The implementation of the strategy assumes a prior harmonisation of sectoral policies by taking into account the problem of climatic changes in development plans.

Therefore, it appears necessary to reinforce the appropriate institutional framework which will ensure, among other things, the restructuring and consolidation of the Inter-Ministerial Committee for the Implementation of the Actions of the Framework Convention on Climatic changes (CIMAC). In this way, the dynamised CIMAC could play a role of animation, organisation, education and creation of competences at the local level about the problem of climatic changes.

The Permanent Secretariat of the National Council for the Management of the Environment (SP/CONAGESE) should initiate without delay the operationalisation and dynamisation process of this scientific and technical organ. However, it is still crucial that specialised centres such as the Department of meteorology, the National Centre for Scientific Research, the National Land Management Program, the Geographical Institute of Burkina, the " rehabilitated " Regional Centre for Remote Sensing be involved all along the mobilisation process of capacities in order to support CIMAC.

The creation of a research unit, equipment for systematic observation and the reinforcement of modelisation capacities will be priorities. For this pur-

pose, a research unit can be set up within CNRST and a network between the other structures directly involved in the issue of climatic changes can also be established in order to support CIMAC. In the same way, the integration of programs to the other Conventions, i.e. biological diversity and land degradation will be reinforced. The training and specialisation of experts in these centres must be taken into account, because of the complexity of the subject and climatic changes. The co-ordination of the implementation actions will be ensured by SP/CONAGESE which, at the national level, is in charge of ensuring the coherence of the various strategies, plans and programs of ministerial departments involved in the domain of environment management.

For this purpose, the reinforcement of the basis of CIMAC appears to be a priority for the strategy in the same way as the creation of a scientific structure within CNRST in charge of developing models of vulnerability / adaptation and the institution of an observatory for the determination of the various coefficients of emissions of greenhouse gases. Besides, these interlinking structures will be in charge of better understanding interaction: climatic changes and development of various activity sectors, particularly the exploitation of natural resources (agriculture, breeding, water, forests) and energy by:

- the reinforcement of structures and knowledge through research on climatic changes in view of designing adaptation and mitigation models thanks to a transfer, the creation or adaptation of healthy technologies for the environment.
- the formulation of a specific framework of reference and harmonisation of measures and actions in view of taking into account considerations related to climatic changes within development plans and programs;
- the promotion of a multi-sectoral integration of national development plans and programs.

In conclusion, the present National Paper was an enriching experience for Burkina Faso, which was able to mobilise experts from various competence domains in order to deal with complex issues related to climatic changes. Although superficial, activities aimed at reinforcing endogenous competences made it possible to meet challenges, even if improvements remain to be undertaken in the future.

At the institutional, technical, scientific and financial levels, a review of the proceedings should be carried out in order to favour future plans represented by the implementation and updating of information. For this purpose, proposals of project sheets and submission of needs in capacity building for a significant contribution towards the realisation of the objectives of the Convention have been made.