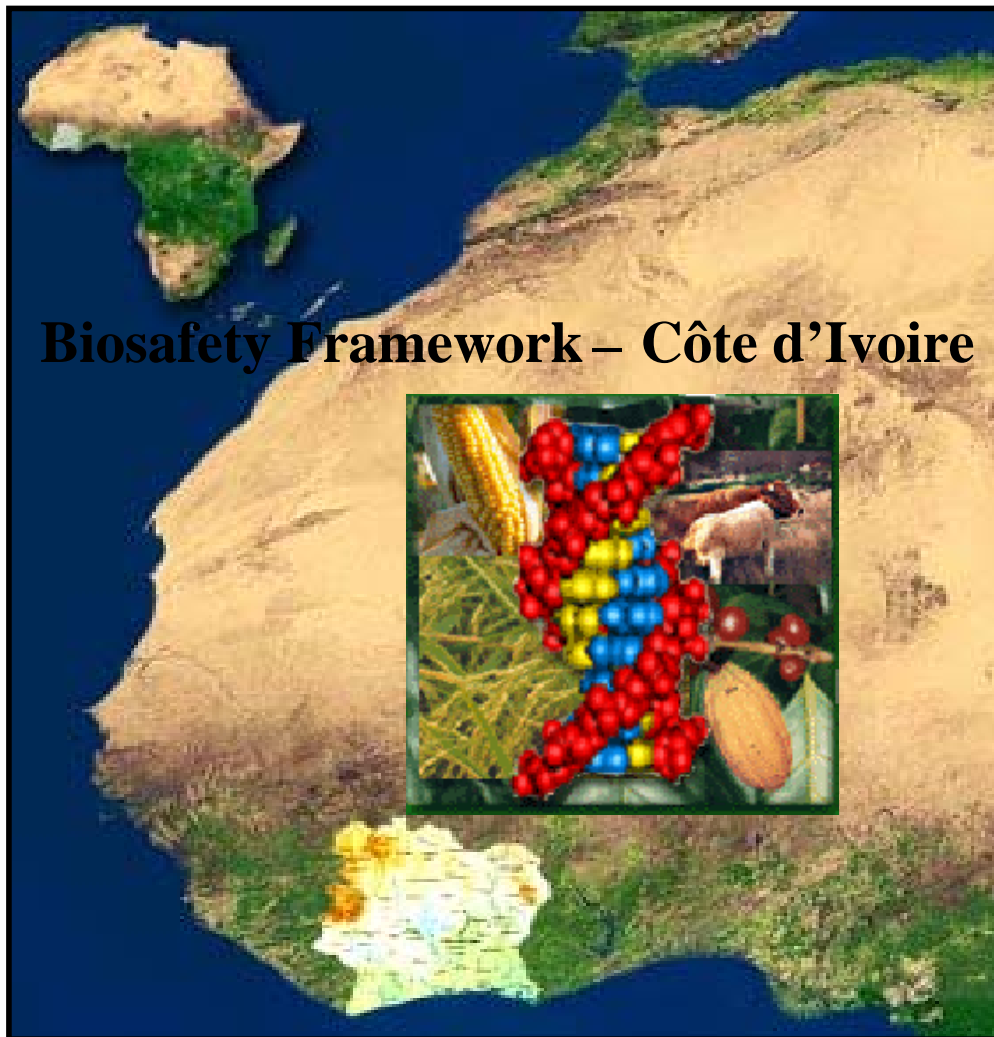




Republic of Côte d'Ivoire
Ministry of State, Ministry
of the Environment



UNEP/GEF Project Report



Biosafety Framework – Côte d'Ivoire



Biosafety Project

ABBREVIATIONS AND ACRONYMS

DNA: Deoxyribonucleic Acid
TRIPS: Trade-Related Aspects of Intellectual Property Rights
ANDE: National Environment Authority
CDC: Centre for Diseases Control (Atlanta, USA)
BCH: Biosafety Clearing House
CIAPOL: Ivorian Anti-Pollution Centre
CNRA: National Agricultural Research Centre
ERE: Environment Related Education
FIT: Intertropical Front
I2T: Institute for Tertiary Technology
INSP: National Public Health Institute
IREN: Renewable Energies Research Institute.
LANADA: National Agricultural Development Support Laboratory
LCB: Central Biotechnology Laboratory
MINEME: Ministry of State, Ministry of Environment
MINEF: Ministry of Waters and Forests
OIPI: Ivorian Intellectual Property Authority
OIPR: Ivorian Parks and Reserves Authority
WTO: World Trade Organisation
GMO: Genetically Modified Organism
LMO: Living Modified Organism
PNAE: National Environment Action Plan
WAEMU/ECOWAS: West African Economic and Monetary Union
UFR: Research and Training Unit
GDP: Gross Domestic Product
RETRO-CI: Côte d'Ivoire Retrovirus Project
RIVE: Ivorian Environment Review Journal
SCB: Banana Marketing Company
SODEFOR: Forest Development Company
ICT: Information and Communication Technologies
UAA: University of Abobo-Adjame
UCA: University of Cocody Abidjan
IUCN: The World Conservation Union
HIV: Human Immunodeficiency Virus
AIDS: Acquired Immunodeficiency Syndrome

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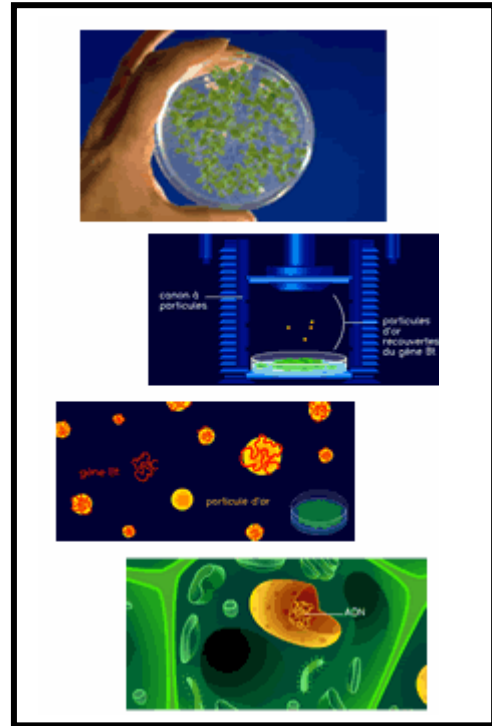
TABLE OF CONTENT

	Pages
GENERAL INTRODUCTION	1
FIRST PART: GENERAL CONTEXT	4
CHAPTER 1: PHYSICAL AND SOCIAL ENVIRONMENT	
4	
1.1. – Physical Environment	5
1.2. – Socioeconomic Data	6
CHAPTER 2: SITUATION OF BIOTECHNOLOGY AND BIOSAFETY	8
2.1. – Current Status of biotechnologies	8
2.2. – Current Status of Biosafety	10
SECOND PART: GUIDELINE OF THE NATIONAL BIOSAFETY FRAMEWORK	15
CHAPTER 1: BIOSAFETY POLICY	15
1.1. – National Biosafety Issues	15
1.2. – Objectives	18
1.3. – Ways and means of setting up the Biosafety policy	20
CHAPTER 2: LEGAL AND REGULATORY REGIME	21
2.1. – Legal Obligations emanating from the Cartagena Protocol	21
2.2. –Implementing the Cartagena Protocol obligations	23
CHAPTER 3: MANAGEMENT SYSTEM OF AUTHORISATION REQUESTS	25
3.1. – Biosafety Management Institutions	25
3.2. – Decision-making Procedures	28
3.3. – Risk Assessment	29
CHAPTER 4: RISK ASSESSMENT AND MANAGEMENT MECHANISM	30
4.1. – Risk Assessment	30
4.2. – Risk Management	32
4.3. – GMO Control and Monitoring	33
4.4. – Risk Assessment and Management Structures	33
CHAPTER 5: PUBLIC AWARENESS, EDUCATION AND PARTICIPATION IN THE DECISION PROCESS	35
5.1. – Presentation of the Existing	35
5.2. – Specific Measures to conduct for the Biosafety	37
5.3. - Public Access to the Biosafety Clearing House (BCH)	39

THIRD PART: ACCOMPANYING MEASURES IN THE IMPLEMENTATION OF THE NATIONAL BIOSAFETY FRAMEWORK

40

CHAPTER 1: INTERIM PROVISIONS	41
1.1. – Applicable Regulation	41
1.2. – Request and Risk Management in an Interim Regime	41
1.3. – Information Mechanism and Public Participation in the Decision Process	42
1.4. – Trusteeship	42
CHAPTER 2: CAPACITY BUILDING	43
CHAPTER 3: RESOURCE MOBILISATION	43
3.1. – Internal Resources	43
3.2. – External Resources	43
<i>BIBLIOGRAPHY AND OTHER SOURCES OF INFORMATION</i>	45
<i>ANNEXES</i>	



GENERAL INTRODUCTION



GENERAL INTRODUCTION

The Côte d'Ivoire, like many developing countries, had taken a very active part in the Rio Summit in 1992 on the Environment and the Development. During this summit, two important instruments, concerning biotechnologies, were discussed and adopted at the world level. It is about on one hand the Agenda 21 that presents biotechnology as being a promoting tool that allows the attainment of the sustainable development objectives, and on the other hand the Convention on Biological Diversity, in article 19, that deals with the biotechnology and the distribution of its benefits. The perspectives opened up by these new techniques are considerable. Thus, in the medical field, it is envisaged to produce new vaccines and vaccinate people thanks to transgenic food. At the food-processing level, these techniques are very useful in the conservation of dairy products and would allow the increase of the productions thanks to a faster growth of plants and animals, a stronger resistance of plants and animals to diseases and parasites, as well as a better adaptation of plants to dry and arid environments. However, as the side effects of genetically modified organisms and products thereof, still remain uncertain on the natural environment and the human being organism, the international community calls for the precaution in their use. Thus, the Convention on Biological Diversity require the signatories in its article 8(g) to “establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology”.

In the framework of the search of means, a sub regional workshop (West and Central Africa) on the new technologies and the derived products was organised in the Ivorian economic capital. This workshop defined the issues in the new biotechnology for Africa especially for the West and Central region. It was for example noted that biotechnology presents potentialities for the improvement of agricultural productions. However certain manipulations could constitute a threat to the natural resources.

In considering the socioeconomic, environmental, health and ethical issues, the Ivorian Government has set up an ad hoc committee to reflect on this new order and especially to propose a regulation on the import, the production, the use, or the placing on the national market of LMO or their derived products. Concurrent to this approach the Ivorian Government very actively participated in the deliberations of the intergovernmental committee on Biosafety. The Cartagena Protocol on Biosafety which resulted from it, and whose objective is to contribute in ensuring an adequate level of protection of the biological diversity, of the environment, of the human health during the transfer, handling and use of LMO, reiterates again this obligation of the States. The article 2(1) provides that “Each Party shall take necessary and appropriate legal, administrative and other measures to implement its obligations under this Protocol.” It goes further in setting up an advanced informed agreement procedure relating to the LMO transfer, handling and use on their territory. That requires the strengthening of human, institutional, technical and material capacities

A strategy for grants to the developing countries was approved by the Global Environment Facility (GEF) to allow for capacity building. It is in this framework that the Côte d'Ivoire sought and obtained GEF resources for developing its management policy for LMO use within its territory.

This policy is proposed taking into accounts not only the contracted obligations through these two instruments, but also obligations emanating from the international and regional agreements on Trade, especially the World Trade Organisation (WTO) Agreement and Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement.

Methodology

The preparation process of this document has mainly been participatory, associating the various

technical ministries, the private sector, research institutes and centres, the civil society including the associations of consumers, of environment protection and of human rights. The activities took place in the following manner:

- information sessions of the members of the National Coordination Commission of the project;
- general information to target audiences, by organising technical work sessions on the project and the Cartagena Protocol so as to have their opinion on the various surveys to conduct on the whole territory;
- the development of the various survey reports on:
 - the status of Biotechnologies and Biosafety in Côte d'Ivoire;
 - the assessment the status of biotechnologies and capacities of Biosafety in Côte d'Ivoire;
 - the identification and analysis of laws and institutions of biotechnologies and Biosafety;
 - a database on the experts, research institutes and centres on biotechnologies and Biosafety;
 - the regional mechanisms of harmonisation of the Biosafety system in Côte d'Ivoire
 - the structure of a national Biosafety system.
- the assessment, enrichment and adoption of these different reports by the management team of the project at the level of the Ministry of State, Ministry of the Environment, and then by the National Coordinating Committee (NCC);
- organisation of a national workshop to inform and consult the public at large on the whole of the survey results and ask it to define the priorities on Biosafety;
- round tables to define the content of the national Biosafety framework;
- development of various factors having to imperatively be part of national Biosafety framework, based on the workshops and round tables results.

This report, constituting the draft of the National Biosafety Framework, has been developed on the basis of these various reports and factors thus presented. It was analysed, enriched then adopted by the management of the project as well as the NCC, before being submitted for the assessment and to the adoption by the public during a national workshop.

Information and awareness workshops and roundtables, as well as the production of information leaflets on the national biosafety framework will close the process.

This document is presented in three (3) parts. The first part presents the general context of the Côte d'Ivoire on biotechnologies and biosafety. The second part presents the national Biosafety strategy (policy, legal framework, management of authorisation requests, environmental control and monitoring and public involvement). And finally, the third part proposes support measures to the implementation of the national biosafety framework.

CHAPTER 1: PHYSICAL AND SOCIAL ENVIRONMENT

Côte d'Ivoire, located in West Africa, covers an area of 322,463 Km² and is bordered to the South by the Gulf of Guinea, to the North by Mali and Burkina Faso, to the East by Ghana, to the West, by Liberia and Guinea.

1.1. – Physical Environment

1.1.1. - Relief

Three types of relief can be singled out. The South of the country presents the general appearance of a plain constituted of a rolling of small hills of very low height. In the North, we notice a succession of many plateaus of 200 to 500 meters altitude. These two types of horizons see their relative monotony broken by the presence of isolated reliefs, the inselbergs, taking the form of hills, alignments of hills, tabular hillocks or granite domes. The West and the North-West of the country, constitute the eastern extremity of a mountainous region, the “guinean ridge” and is differentiated from this general sketch of plateaus and plains in a clearer contrast of the elevated relief whose summits exceed 1,000 meters altitude. The administrative name of this region, “Region of 18 Mountains” illustrates it.

1.1.2. - Soil

There exist seven classes of soils, especially:

- the ferralitic soils that covers almost all areas are not liable to flooding (summits and slopes), Peneplains, or about 70% of the soils;
- The Hydromorphic soils less humiferous or organic with the less evolved soils of non climatic supply that take up the areas that liable to flooding (low-bottoms and the low slopes), they cover 20% of the lands;
- The Browned soils of tropical countries with vertisols that mainly occupy the high reliefs formed on basic rocks, they represent 0.5% of soils;
- The raw mineral soils and tropical ferruginous soils locally present but disseminated on whole territory, total 0.5% of the soils.

1.1.3. - Hydrographic Network

A dense hydrographic network covers 90% of the territory. The four (4) main rivers have a North-South flow. These are: the Comoe, the Bandama (white Bandama), the Sassandra, and the Cavally. The country has a coastal front of about 12,000 Km² and lagoon environments. The latter are grouped along the eastern half of the coast, up to Ghana on about 300 km and occupy an area of 1,200 Km² which comprise from West to East, the lagoons of Fresco, Grand-Lahou, Ebrie and Aby. However, more than 500 artificial dams and reservoirs have been registered (Tagro, 2000).

1.1.4. - Climate

The climate makes the transition between the humid equatorial climate and the dry tropical climate. The uniformity of average annual temperatures on the whole territory (24 °C to 27 °C) is worth underlining, as well as the low variations of average monthly temperatures, from one season to another. Like in most of West Africa, the rainfall rate is ruled by the shifts of the InterTropical Front (ITF). These shifts determine many big zones whose climates are divided according to a dry season gradient growing from South to North. There are thus the pluviometry (900 to 2,300 m) and, especially, the rain distribution, which determines the climatic zones of Côte d'Ivoire, with the progressive change from a sub humid four season climate, in the South, to a drier two season tropical climate in North.

1.1.5. - Vegetation and Biological Diversity

The types of vegetation correspond to the two climatic regions as mentioned above. The vegetation of the guinean domain corresponds to the space covered by the humid tropical climate. The noticeable pluviometry determines the presence of a relatively abundant vegetation, especially ombrophile and mesophile forests, the forest of the coast and of the mountain. The sudanese domain is characterised by a less dense vegetation, constituted especially by clear forest and diverse savannahs.

As a whole, the various edapho-climatic conditions favour the presence of a variety of ecosystems. Thus, there are about 17 vegetation features and formations representative of forests and savannahs. The national monograph of the biological diversity, prepared on bibliographical basis, indicates the presence of 16,034 species divided as follows: 12,483 organisms, land plants and animals; 3,551 organisms, water plants and animals.

1.2. - Socioeconomic data

1.2.1. - Demography

The population of Côte d'Ivoire was estimated at 6,709,000 inhabitants in 1975 but grew to 15,366,672 inhabitants in 1998. Before the crisis, in 2002, it was assessed at 17,000,000. The growth rate of 3.3 in the 1988 to 1998 period established the threat of doubling the population in 23 years. The main characteristics of the population are:

- a very young age structure with 43% of the population under the age of 15 years.
- a dependency ratio of 142 people inactive for 100 active in 1998;
- an unequal distribution of the population on the national territory with a average density 48 inhabitants/ Km² : 78% of the population occupy 47% of the national territory in the forestry south against 22% of the population on 53% of the area of the national territory in the savannah zone;
- an urbanization rate of 43% in 1998, that is a growth rate of 4.2% compared to 1988: this rate is mainly fed by the high demographic growth rate, the rural-urban migration and the international immigration;
- a general mortality rate relatively high of 15‰ in 1998 against 12‰ in 1988: this increase is linked partly to a high prevalence rate of HIV/AIDS (10 to 12%) and the outbreak of certain epidemics;
- a rising infant mortality rate of 112‰ in 1998 against 89‰ in 1994 ;

- a maternal mortality rate of 597 deaths for 100,000 living births.

1.2.2. – Recent Economic and Social Situation

The sector analysis of the economic activity on the 1998 to 2003 period, shows an important contribution of the tertiary sector in the creation of wealth with an average of more than 49% of the GDP. The primary sector traditionally on the rise represents since 1998 on average 27% of the GDP. As to the secondary sector it records a continuous decrease since 1999 to find itself on average around 24% on the same period.

After a strong recorded growth from 1995 to 1998 (with average rate of 5%) following the devaluation of the CFA franc in 1994, and the implementation of the structural reforms combined with the recovery of the price of raw materials, the country has entered in an unprecedented period of political instability and economic decline since the coup of 1999 and which reached the peak of the crisis in 2002.

In total, the objective of 3% growth in the Gross Domestic Product in 2002 seemed realistic. However, since the 2002 crisis, all the activity sectors recorded negative levels: -0.7% for the primary, -5.8% for the secondary, -1.6% for the tertiary. These poor performances of the economy have strongly been felt at the social level. The Poverty Reduction Strategic Paper (2002) indicated that there were drastic poverty indices recorded between 1993 and 2002.

CHAPTER 2: SITUATION OF BIOTECHNOLOGY AND BIOSAFETY

Modern biotechnology can be defined as a meeting point of many specialities (biology, genetics, biochemistry, information technology, genetic engineering, etc.) to allow various applications: agriculture and food security, industries, human and animal health, diagnostic products, energy, medicines, preservation and conservation of the environment, genomics (study of the genetic map), bioelectronics and bio adaptors, just to name the most important fields. This economic sector has considerably developed since the beginning of the 1960's and is today fully integrated in the World industrial fabric with an annual turnover exceeding US\$ 120 Billions.

Africa possesses a rich biodiversity that is constituted of a solid basis for the development of biotechnology. The interest of this technology in Africa mainly resides in its huge market potential. The market of seeds, vaccines, pharmaceutical products, etc. is largely open to the continent if it arrives at capitalising the potential that its biodiversity offers.

In Côte d'Ivoire institutions have strived for many years to develop applications in biotechnology. The surveys conducted in the framework of this project found the following on the application of biotechnology and the use of its derived products.

2.1. – Current Status of Biotechnologies

2.1.1. – Use of Biotechnologies

Biotechnology has been used for centuries especially in food industries such as fermentation techniques. The processes of modern biotechnologies are based upon, on the one hand, the improvement of varieties of plants, on the other hand, the genetic improvement and generally speaking on the modification of genes. The Environmental Law Centre of the IUCN in 2003 pointed that "the genetic modification uses a variety of methods to isolate single genes from one or more micro-organisms, plants or animals and insert them into the genetic material of the cells of another. By and large the techniques aiming at the genetic modifications, the Cartagena protocol sums them up as modern in its article 3(i). This article provides that "modern biotechnology" means:

1 - *In vitro* nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles,

2- Fusion of cells beyond the taxonomic family, that overcome natural physiological reproductive or recombination barriers and that are not techniques used in traditional breeding and selection;

2.1.1.1. – Application of Classical and Modern Techniques

Officially no application of modern biotechnology has been reported in even though obviously the potential exist. Many researchers have expressed the need of a regulation to initiate research activities in this field. These researchers are generally associated with the activities of American and French institutions that host the plant research material.

Different sectors are currently using biotechnology; these uses can be referred to as "classical" as opposed to those targeted by the Cartagena Protocol. The level of use of biotechnologies varies from one sector to another.

- the agricultural sector and the management of genetic resources: the most common use of the biotechnologies remains the *in vitro* cultivation of plant cells. In general, this technique is used for the preservation of genetic resources also for eliminating parasites and multiplying in great number the agricultural seeds especially in yam, cassava, plantain, taro and pineapple, cocoa tree and cotton tree. Thus, the National Centre for Agricultural Research (CNRA) produces “*in vitro* plants” of elite genotypes of palm trees. Other private institutions such as the Bananas Marketing Company (SCB) produce and market “*in vitro*” bananas. The use of molecular markers to improve plant production (palm tree, coco tree, cocoa, coffee, sheanut, yam, cassava etc.) and for the molecular marker aided selection (for example coffee and cocoa) is common.

- the sectors of food technologies, environmental and industrial research use some classical processes and products based upon fermentation and other forms of biological transformations using living microorganisms or enzymes. The research relating to industry is mainly steered towards the procedure of cleaning up using microorganisms but these activities are embryonic and are mainly carried out by the Research Institute on New Energies of the University of Abobo-Adjamé.

- The sector of human and animal health is the one that uses the most products of biotechnology. This involves the use of products from biotechnology such as pathology screening kits, antibodies or cap of DNA specific to some pathogens etc. This is the case of RETRO-CI and CDC that work on HIV/AIDS (produced for PCR, the ELISA test, the Western Blots, etc.). The fundamental research activities are carried out mainly by the laboratories of the Pasteur Institute, as far as human viral diseases are concerned, and by the Central Veterinary Laboratory of Animal Pathology, specialised in viruses of small ruminants.

2.1.1.2 – Use of Genetically Modified Food Products

The absence of GMO labelling and traceability procedures of imported products has limited the exact state of the use of modern biotechnology. It can however be noted that the nature of these products (sauce, maize and tomato, granulated maize, wheat meal, rice, soya, cosmetic products, fish, etc.) and their origin (USA, European Union, Northern Europe, China, Brazil, Argentina etc.) strongly suggest that some of the products may contain GMOs.

2.1.2. - National Capacities in Biotechnologies

2.1.2.1. – Human Resources

Eighty one (81) officials have been registered in the sector of research in biotechnology. The analysis of profiles of professionals confirms the diagnostics of Walter (2002) that pinpoints the greatest weakness of biotechnologies in Côte d’Ivoire is on human resources. There exists definitely very good researchers but in insufficient numbers to constitute the critical mass required to form effective performing teams. We also note a disproportion in molecular biologists compared to other specialities. This observation is the same as far as the technical support personnel. Not only they are few in numbers than doctors and engineers, but also the average educational level of this category of officials is weak. The scarcity of quality technicians is explained by the absence of training courses on the subject in the country, forcing to reconvert technicians in biochemistry and in chemistry for these jobs. The majority of Ivorians holders of masters’ degrees in biotechnology expatriate themselves and swell the American and European diaspora.

2.1.2.2. - Infrastructure and Equipment

Thirty seven (37) laboratories from fifteen (15) structures practice biotechnology. Some of these laboratories are efficient. The Central Biotechnological Laboratory of the CNRA whose reputation goes beyond the borders of country is the best example. Some other small-scale laboratories but using quality equipments have also been identified. The laboratory of animal pathology or the two laboratories of the RETRO-CI project are some examples. However, the general remark is the weakness of the Ivorian infrastructure. Some modern apparatus which gradually become necessary for the good operation of molecular biology laboratories are not available. Only one of the laboratories visited (in relation to the RETRO-CI project) has an automatic nucleic acid frequency rating machine and none of the laboratories has oligonucleotid synthesizer. Even basic equipments such as ultracentrifuges are very rare and often out of order. In addition, we have the recurrent problem of maintenance of the equipments which is one of the most serious constraint to the development of biotechnologies in Côte d'Ivoire. The regular supply of research consumables is another major constraint.

2.1.2.3. – Quality Assurance

Despite the fact that some of the laboratories have the necessary infrastructure and equipment, none of them is accredited.

The Central Veterinary Laboratory of Bingerville is involved in quality assurance.

2.2. – Current Status of Biosafety

2.2.1. – Absence of a Coherent Sector Policy

The State, in charge of defining the global and sector development policies, has not decided on development objectives of biotechnologies, neither has it specified the means to attain them. Also, no policy aiming at ensuring the safe use of biotechnologies has been conceived and put into effect. However, two major factors are to be noted because they translate the growing awareness of stakes associated with biotechnology and biosafety.

Firstly, the concerns relating to biotechnologies and biosafety are taken into account in sector development strategies of Cote Ivoire.

- In the national report on the status of zoo genetic resources (2003) the hint at biotechnology is expressed in the form of needs to develop the use molecular techniques for the selection and the conservation of genetic animal resources;

- The declaration of the general policy of scientific research in Côte d'Ivoire (1995) does not specifically mention modern biotechnology. However, it reminds us (page 4) that “the research in technology in all the fields becomes a priority”. The targeted sectors (conservation and transformation of agricultural products, diagnostics of pathologies, and fight against tropical vector diseases) in the said declaration are potentially users of modern biotechnology. Also in the framework of the research, it is advisable to point out that the CNRA has just validated its second generation research programmes. The of special section dedicated to biotechnology provides for 50 activities concerning 12 plants;

The sustainable management strategy of biological diversity (2003) has been prepared for the context of the implementation of a project of empowering activities on biological diversity. 16 axes of strategic direction have been released, including one about the “management of biotechnologies and biosafety”. It can be noted that these retained objectives aim at: (a) the promotion of biotechnologies in comparison with the development constitutive factors of biological diversity; (b) the establishment measures to frame

the use of biotechnologies so as to reduce the risks posed to biological wealth. These objectives are reflected in 17 actions globally concerning (a) the knowledge and the development of research on national resources, (b) the establishment or reinforcement supervision measures of activities, (c) the training of human resources and (d) the information on the behaviour change of the public.

We then note a set of actions that reflect the implicit choice of promoting biotechnology to improve the living conditions of the population, while ensuring a satisfactory level of safety. These choices are shown by the following facts:

- the equipping, on State financing for many of them, of numerous laboratories for biotechnology applications;
- the development of training courses in genetic engineering within the universities of Cocody and Abobo;
- the organisation in 1996 of a sub regional workshop on the status of the use of biotechnologies in West Africa;
- the adoption of a law instituting the free zone regime of biotechnology and NICT (New Information Communication Technologies);
- the assertion of the precautionary principle as reference element for decision making for activities likely to have impacts on the environment in the environment code in its article 35;
- the establishment, by the Ministry of the Environment, of an Ad Hoc Committee to think about a draft bill on biotechnology.
- the implementation of the process of ratifying the Cartagena Protocol on Biosafety.

2.2.2. – Legal and Regulatory Regime

The assessment of the legislation on biotechnology and biosafety in Côte d'Ivoire has revealed that although there are no laws specifically regulating the GMOs, there is to a very limited extent some regulatory situations.

In protecting its plant area where it draws nearly all its food resources, the Ivorian government has, from the beginning of its independence, taken protection measures of its arable lands. Thus, the importation of seeds and other plants have been submitted to very strict rules. In the seed sector, the country has either ratified or adheres to many international agreements and instruments that are linked to the use of GMOs.

It is proper to present the existing prescriptive framework, making on one hand, the analysis of some relevant provisions followed by an assessment of national legal and regulatory laws that have more or less a link with biotechnologies and biosafety, and on the other hand, an assessment of international conventions that have more or less a link with biotechnologies and biosafety.

2.2.2.1. – Existing Regulatory Instruments

In the absence of national legislation specific to biosafety on the natural environment and the

human organism, provisions of the existing laws in different sectors could apply to certain aspects of GMOs. These laws relate to: a) the introduction of plants in Côte d'Ivoire, b) the conservation of biological diversity, d) the conditions of import and use of phytosanitary products, e) the intellectual property rights and f) the procedure of environmental impact assessments.

*** Introduction of Plants in Côte d'Ivoire**

The import of plants is governed by four main regulatory instruments (two laws and two decrees) containing the relevant provisions that would allow the Authorities to make decisions on the transfer and the import of genetically modified plants or seeds.

The decree n°63-457 of 7 November 1963 fixing the conditions of the introduction and the export of plants and other materials likely to convey dangerous organisms for the crops and the law n°64-490 of 21 December 1964 relating to the plant protection (came to comfort the decree) submitting the import of plants to the prior obtaining of an import permit. This import permit process is authorised by the Ministry in charge of Agriculture through the specialised services of plant protection. The effective entry on the territory is subject to the obtaining of a phytosanitary certificate showing the health status of the plants.

The decree n°92-392 of 1st July 1992 relating to the official registration and the protection of plant varieties, the production and commercialisation of seeds and seedlings are submitted to official registration of new plant varieties before their multiplication (article 3), allows the government to operate a strict selection of seeds and seedlings

The article 16 of the law n° 96-766 of 03 October 1996 on the Environment Code lays the principle that says that « *no operation related to introduction, of import and of "export of any animal or plant species can be performed without the prior consent of the competent authority"* »

*** Conservation of Local Varieties**

The article 35 of the law n° 2002-102 relating to the creation, to the management and to the financing of national parks and natural reserves *prohibits any form of introduction of new varieties in the parks and natural reserves*

*** Approval of Phytosanitary Products**

There exists an authorisation procedure of the use of phytosanitary products that institutes an interministerial committee whose advice is required in delivering any approval.

The decree n° 89-02 of 04 January 1989 relating to the approval, the manufacturing, the sale and the use of pesticides abrogating the decree n°74-388 of 7 August 1974 relating to approval of pesticides prescribes in its 1st article the obligation of an approval for the use of any pesticide that is likely to be dangerous for the human health and the natural resources. The articles 4 to 7 address the conditions and formalities of obtaining the approval.

The approval is given by an order of the minister of agriculture on the proposal of an interministerial committee called "Pesticide Committee", whose members are named in the article 3 the nature of the approval is subject to the intended use:

- when addressing the use of pesticides for experimental purposes of not yet approved pesticides and not having been subject to provisional authorisation of sale, there must be a required prior declaration done to the pesticide committee. But this type of activity is exclusively reserved to the

research institutes of the Ministry of scientific research as well as to the laboratories and research stations of phytosanitary firms;

- when it is about the installation of pesticide manufacturing plants, there must be an authorisation (article 10). The same goes for the resellers of pesticides and applicators whose practice of the profession is subject to an approval.

*** Obligation of an Environmental Impact Assessment**

In application of the sustainable development principle, such as the principles of precaution, of substitution, of preservation of biological diversity, of non degradation of natural resources and of the polluter pays, the law n° 96-766 of 03 October 1996 on the environment code first requires every citizen to individually and collectively contribute to the safeguard of natural patrimony (article 35), then to every initiator of development projects, to obtain an authorisation from the Ministry in charge of the Environment.

This authorisation is given on the basis of a prior assessment of the consequences of the project on the environment. The decree n°96-894 of 8 November 1996 determining the applicable rules and procedures relating to the environmental impact of development projects distinguishes the projects that by their nature are exempted of EIA (Environmental Impact Assessment), as well as the projects do not present serious risks for the environment by subject to an impact report of the projects that, because of their nature, their size, the sensitiveness of the host site, could present serious risks for the environment, subject to a complete environmental impact assessment.

Moreover, the article 16 requires public consultation by conducting public surveys in the area for the project implementation. This takes into account the opinion of the beneficiary population of the project or the beneficiary population is a factor in the decision making of the competent authorities.

2.2.2.2. - Situation of International Conventions and other Instruments in Côte d'Ivoire

The analysis below is done on key instruments of the United Nations that impinge on biotechnologies and biosafety, other treaties such as UPOV and WTO have not been taken into account.

*** The Convention on Biological Diversity**

Côte d'Ivoire is party to the Convention on Biological Diversity adopted in May 1992 in Nairobi and open for signing in Rio de Janeiro on 5 June of the same year, during the Earth Summit on the Environment and the Development. It was ratified on the 14 November 1994 by the Cote d'Ivoire. It is this instrument that is at the origin of the Cartagena Protocol. In its article 19(3) it is recommended that *“the Parties shall consider the need for and modalities of a protocol setting out appropriate procedures, including, in particular, advance informed agreement, in the field of the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the conservation and sustainable use of biological diversity.”*

It contains provisions directly linked to the living modified organisms (the articles 8(g), 19(3) and 19(4)). Its article 8(g) requires the Parties to regulate, manage or control the risks associated with living modified organisms derived from biotechnology and likely to have adverse effects on the conservation and sustainable use of biological diversity, taking also into account the risks to human health. The article 19(4) institutes the information required during transfer of LMOs between Parties. It thus requires each Party to

communicate information on the use and the safety rules to any other Party receiving these organisms, as well as any other available information on the adverse effects likely to result from their introduction.

*** The Cartagena Protocol**

Cartagena Protocol, which was adopted on 29 January 2000, is the ultimate instrument that lays the procedures on Biosafety. Its objectives, as stipulated in article 1, is “*to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements*”.

Cote d’Ivoire is in the process of becoming a Party to the Protocol.

*** The Agenda 21 of Rio Summit**

Côte d’Ivoire has fully adhered to the Agenda 21, adopted during the Rio Summit. The Thematic Programme 5 makes reference to biotechnologies. Chapter 16 of this programme invites the States to define mechanisms that will allow the development of biotechnologies and their safe application for the environment.

*** Other Relevant International Instruments**

Côte d’Ivoire is Party to many other international instruments having links with biotechnologies such as the *Codex alimentarius*, the International Plant Protection Convention (IPPC), the World Trade Organisation, Trade-Related Aspects of Intellectual Property Rights (TRIPS).

The inventory of legal and regulatory laws as well as the international instruments and agreements are summed up in tables in annex of this document.



SECOND PART: GUIDELINES OF THE NATIONAL BIOSAFETY FRAMEWORK



CHAPTER 1: BIOSAFETY POLICY

A Biosafety policy is the direct consequence of the sector policy for biotechnology development. It is thus important for the Ivorian government to develop as quickly as possible a very clear sectional policy for the use of biotechnology. The opportunity offered by the UNEP/GEF project has encouraged the national partners to propose a national Biosafety policy. It is designed to meet the modern biotechnology challenges and gives support to the fundamental principles of the Cartagena Protocol. This protocol lays emphasis on the transboundary movements of LMOs. It constitutes an important means for organising and securing the international exchanges on the LMO. However, some biotechnology applications could be developed to the exclusion of any transboundary movement, hence outside the scope of the said protocol. The Côte d'Ivoire Biosafety policy has a scope that covers issues associated with these different types of activities. Especially, those within the scope of the protocol (art.4) and those that, at first sight, are not subject to a transboundary movement, but that are likely to have "*adverse effects on the conservation of biological diversity and human health*".

1.1. – Scope of the National Biosafety Policy

The Biosafety policy aims at ensuring an adequate level of safety in the application of modern biotechnology. The need of formulating a pertinent policy requires us to classify the issues to which the said policy must address. These issues are the following:

- **Protecting the population health.** Modern biotechnology is at the centre of current debates especially due to its potential risks to both human and animal health. The voluntary use of GMO is generally as a result therapeutic and/or food reasons.

- 1 - The use of biotechnological products in the medical field is a common practice, this trend should be reinforced with the improvement of the population access to quality treatments. These products are excluded from the scope of the Cartagena Protocol (article 5), however some concerns associated with the use of these products require attaching an interest to it. It is especially about their quality and security of handling.

- 2 - The consumption of some food commodities locally produced (yam, cassava, banana, pineapple) or imported (rice, wheat, meat and fish) present potential health risks when their production is associated with processes of modern biotechnology.

- **Safeguarding the environment and the biodiversity.** The potential risks associated with the release of GMO into the environment. The release of GMO in the environment is a more crucial issue as Côte d'Ivoire possesses rich biodiversity. Two cases illustrate this:

- 1 - The voluntary introduction of field trials or production on a large scale of agricultural commodities or livestock are the activities that seem most imminent for the application of molecular techniques on one hand and the development of animal genetic resources (national report on the status of zoo genetic resources) on the other hand. Cotton and rice field experiments were strongly considered these last years, however they have finally not been introduced because of the lack of an appropriate regulatory and institutional framework. Biotechnology is used in the framework of the fight against invading water plants, as well as the treatment of waste water (Sangaré report 2004). These facts remind us that biotechnology could play part in the environmental protection, a source for the introduction of GMO into the natural environment. It is therefore suitable to take into account measures aimed at reinforcing the safety in the biotechnological applications.

- 2 - The unintentional introduction, in the environment, could result from the failure in the GMO management, especially at the time of the contained use or field experiments during the transport, trans shipment, handling or transit operations.

▪ **Application process compatibility with the modern biology and ethical values.** Ethical questions exist about the handling of the living. It is recognised that national research is relatively dynamic and explores various fields. However the choice to develop biotechnology requires arrangements being made to take into account some ethical requirements.

▪ **Harmonising of the National Biosafety policy with regional and sub regional instruments.** The setting up of integration policies can make some national measures inefficient. It is thus necessary to consider regional policies concerning Biosafety. This requires a harmonisation of regional policies (for example the ECOWAS area).

1.2. Objectives

The Biosafety policy intends to be in accordance with the precautionary principle defined in the Rio declaration.

The overall objective is to **contribute to the reduction of risks associated with the consumption of products of modern biotechnology and the use of these technologies.**

The following are the specific objectives:

1 - Defining and implementing a national Biosafety system. Côte d'Ivoire intends to take all the measures to meet the obligations under Cartagena Protocol on Biosafety, especially the setting up of an operational, institutional and legal framework.

2 - Promoting Biosafety within potentially user institutions. Different actors in various fields are likely to initiate activities concerning modern biotechnology. It is important to ensure that safety objectives are set up as soon as possible to classify the risks that these activities generate, to know in real time the execution level and to put in place risk management procedures. The organisation of risk assessment and management within establishments and institutions requires:

- coordinating the modern biotechnology development programmes, at least in the public, parastatal and private sector, so that the central authority in charge of following up on the Biosafety policy articulates its risk management strategies with the current actions;

- developing an information mechanism that involves especially the private sector to get information in real time on the current operations while maintaining the confidentiality requirements;

- harmonising work protocols while ensuring the dissemination of best practices with regards to safety considerations;

- creating awareness of safety plans that will be activated in case of incidents.

3 - Setting up of control measures by the authorities on the use of modern biotechnology

This set up requires:

- adopting measures aimed at subjecting the use of modern biotechnologies to authorisation. This procedure must make distinctions among issues such as (a) contained use, (b) deliberate release for research purposes, (c) deliberate release for purposes of placing on the market for human consumption, (d) placing on the market of animal genetically modified feeds.

- establishing a risk assessment system as a prerequisite to decision making by the authorities, and also for putting in place appropriate risk management measures;
- instituting post authorisation measures so as to ensure compliance;
- starting up a biovigilance network on the territory to make sure that the use of LMO products is not a source of damage to human health and to the environment;
- creating an operational system for the detection of illegal LMO.

4 - Reinforcing specific measures to safeguard biodiversity.

The specific priorities to safeguard biodiversity consist of:

- zoning the territory into areas where the possibility of gene transfer to parent species are most high and prohibit activities;
- putting in place quarantine measures for the LMO intended for the field experiments;
- improving the *ex situ* conservation of genetic resources;
- regulating the access to local genetic resources;
- instituting fair distribution terms among the stakeholders (firms and local population) of profits drawn from the appreciation of genetic resources and traditional knowledge.

1.3. – Process of developing and implementing the Biosafety policy

The attainment of the Biosafety policy objectives and the subsequent implementation revolves around the following priority lines:

1 - Implementation of a legal regime specific to the biotechnological risk management. This regime will allow reflecting on the national regulation provisions required by the protocol (e.g. Art. 8 (2), art. 9 (3), art. 16 (4) etc.) so as to meet its obligations under the domestic regulation. It will also allow specifying any other appropriate rules for minimising the risk involved in the use of modern biotechnology.

2 - Establishment of a participatory mechanism in the decision making process. The decision making process in relation to the requests for importing or developing products derived from modern biotechnology on the territory constitute a key factor in the risk management system. This mechanism must involve all stakeholders at the same time the authorities receive notification or requests, in the risk assessment and management. The private sector and the civil society must be involved in the process of taking final decisions.

3 - Implementation of a risk management system. Ensuring Biosafety means better management of the risks in limiting their potential negative impacts on the human and the environment. In the framework of the Biosafety policy, it must (a) identify and build institutional, human and material capacities for a set of Biosafety management institutions, (b) define beforehand risk assessment principles and methods and (c) enact strict procedures that will allow the monitoring and impact assessment, afterwards.

4 - Mechanism for public information and participation. In the development of modern biotechnology, the implementation of security measures aiming at the well-being of populations, often their efficiency depends on the population support. It is thus imperative that the population be informed of what is being undertaken. Article 23 of the Protocol further specifies the obligations that should be met, it states that: (a) *“the public awareness, education concerning the transfer, handling, use of LMO”*, (b) *“the awareness and education on the information access on the LMO that may be imported”*, (c) *the public consultation at the time decision making*, (d) *the information on the means of access to the BCH.*

CHAPTER 2: LEGAL AND REGULATORY REGIME

The Cartagena Protocol obliges the Parties to meet some legal obligations at the national level, so as ensure the transfer, the handling and use in all safety of any living modified organism resulting from biotechnology and that could have harmful effects on the conservation and the sustainable use of biological diversity as well as on the human health.

The Ivorian legal and regulatory regime will take into accounts the Cartagena Protocol obligations but will also deal with other issues that are specific to it.

2.1. - Legal obligations coming under the Cartagena Protocol.

Among the Cartagena Protocol obligations, some must constitute the basis of the Biosafety legal regime of every Party. These are especially about the setting up of a Biosafety management institutional framework as well as the definition of procedures such as:

- 1) notification and acknowledgement of receipt;
- 2) advance informed agreement;
- 3) risk management;
- 4) the handling, transport, packaging and identification of LMO.

2.1.1. - Notification and Acknowledgement of receipt.

The regulation must specify:

- the obligation to notify in advance according to the conditions stipulated in the article 8 of the protocol and in the annex 1;
- who to address notifications within the importing country
- the language of the notification;
- the legal responsibility of the notifier concerning the accuracy of information (article 11(2));
- the respect for the 90 day deadline from the notification to acknowledge receipt;
- the respect of the confidentiality of the information supplied by the exporter.

2.1.2. - Advance Informed Agreement (AIA)

The law must ensure this:

- The Advance informed agreement procedure is required before the first intentional transboundary movement of LMO intended to be intentionally introduced in the environment article 7(1), subject to articles 4,5,6, 7, 13 and 14 of the Protocol;
- risk assessment is essential to the decision making especially the release of a LMO in the environment (article 15(2));
- public participation in the decision making process.

2.1.3 Risk management.

The priority legal factors relating to risk management involve:

- the management of unintentional transboundary movements (article 16(3));
- the respect of an appropriate observation period that is commensurate with its lifecycle or generation time before it is put to its intended use (article 16 (4));
- the specification of the content of the document accompanying the LMO;
- the notification to the States effectively affected or likely to be, at the Biosafety Clearing House and if need be, to the competent international organisations, of any incident resulting in a release leading or likely to lead to an unintentional transboundary movement of LMO likely to have significant adverse effects on the conservation and the sustainable use of biological diversity and on the human health.

2.1.4. - Handling, Transport, Packaging and Identification

The documents accompanying the notifications must clearly indicate:

- for the products to be used as food or feed: a) that they “*might contain*” LMOs and are not intended for intentional introduction in the environment, b) a contact point for further information (article 18(2)a.);
- for the LMOs destined for contained use: a) that they are LMOs; b) requirements for their safe handling, storage, transport and use; c) a contact point for further information; d) the name and address of individuals or institutions to which they are consigned (article 18(2)b);
- for the LMOs intended for intentional introduction in the environment or any other LMOs within the scope of the Protocol a) that they are LMOs b) the identity and relevant traits and characteristics; c) any requirements for the safe handling, storage, transport and use; d) a contact point for further information; e) as appropriate, the name and address of the importer and exporter; f) a declaration that the movement is in conformity with requirements of the Protocol (article 18(2)c);

2.2. – Implementation of the Cartagena Protocol.

It was observed after taking stock of the existing legal instruments relating to the Biosafety/GMO issue, and the identification of the relevant provisions, the laws are not completely suitable to meet the above requirements of the Protocol.

The national legislation must be consistent with the provisions of the Protocol. However, while respecting the objective set in article 1, it can as the article 2 authorises, be more rigorous in some of these provisions, if necessary. In fact, the draft bill on which Côte d’Ivoire is working is meant to be more comprehensive taking into accounts all the factors of the management and use of GMO and their products thereof.

This Draft Bill consists of five (5) titles structured as follows:

- Title 1: General provisions;
- Title 2: Provisions relating to the risk prevention;
- Title 3: Provisions relating to the release and the commercialization of Genetically Modified Organisms (GMO);
- Title 4: Responsibilities and Sanctions;
- Title 5: Interim and final provisions.

2.2.1. - Specific provisions to the Ivorian legal regime

Beyond the Cartagena Protocol provisions taken into accounts by the bill, some specific provisions mark out the legal regime of Biosafety in Côte d'Ivoire.

They especially cover:

1 – The Scope

The scope of the Ivorian bill goes beyond the Cartagena Protocol in two fundamental points:

- it is not exclusively about the LMOs but extends to all the GMOs;
- it does not limit itself to transboundary transfers but it is also about the GMOs produced locally.

2 – The Advance Agreement

The protocol requires “the advance informed agreement before the first intentional transboundary of LMOs for intentional introduction in the environment of the Party of import” (article 7.1). The following is excluded:

- any prior import relating to the same LMO: the national law must specify that the advance informed agreement is required for the same type of LMO originating from a Party of export other than the first one;
- any LMO that is not intended to an intentional introduction in the environment of the Party of import: the protocol does not expressly provide for measures for the case where the declared LMO as not being intended to be introduced in the environment, could be diverted from its initial use and find its way in the environment. The national law must provide for measures of protection of the environment for this case.

2.2.2. - Development of technical guidelines

To the regulatory texts that will be taken, it will be suitable to add the Technical guidelines that will specify the specific rules and the technical norms to respect. These guidelines will be inspired from the international standards. The activities that should, as a priority, be subject to the technical guidelines are:

1 - Experiments in contained use. These are mainly researches that in laboratory or in greenhouses of genetically modified micro-organisms or organisms for research, educational or developmental ends.

2 - Experiments in open or field use. The putting of some GMO seeds in a culture medium when estimated that the experiments in contained use have not sufficiently been tested.

- 3 - Traceability and labelling of GMO or their derived products intended as food or feed;
- 4 - Handling, packaging, transport of LMOs being subject to a transboundary movement.

CHAPTER 3: MANAGEMENT SYSTEM OF AUTHORISATION REQUESTS

The assessments of the institutional frameworks carried out during the diagnostic phase of the Biosafety project and the consultations initiated during the same process have established the inadequacy of the current framework. Since then the actors have favoured an institutional framework that will ensure that the implementation of a decision-making process that allows collection and reflection of all points of view of the stakeholders.

3.1. - Biosafety management institutions

3.1.1. - Ministries

Various Ministries at different levels intervene in the functioning of the national Biosafety framework. The decisions relating to the authorisation requests are taken by the relevant technical ministries (ministries in charge of Agriculture, Health, Animal Produce, Industry, Commerce, Higher Learning and Scientific Research), following the advice of the Ministry in charge of the Environment on the basis of the technical dossier instructed by the CNBIOS and results from the public consultation.

In case of divergent opinions between the technical ministry and the ministry in charge of the environment, the decision will be taken after the deliberation of the cabinet.

3.1.2. - Competent National Authority: The National Biosafety Commission (CNBIOS)

The National Biosafety Commission (CNBIOS) constitutes the competent national authority in Côte d'Ivoire. It is placed under the trusteeship of the Ministry in charge of the Environment. Its competence covers all the requests relating to all the uses of all the GMOs, should they come outside or inside Côte d'Ivoire. It instructs the authorisation requests on which it provides technical advice.

According to the transboundary movements of the LMOs and in accordance with the Cartagena Protocol, the CNBIOS:

- ✓ Receives the notifications of proposed transboundary movements of LMO that fall within the scope of the Advance Informed Agreement Procedure;
- ✓ Acknowledges receipt of the notification;
- ✓ Can request for additional information to notifier;
- ✓ Communicates the Côte d'Ivoire decision to the notifier and the Biosafety Clearing House (BCH);
- ✓ Responds to the requests by the Party of export or notifier to review decisions;
- ✓ Consults with the notifier, where necessary, on treatment of confidential information;
- ✓ Expedites the consultations where necessary.

The CNBIOS is constituted of:

- An **Interministerial Monitoring Committee** (CIS) includes the representatives of competent services of the ministries directly involved in the use and management of GMOs. The President of this Committee is one of the representatives elected by his peers. He is the President of the CNBIOS;

- A **Permanent Secretariat (SP)** whose mission is to daily manage the tasks required for the running of the CNBIOS. It is headed by the Ministry in charge of the Environment ;

- **Specialised Scientific Commissions (CSS)**. They bring together specialists and experts in various fields having an interest in Biosafety. Thus, should be part of them specialists in Molecular Biology, Genetics, Microbiology, Toxicology, Environment, Immunology, Law, Economy, Sociology, etc.

The mission of CSS will be constituted of:

- Evaluating the risks and establishing the conditions of use of GMO (Technical Guidelines);
- Issuing a scientific advice on their acceptability;
- Reviewing on the ethical aspects of the requests;
- Monitoring the effective application of its technical recommendations on the ground;
- Noticing and assessing the possible damage subsequent to the intentional or otherwise release of GMO.

The number of Specialised Scientific Commissions is not fixed because it depends on the types of problems being faced with. Therefore, from the point of view of the previous uses of GMOs four (4) specialised Commissions could be proposed:

- A Specialised Commission could deal with requests intended to the use of GMOs for the fundamental and applied research and to the production of GMO. This commission is also in charge of the file approval of monitoring - assessment institutions, of infrastructure certification and of personnel of Biosafety;

- A Specialised Commission could deal with the requests relating to food and feed, to the use of GMOs as medicines (covered or not by other conventions) as well as to their transformation into derived products intended for consumption;

- A Specialised Commission could deal with the files of intentional release of GMO in the environment. It proceeds to the risk assessment as well as to the monitoring – assessment of GMO impacts on the environment and deals in particular with aspects linked to the traceability requirements

- A Specialised Commission could deal with the risk assessment and the impact of new GMO products on the human environment as well as the compliance of procedures and decisions relating to GMOs vis-à-vis commercial conventions and agreements to which Côte d'Ivoire has adhered.

3.1.3. - GMO Assessment and Control Network (REC/Bios)

To conduct analyses of risk assessment, of monitoring and of impact assessment (environmental, socioeconomic and health of biotechnological products, the Ivorian system must comprise laboratories or research institutions in biotechnologies and other specialised institutions having good human and infrastructural capacities. The analyses conducted in the framework of the UNEP-GEF project have shown that there exist in Côte d'Ivoire real capacities for risk assessment analyses however capacity building efforts need to be deployed so that the local laboratories could fully ensure the monitoring and the impact assessment.

To develop an adequate scientific system, the CNBIOS must proceed to the setting up of a network of Institutions and Laboratories authorized to conduct research activities in biotechnologies and Biosafety. The certification criteria of these laboratories will be defined by the CSS and will be in relation with human and material resource capacities for conducting impact assessment activities and the regulation fulfilment monitoring. The CNBIOS should strive the capacity building of these laboratories.

3.1.4. - The National Biosafety Research Institute (ONBIOS)

The Ivorian Biosafety system must include an independent structure, emanating from civil society and having for mission to:

- Participate in public information;
- Make sure that there is transparency in the monitoring an assessment of files relating to GMOs;
- Create awareness about public participation in the decision-making.

For this purpose, it is suggested to create a National Biosafety Research Institute and the participants have suggested that it should be under the responsibility of the civil society.

3.1.5. - National Focal Point (Correspondence) of the Cartagena Protocol (CNPC)

The National Correspondent of the Cartagena Protocol (CNPC) liaises between the country and the Protocol secretariat. He receives the requests relating to the Protocol meetings as well as the requests of nomination of delegates. He is invited as well to comment on the issues in debates in the framework of international negotiations. The National Correspondent is also the window of CNBIOS transparency system. In this capacity, he:

- Advises on the training needs and opportunities of managers, technicians, researchers, civil society on Biosafety matters.
- Gathers and disseminates information on GMOs (Patents, experiments, known impacts, etc) in the country and all over the World.
- Gathers the analyses and observations of the public, and draws up reports,
- Carries out a regular inventory of laboratories, of personnel, GMOs and other products created on the territory or imported.

The function of national correspondent is under the Ministry in charge of the Environment.

3.1.6. - National focal point of the BCH

He establishes and maintains contacts with the Biosafety Clearing House (BCH) set up at the international level in the framework of implementing the Cartagena Protocol. He is responsible of the communication of all the required information under article 20(3) of the protocol. He should support the running of the national research institute. The function of the national focal point of the BCH is under the Ministry in charge of the Environment.

3.2. – Decision-making Procedure

3.2.1. - Notification

- Any use of GMO in Côte d'Ivoire, for whatever reason, must be subject to an advance informed agreement by the government after the advice of the CNBIOS. No GMO is subsequently exempt from the AIA procedure.

- The first step in the authorisation process is the notification to the CNBIOS by the applicant, of his intention of using GMOs on the Ivorian territory.

- The content of the must be written in French and be in all cases consistent, at least, with the provisions of the Cartagena Protocol. The CNBIOS could require additional information especially as far as the GMOs not covered by the Cartagena Protocol are concerned.

- The Party of export or the State that supports the exporter of GMO to Côte d'Ivoire must make sure that the legal responsibility of the exporter is committed as far as the accuracy of the supplied information by the latter in the notification.

- The CNBIOS acknowledges receipt according to the article 9 of the Cartagena Protocol.

3.2.2. - Administrative Circuit of Requests

- After receipt of a dossier and its official registration, the CNBIOS transmits it to the concerned Ministry and makes copies to the different Specialised Scientific Commissions.

- It also informs the national Biosafety research institute.

- The requests are analysed by the Specialised Scientific Commissions that provide consultative advice. It could be favourable or unfavourable advice, or even requests of additional information.

In fact, the CSS could request for additional analyses performed by national laboratories to get more accurate information on some risk aspects. They could also request for additional analyses to the applicants themselves. In all cases, the analysis charges are borne by the applicant. Depending on the cases, the CSS could request to review the dossier after conducting additional studies and analyses or simply indicate in their reports, the results that will make their advice lean on one side or another.

- The CSS reports and eventually the research laboratories that have been commissioned for the additional experiments will be handed to the CIS that deliberates for advice.

- The CNBios advice and the results of the consultation (if it happened), will handed to the Ministry in charge of the Environment for advice then to the concerned ministries for decision as far as measurable risk is concerned, especially biological, economic and sociological.

- The decision of technical ministries is not about measurable risks.

- About the unmeasurable risks at first sight (either the damage is known at all, either the damage is known but the cause of the damage is uncertain), the decision making can only occur during a Cabinet meeting, because only the government could have factors other than the scientific reports to rule on the acceptability of such GMO.

- The decisions of the Technical Ministries or of the Cabinet are passed on by the CNBIOS to the applicant as well as to the National Correspondent of the Cartagena Protocol.

3.3. – Risk Assessment

In the case of the Biosafety system in Côte d'Ivoire, the risk assessment can be done at different levels:

- At the level of the Specialised Scientific Committees: This assessment must be made on the basis of the information supplied, either by the applicant, or by the BCH. The international cooperation could also be activated at this level to overcome the potential deficiencies in local competences. If the CSS judge the information at their disposal sufficiently clear to assess the risks that present the organism that has undergone biotechnological manipulations, they can directly deliberate and pass on their conclusions to the SE/ CNBIOS. In the case where specialised scientific committees don't have sufficiently clear data, they must go and see the assessment and control network which constitutes the second level assessment in the system.

- At the level of the assessment and control network: This network is constituted of institutions, laboratories or legally recognised experts and having obtained a prior approval from the CNBIOS. At this level it is about carrying out experiments in contained use either to enlighten the CSSs on the doubts concerning the information in their possession, or to produce additional information required for their deliberation.

CHAPTER 4: RISK ASSESSMENT AND MANAGEMENT MECHANISM

4. 1. - Risk Assessment

The monitoring risk assessment and the impact assessment of biotechnological products must be performed by the laboratories or research institutions in biotechnology having the required human competences and the adequate logistics.

4.1.1. – Risk Identification (see annex 2)

Two types of risks exist: the measurable risks and the unmeasurable risk at first sight.

1 - Measurable Risk

The measurable risk assumes clear knowledge of the damage caused by the innovation, the causes of damage and their probabilities. To assess it one must then:

- clearly identify the damage caused by the GMO;
- identify the causes of the damages;
- determine the probabilities of the causes.

Let's take a practical case of the risk assessment of genetic flow between a GMO resistant to the round-up herbicide and the surrounding plants. Here, the damage that could cause such a risk is that the neighbouring plants also become resistant to the round-up. The causes of the acquisition of this new character are the fertilisation of these neighbouring plants of the GMO surrounding by the pollen of the GMO. The probability that the pollen of the GMO resistant to the round-up fertilises neighbouring plants of the GMO surrounding is determined by the estimation of the reproduction compatibility between the species in presence, the propagation mode of the GMO pollen, the distance of the possible propagation of the pollen, the life span of the pollen, etc.

The factors required for the clear identification of the damage, of its causes and the probabilities of the causes are the scientific data on:

- the biology of organisms used for biotechnological manipulation;
- the biology of the organism that is subjected to the biotechnological manipulations;

the impact of the organism that is subjected to biotechnological manipulations on the environment;

the healthiness of the organism that is subjected to the biotechnological manipulations for the livestock feeding;

the consequences of the introduction food based on an organism that is subjected to biotechnological manipulations on human health;

- the ethical and social aspects.

2 - Unmeasurable Risk at First Sight

. In such a case, either the damage is not known at all, or the damage is known but the cause of the damage is uncertain. According to Dujardin (2002), in uncertain situation, to legitimate the taking of the risk, an “acceptable” risk must be defined, which leads us to consider as a counterweight to uncertain risk, the usefulness of the innovative action bearer of uncertainties. Thus in the assessment of uncertain risk the criteria of usefulness must be taken into accounts early, despite the fact it is in contradiction with the laws governing the open market economy currently being applied. In whatever case, this approach requires the collaboration of the competencies falling under the sciences from the living and under the environment. It gives comfort to the public authorities in their leading mission of deciders serving the public interest.

the Ivorian system, the decision making concerning this type of risk can only be made by the CID because it possess factors other than the scientific reports to rule on it.

4.1.2. – Risk Classification

The factors to consider for the risk assessment are:

- clear identification of damage that the GMO can cause (for example, transferring a foreign gene in related wild species);
- identification of causes of the damage (for example, cross-fertilisation between the GMO and the related wild species);
- determining the probabilities of the causes (for example the proximity of a GMO field with the wild populations)

For that purpose, one must possess scientific elements on the trinomial:

- Donor organism, (and/or the cloned sequence resulting from it);
- Vector system(s);
- Host organism in which the cloned sequence will be transferred and eventually expressed.

The combination of these factors allows to assess the danger could represent the resulting GMO. One of the first tasks of the CSS will consist of making the classification of all the organisms and their sequences according to their pathogenicity for the human being, the animals and the plants as well as determining the containment measures required for each case.

Classes of GMO danger

There was general distinction for four classes of GMO growing dangers. These are classes C1, C2, C3 and C4. This work must be carried out in as soon as possible by the Specialised Scientific Commissions.

4.2. – Risk Management

These risks are linked to human, animal and ecosystem health. The factors to be considered in this management are the national regulatory requirements and the obligations of the Protocol, especially in annex 1.

4.2.1. Management of Measurable Risk

Dujardin (2002) also explains that the management of measurable risk goes through the prevention. The prevention requires technical solutions emerging from a non controversial scientific expertise. It opens the way to “theinsurability” of the risk, faced with the reverse socially and economically justified of a collective progress. The prevention of industrial risks is thus developed in a society marked by the positivism, thinking about the possibility and about the benefits of a technological domination of nature.

In practice the management of such risks must be distinguished according to the following cases:

- The import of products of living modified organisms intended for human or animal health (e.g. antibodies, medicines and hormones);
- The import of products of living modified organisms intended for human and animal health
- The import of products of living modified organisms intended for a contained use;
- The products of living modified locally produced;
- The products of living modified organisms locally produced and having to used as human or animal vaccine;
- The import of products of plant-like or microbial living modified organisms intended for the release;
- The import of products of an animal living modified organism intended for the release;
- The products of plant-like or microbial living modified organisms locally produced intended for a possible release;
- The products of animal living modified organisms locally produced intended for a possible release;

In Côte d’Ivoire, the risk management is the responsibility of the users to whom the guidelines, are given by the CNBios in form of terms and conditions. The conformity of the users in relation to the technical and infrastructural guidelines could be verified by REC institutions or experts, at the CNBios request. Sanctions are ranging up to the withdrawal of the authorisation issued by the CNBios are incurred by the offenders.

4.2.2. Management of Unmeasurable at First Sight

In cases of unmeasurable risk at first sight, we adopt the precautionary principle. It can focus on the possibility of damages, on their causality and/or on factors that control their frequencies. They register in a scientifically debatable field, of non stabilised knowledge. The origin of precaution, such as it emerges from the international environmental law (Rio Declaration 1992 for example) consists of refusing that scientific uncertainty legitimates the absence of any preventive measures. It authorises, on the contrary, that measures be taken aiming at reducing the presumed damages but not shown or known damages but whose causes are uncertain. The precaution is then not a banning principle, but an action

precept in cases of uncertainty. It is however posing the question of the acceptability of the risk.

In cases of uncertainty, the implications of the damage are unknown. The risk has an uncertain origin and/or the damage that defines it cannot specifically be pinpointed beforehand. The question of the risk responsibility and insurability is then posed in more complex terms. Eventually, it is to the society that is requested to collectively insure the risk. If the prevention is local, the precaution is global and collective. The risk acceptability in cases of uncertainty cannot only be based on the demonstration of a usefulness that, following the example of the feared damage, is no longer local, but global. The precaution thus poses the question of collective interest of the innovation. The precaution is “ethical” in the sense that it is developed in the field of implicit values. It constrains to the installation of “fair procedures in fair institutions”, consubstantial factors of the ethics, in the sense of the philosopher Paul Ricoeur.

4.3. - Monitoring and Control of GMOs

In Côte d'Ivoire, in the current situation, there are technical institutions depending on different ministries that are capable of doing the monitoring and control of GMOs after they have release in the environment. Monitoring and control mechanisms of impacts of certain products consumed or released in the environment in many fields (health, agriculture, environment etc.) are implemented by specialised services of the concerned technical ministries. These services as well as their roles have been recorded by the study conducted by Aboa and emien (2004) (cf. annex 2)

4.4. - Risk Assessment and Management Structures

In the case of the Côte d'Ivoire Biosafety system, the risk assessment could be done at different levels:

- At the level of the Specialised Scientific Committees: this assessment must be done on the basis on the information supplied, either by the applicant, or by the BCH. The international cooperation can also be activated at this level to offset the possible deficiencies of local competencies. If the CSS judge the information at their disposal sufficiently clear to assess the risks that present the organism that has undergone biotechnological manipulations, they can directly deliberate and pass on their conclusions to the SE/ CNBIOS. In the case where specialised scientific committees don't have sufficiently clear data, they must go and see the assessment and control network which constitutes the second level assessment in the system

- At the level of the assessment and control network: This network is constituted of institutions, laboratories or legally recognised experts and having obtained a prior approval from the CNBIOS. At this level it is about carrying out experiments in contained use either to enlighten the CSSs on the doubts concerning the information in their possession, or to produce additional information required for their deliberation.

CHAPTER 5: PUBLIC AWARENESS, EDUCATION AND INVOLVEMENT IN THE DECISION PROCESS

The Rio Declaration adopted 1992 by the United Nations Convention on Environment and Development articulates what are now known as the three “pillars” of public participation: (1) the right of citizens to information; (2) their right to participate in environmental decisions which affect them; and (3) their access to mechanisms of redress and justice when their rights are violated. Côte d'Ivoire like many countries all over the World has made a concrete follow-up to these recommendations by focusing its system on the aspects of public awareness and education with encouraging results. A short assessment of the undertaken actions, in the sector of the environment has been made. It reveals that no significant measure could be reported in the area of Biosafety. That is why; measures are proposed to support the implementation of the protocol on Biosafety.

5.1. -Current Situation

5.1.1. –Awareness

The awareness remains one of the constants in the national policy on the environment. Thus, the National Action Plan for the Environment whose results have been adopted in 1996 has concluded the necessity of reinforcing the Information and Communication strategies with the public. The programme eight (8) of the said action plan assigns the following objectives to the competent organisations:

- awakening the environmental conscience of the public so as to lead them to write down the preservation of the environment among their priorities;
- bringing the public to adopt ecologically viable behaviours;
- putting at the public disposal appropriate information for the individual and collective decision making on the environment.

These decisions have motivated the actions taken by the competent structures. These actions concern the following elements:

- Awareness campaigns through the media (TV spots, interview, round tables);
- Community campaigns by the deployment of teams that go to urban and rural zones to deliver messages;
- Free distribution of a bulletin entitled the “RIVE” or Ivorian Review of the Environment;
- Publication of the status of the Environment as information media to the attention of decision makers on sector policies.

5.1.2. - Environmental Education

The general education is articulated in various levels, especially the preschool, the primary, the secondary and the higher learning. The technical education is constituted of the secondary and the higher

learning. In the context of the implementation of the policy of the environment, the question of Education Relating to the Environment is acutely asked considering the requirement to have a critical mass of individuals likely to adopt gestures compatible with the safeguard of the environment. The Department of the Environment is in charge of conducting the measures on the matter and favoured the following arrangements:

- the introduction of themes relating to the environment in school and university programmes. The experience has permitted to successfully introduce of the EIE in the programmes of Life Sciences of preparatory and elementary courses. This training of trainers (primary school inspectors, educational advisors and teachers) have been provided with the support of the Canadian Cooperation;
- the support extra curricular activities that favour the awakening of an environmental conscience, especially the competitions of playlets, school drama, knowledge on the environment and the Rio generation conventions;
- the setting up of certificate courses has also been a strong axis of the formal educational system. It has led to the constitution of training programmes at various levels (Two year diploma taken at a technical college – DUT, diploma awarded by a university for a year’s advance study or research, One year postgraduate diploma in an applied subject – DESS)

5.1.3. - Public Involvement in the Decision Making Process

The public participation to the decision process has initially been experimented with survey of “advantages and disadvantages”. Facing the limitations of this type of survey and on the occasion of the generalisation of the Environmental Impact Assessments (EIA), it was judged timely to adopt a specific mechanism of public participation to the decision process. the decree N 96 – 894 of 08 November 1996 determining applicable rules and procedures to the assessments relating to the environmental of development projects institutes in its article 16 a public survey prior to decision making. The innovative aspects of the provision are:

- the systematic character of the survey;
- the mandatory hearing of all the stakeholders;
- the accounts of he hearings as constitutive elements of the EIE dossier;
- the restitution of the EIE to the public before the decision making.

There exists a functional mechanism

5.2. - Specific Measures for Ensuring Biosafety

5.2.1. – Public Information, Awareness and Education

The national debate on modern biotechnology and Biosafety present an ambivalent situation. If, in the urban environment, especially in university towns, there is fierce debate between the scientific community, the consumer associations and the NGOs, the debate is absent in rural areas. The duty to

information is thus a listed requirement in governance, especially for: (a) allowing the public to choose in an informed way, (b) indicating their preferences during the decision process, (c) apprehending or appropriating the choices of the authorities. In view of the above, the priority information concerns:

- the stakes in modern biotechnology and Biosafety;
- the LMOs that could be imported;
- the transport, the handling and the use of LMOs that could be imported;
- the decisions made regarding the notifications and the requests.

All the social layers are targeted by the awareness and the information. However, various actions are implemented. They are:

- debates on all media of the audiovisual communication. The channels with national calling as well as local radios are put to contribution;
- broadcasting of documentaries;
- electronic discussions;
- community information campaigns in rural environment by the deployment of teams on to various sites, especially in the zones likely to accommodate field experiments of GMOs.

The decisions of powerfully impacting the public will be made available to the public through the following media:

- Notices and communiqués on top of the publications in the Official Gazette;
- Press conferences to present certain decisions

Communication of information through radio and TV news in national languages presented daily;

- News Bulletins.

A national website on the Biosafety will be created and it will contain these pieces of information, as well as those relating to the regulation and to the mechanisms to activate in case of incidents.

5.2.2. – Public Participation

The participation of all stakeholders to the decision processes involved in the framework of biotechnological risk prevention and management is a requirement asserted again and again during various national consultations touching biodiversity and Biosafety. The objective on the matter is to implement a mechanism that will allow a large public to effectively influence the decision making, at all stages, be it the planning of policies, regulation and the instruction of notifications so as to authorise a transboundary movement of LMOs. The actions aiming at this objective are articulated around three axes.

1 - Public Information

The information targets all layers of the population. The spreading of the information is going to be organised around two priorities, especially:

- The information of the civil society in the context of the instruction of dossiers of notification. It is about instituting a system that will be activated from the receipt of a notification or from a request of application of modern biotechnology and through which the public will have access to information on the technical dossier and to the results of risk analysis. This system will rely on the relays that are offered by the decentralised authorities and the local radios;

- The spreading of general information on the GMOs and the protocol on biosafety. This mechanism will rely on the classical information network of the media. Workshops targeted towards the decision makers and conferences with the public at large will be used.

2 – Public Education

The sought aim is to bring the public to more responsibilities and to adopt the gestures compatible with the objectives of biosafety. In this respect, some of the actions will be registered in the framework of the formal educational system, others will rely on informal channels. Thus, following the example of what has been undertaken for the education relating the environment, an infusion of the theme of biosafety could be done in the school education programmes. The extra curricular activities are also a very good means of educating the younger public. That is why an accent will put on the development of this type of activities by favouring those that usually benefit from large media coverage (plays, drama, competition at the level of knowledge, exhibitions)

3 - Participation to the Decision Process

This participation consists of:

- the public participation through a regulation reminding us of its mandatory character, in the context of the management of the environment, as well as institutional responsibilities and modalities of public effective consultation;

- developing a mechanism facilitating the taking into account of results of consultations of the public in the final decision and modalities of assessing its running.

5.3. - Public Access to the Biosafety Clearing House (BCH)

The BCH has been established by the organs of the protocol to facilitate the effective implementation of provisions of the said international instrument in view of facilitating the exchange of information and helping the Parties to apply the provisions of the Protocol. The data hosted are accessible, with the exception of those hit by confidentiality, including:

- information relating to the instruction of dossiers of notification in view of a transboundary movement of GMOs;
- the regulation and the national guidelines in use;
- the potential bilateral agreements and arrangements;
- a summary of risk assessments.

The Parties to the protocol on Biosafety are invited to facilitate the access to the public to the said Clearing House. The national strategy to live up to this requirement rests on the following axes:

- Information campaigns on the BCH. These information campaigns on the BCH will target all the actors involved in the application of modern biotechnologies and biosafety. These campaigns will be developed according to the various modalities relying all the available media of information, especially by sending mails to all involved institutions and organisations, the distribution of leaflets, workshops, etc.;
- Target public training. The training on the BCH is intended for pressure groups, consumer and farmer organisations as well as for the Non Governmental Organisations;
- Establishment local centres for the access to the BCH. They aim at offering local public and various organisations access to the Internet.

***THIRD PART: ACCOMPANYING MEASURES IN THE
IMPLEMENTATION OF THE NATIONAL BIOSAFETY FRAMEWORK***

CHAPTER 1: INTERIM PROVISIONS

1.1. - Applicable Regulation

Before the adoption of and the effective application of the national law on biosafety, the legal and regulatory provisions can not allow the transboundary movements of LMOs intended to be directly introduced in the environment. On the other hand, the contained use for research and development purposes can be conducted according to:

- the decree n°89-02 of 04 January 1989 relating to the approval, the manufacturing, the sale and the use of pesticides repealing the decree n°74-308 of 7 August 1974 relating the approval of pesticides which prescribes in its 1st article the obligation of an approval for the use of any pesticide that could turn out to be dangerous to the human health and natural resources;
- the procedure of the environmental impact assessment provided for the decree n°96-894 of 8 November 1996 determining the rules and procedures applicable to studies relating to the environmental impact of development projects; and
- the law n° 96-766 of 03 October 1996 relating to code of the environment that first require every citizen to individually or collectively contribute to the safeguard of the natural patrimony (article 35), then to every development initiator, to obtain an authorisation of the Ministry in charge of the Environment.

1.2. - Request and Risk Management in the Interim Regime

While waiting for the implementation of a consolidated national biosafety framework for the transboundary movements of GMOs intended to be used in contained environment, the decision procedure is the following:

The Ministry in charge of the Environment assumes the role of the Permanent Secretary. It will receive and will record the requests.

The inter-ministerial coordination commission of the project “development of a national biosafety framework” plays the role of the CNBIOS. It will rely on the technical inter-ministerial commissions that will be constituted to analyse the dossiers.

As well, in such an interim regime, could serve technical support structures to the ad hoc Inter-ministerial Commissions, for the risk assessment and management:

- the Central Laboratory of Biotechnologies of the National Centre for Agricultural Research (LCB/CNRA) as afar Agriculture is concerned;
- the National Laboratory of Agricultural Development (LANADA) for animal production;
- the National Laboratory of Public Health (LNSP) for the human health;
- the Ecological Research Centre (CRE) of the University of Abobo-Adjame and the Oceanological Research Centres (CRO) for the Environment;
- the Ivorian Economical and Social Research Centre (CIRES) of the University of Cocody – Abidjan for the socioeconomic aspects;

- the laboratory of biochemistry and Food Sciences. UFR Biosciences, University of Cocody;
- the laboratory of Biotechnology, UFR Biosciences, University of Cocody.

The same as the CNBIOS, the running of such a system require the training, the awareness and the information of the people and the different actors to the management of GMOs.

1.3. - Information Mechanism and Public Participation in the Decision Process

In the absence of such a mechanism of public participation to decision process proper to biosafety, it is planned to rely on the elements of impact studies of development projects, especially the decree N 96 – 894 of 08 November 1996 determining the applicable rules and procedures relating to the environmental impact of development project which provides in its article 16 a public survey before decision making. The public will be informed of the existence of the Environment Impact Assessment Bureau which will play the role of information bureau on the GMOs with technical support of the experts.

1.4. – Trusteeship

In the interim phase the trusteeship of the implementation of the biosafety system will be headed by the Ministry in charge of the Environment.

CHAPTER 2: CAPACITY BUILDING

The capacity building appears as an important lever for the appropriate conduct of policy and strategic orientations previously indicated. The concerned areas, in priority, by the human and material capacity building are the following: Management of the national biosafety framework, Regulatory and administrative regime, Risk assessment, Risk prevention/management, Public awareness and participation. These needs are specified in the following Table of Capacity Building Needs.

CHAPTER 3: RESOURCE MOBILISATION

The establishment and the running, at the initial stage, of the national biosafety framework require an important sum of money. These resources will be used especially for: (a) the formulation of recommended rules and guidelines, (b) the establishment of some light structures such as the national access point to digital information, (c) the training of human resources, (d) the upgrade of equipments. It is essential to mobilise our own resources, but also from the international community.

3.1. – Internal Resources

The internal financing resources are:

- the State budget;
- the private sector, in particular the agricultural sector organisations interested in the applications of modern biotechnologies;
- the National Environmental Fund;
the consumer associations, the service clubs and NGO that put down the well-being of mankind at the centre of their concerns.

3.2. – External Resources

The international financial cooperation remains an important source of resource mobilisation required for the implementation of safety measures. Two ways have been identified, there are:

- financing mechanism of the convention, the Global Environment Facility (GEF). The GEF has already materialised this commitment by the financing, of the formulation project of the national biosafety framework. It remains to put into acts the said framework;
- the bilateral and multilateral agreements. Various bilateral (Germany, Belgium, France, Spain, Unites States, Japan) and multilateral (African Development Bank, World Bank, European Union, United Nations Food and Agricultural Organisation, United Nations for Educational, Scientific and Cultural Organisation) partners financially and technically contribute to the implementation of the national policy for the environment. They constitute sure potential partners to give shape to the national biosafety framework. Furthermore, financing opportunities could be offered by various foundations (Ford, Shell, Rockefeller, FFEM), “green” funds and NGOs.

Table: Capacity Building Needs.

Human Resources	Material, equipment, infrastructures	Human Resources	Material, equipment, infrastructures
<p>Management of the National Biosafety Framework</p> <ul style="list-style-type: none"> - planning and programming biosafety policies - strategic planning and coordination of intervention of actors <p>Regulatory and Administrative Regime</p> <ul style="list-style-type: none"> -management of notifications ; -management of decision process; -application of the regulation at the borders -conception of legal structures; -analysis and putting together of legal regimes; -connection and compatibility between the national regimes and the international rules 		<p style="text-align: center;">Risk Prevention/Management</p> <ul style="list-style-type: none"> - understanding of the risk management tools - setting up and running of the monitoring network -identification and handling of LMOs at the points of import; -identification and adequate qualification of risk by the precautionary approach; - intervention techniques in case of unintentional release or incidents ; -assessment of damages ; -regime of redress in case damage and the need of implementing of a specific code of redress. -assessment of the efficiency relating to the management options for the import , - the handling and the use 	<ul style="list-style-type: none"> -monitoring material -kit of LMO identification - quarantine centre -upgrade of laboratories
<p style="text-align: center;">Risk Assessment</p> <ul style="list-style-type: none"> - risk analysis for the environment, the conservation and the sustainable use of the biological diversity - risk analysis for the human health; - assessment of economic impact of the introduction of LMOs... - taking into account the socioeconomic considerations relating to the biodiversity; - understanding biotechnological processes and their applications; - analysis of the lifecycle of GMOs; -identification and access to external expertise. 		<p style="text-align: center;">Public Awareness and Participation</p> <ul style="list-style-type: none"> - awareness to modern biotechnology and to biosafety to non specialist public; - introduction of considerations linked to biotechnology and biosafety in the educational system at primary and secondary levels; -communication of information (legal and administrative framework, opportunities and threats of modern biotechnology) non specialist public - consultation and survey methods from the public -mediation technique; 	<ul style="list-style-type: none"> -awareness kits; -training documents; - documentaries -national access point to digital information on biosafety.

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Annex 1: Summary Tables of the legislation in Côte d'Ivoire
Table1: National Legislation

Nature of the Act	Title
Natural Resources and Nature Protection	
Law	Law n°2002 of 11 February 2002 relating to the creation, the management and the financing of national parks and natural reserves
Law	Law n°98-755 of 23 December 1998 on Water Code
Law	Law n°64-490 of 21 December 1964 relating to the plant protection
Law	Law n°94-442 of 16 August on modifying the law n° 65-255 of 04 August 1965 Relating to the protection of the fauna and the commercialisation of seeds and seedlings
Decree	Decree n°86-378 of 04 June 1986 on the creation of a national committee for the defence of the forest and fight against the bush fires
Decree	Decree 71-44 of 22 January 1971 modifying the decree 65-292 of 2 September 1965 on the creation of a consultative committee on the protection of plants
Decree	Decree n°63-457 of 7 November 1963 fixing the conditions of introduction and Export of plants and other materials likely to convey dangerous organisms for the cultures.
Order	Interministerial Order of 15 February 1999 on the institution of a technical committee Of the registration in the official catalogue of species of plant varieties
Animal and Halieutic Resources	
Law	Law n°87-806 of 28 July 1986 relating to,
Law	Law n°67-47 of 02 February on the creation of a consultative committee of fisheries,
Decree	Decree n°85-176 of 06 March on regulation of fishery in lagoon
Decree	Decree n°82-956 of 27 October 1982 on the reorganisation of a consultative committee of fisheries,
Decree	Decree n°66-399 of 13 September 1996 on the creation of a consultative committee of fisheries,
Order	Order n° 184/MINAGRA/MERSRIT of 21 August 1996 on the creation of the national commission of genetic improvement of livestock
Environmental Impact Assessment and Industrial Production	
Law	Law n°88-651 of 07 July 1988 on the protection of public health and the environment against the effects of toxic and nuclear industrial wastes and harmful substances
Law	Law n°73-573 of 22 December 1973 on tax on the verification and control of the petroleum institutions and oil depots and taxes of inconvenient and unhealthy establishments
Decree	Decree n°98-43 of 28 January 1998 relating to the installations classified for the protection of the environment
Decree	Decree n°96-894 of 8 November 1996 determining the applicable rules and procedures to the relating to the environmental impact of development projects
Phytosanitary Protection	
Decree	Decree n° 89-02 of 04 January 1989 relating to the approval, the manufacturing, the sale and the use of pesticides abrogating the decree n°74-388 of 7 August 1974 relating to approval of pesticides,
Decree	Decree n°74-388 of 7 August 1974 relating to the approval, the manufacturing, the sale and the use of pesticides
Intellectual Property Rights	
Law	Law n°96-564 of 25 July 1996 relating to the protection of mind works et copyrights of artists-interpreters and producers de phonograms and videograms

Table 2: Instruments International Agreements

Title	Date and place of adoption	Date of ratification/membership
African Convention on the Conservation of Nature and Natural Resources	15 September 1968, Alger	15 June 1969
Convention on Wetlands of international importance, especially as habitat of waterbirds	02 February 1971, Ramsar	03 February 1993
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	03 March 1973, Washington	03 February 1993
Convention on Biological Diversity	05 June 1992, Rio de Janeiro	14 November 1994
Convention on Climate Change	09 June 1992, New York	14 November 1994
United Nations Convention to Combat Desertification, especially in Africa	17 June 1994, Paris	06 March 1997
International Plant Protection Convention	1951 revised in 1997	9 August 2000
Agreement instituting the World Trade Organisation.	15 April 1994, Marrakech	15 March 1995
Agreement on the revision of the Bangui Agreement instituting an African Organisation of Intellectual Property	2 March 1977, revised 24 February 1999, Bangui	
Interafrican Phytosanitary Convention	29 July 1954	
International Treaty on Phytosanitary Resources for Food and Agriculture adopted by the 31 st FAO Conference (annex 10)	2001, Rome	In 2003
Cartagena Protocol on Biosafety	19 January 2000, Cartagena	In progress
Stockholm Convention on Persistent Organic Pollutants	23 May 2001, Stockholm	10 July 2003
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade		20 January 2004

Annex 2: Summary Table of Ministries and Structures likely to intervene in the CNBios
1 – Technical Ministries and Institutions Potentially Members of CNBioSE

Technical Ministries	Functions					
	National Correspondent	Executive Direction	Specialised Commission Research and Quality	Specialised Commission Human et Animal Health	Specialised Commission Environment	Specialised Commission Socio-economy
Ministry of State, Ministry of the Environment	Department of Environment Strategies and Policies	National Agency of the Environment	* Department of Environment Strategies and Policies * Ivorian Anti-Pollution Centre	Ivorian Anti-Pollution Centre	National Agency of the Environment Ivorian Parks and Reserves Authority	
Ministry of Agriculture			* Agricultural Produce Services * Institute of Tertiary Technologies		Impact Assessment Network	National Agency of Rural Development
Ministry of Animal Produce and Halieutic Resources			Department of Veterinary and Quality Services	* Department of Veterinary and Quality Services * National Laboratory of Public Health	National Laboratory of Support to Agricultural Development	National Laboratory of Support to Agricultural Development
Ministry of State, Ministry of Health			*Department of Pharmacy and Medicines * National Laboratory of Public Health	Pasteur Institute of Côte d'Ivoire	National Laboratory of Public Health	
Ministry of Scientific Research			Department of Research National Agricultural Research Centre		National Agricultural Research Centre	National Agricultural Research Centre
Ministry of Industry			Department of Products, Quality and Standards		Department of Industrial Affaires	Intellectual Property Authority in Côte d'Ivoire
Ministry of Commerce						Department of Commerce
Ministry of Higher Learning			* Biochemistry and Genetics Laboratories of the University of Cocody Abidjan * Higher Institute of Agronomy of the Félix Houphouet Boigny Polytechnic Institute	* Biochemistry and Genetics Laboratories of the University of Cocody Abidjan * Higher Institute of Agronomy of the Félix Houphouet Boigny	Environmental Research Centre of the University of Abobo-Adjame	Ivorian Centre for Economic Research of the University of Cocody Abidjan
Ministry of Planning and Development Programming			National Bureau of Technical and Development Studies		National Bureau of Technical and Development Studies	National Bureau of Technical and Development Studies

2 – Technical Ministries and other Services potentially active in Biosafety System

Technical Ministries	Functions							
	Intellectual Protection	Settlement of Disputes	Control, Monitoring and Impact Assessment	Research	Regulation	Information	Training and Vocational Leadership	Control of borders
Ministry of State, Ministry of the Environment			* Ivorian Anti-Pollution Centre * National Agency of the Environment Ivorian Parks and Reserves Authority		Department of Environment Strategies and Policies	Department of Environment Strategies and Policies	National Agency of the Environment	
Ministry of Waters and Forests			Forestry Development Company	Forestry Development Company				
Ministry of State, Ministry of Agriculture			* Institute of Tertiary Technologies * Impact Assessment Network		* Production and Diversification Services *Department of Export Produces	Production and Diversification Services	National Agency of Development	Production and Diversification Services
Ministry of la Production Animal Produce and Halieutic Resources			National Laboratory of Support to Agricultural Development	National Laboratory of Support to Agricultural Development	Department of Veterinary and Quality Services	Department of Veterinary and Quality Services	National Laboratory of Support to Agricultural Development	* Department of Veterinary and Quality Services *Department of Livestock Produces
Ministry of State, Ministry of Health			* National Laboratory of Public Health * National Institute of Public Health	National Laboratory of Public Health	* National Laboratory of Public Health *Department of Pharmacy and Medicines	National Laboratory of Public Health	National Laboratory of Public Health	National Laboratory of Public Health
Ministry of Scientific Research			* National Agricultural Research Centre * Oceanological Research Centre * Pasteur Institute of Côte d'Ivoire	* National Agricultural Research Centre * Oceanological Research Centre * Pasteur Institute of Côte d'Ivoire	* National Agricultural Research Centre * Oceanological Research Centre * Pasteur Institute of Côte d'Ivoire	* National Agricultural Research Centre * Oceanological Research Centre * Pasteur Institute of Côte d'Ivoire	* National Agricultural Research Centre * Oceanological Research Centre * Pasteur Institute of Côte d'Ivoire	
Ministry of the Industry	Intellectual Property Authority in Côte d'Ivoire		International Bureau of Standards in Côte d'Ivoire	International Bureau of Standards in Côte d'Ivoire	*Department of Quality and Standards Promotion * Department of Industrial Activities	International Bureau of Standards in Côte d'Ivoire	* International Bureau of Standards in Côte d'Ivoire * Intellectual Property Authority in Côte d'Ivoire	
Ministry of Commerce					Department of Commerce Department of Fraud		Department of Commerce Department of Fraud	

					Repression		Repression	
Ministry of State, Ministry of the Economy and Finances								
Ministry of State, Ministry of Justice		Courts and Appeal courts						
Ministry of Higher Learning			*Biochemistry and Genetics Laboratories of the University of Cocody Abidjan * Higher Institute of Agronomy of the Félix Houphouet Boigny	* Biochemistry and Genetics Laboratories of the University of Cocody Abidjan * Higher Institute of Agronomy of the Félix Houphouet Boigny	* Biochemistry and Genetics Laboratories of the University of Cocody Abidjan * Higher Institute of Agronomy of the Félix Houphouet Boigny	Department of Scientific and Technical Information	* Biochemistry and Genetics Laboratories of the University of Cocody Abidjan * Higher Institute of Agronomy of the Félix Houphouet Boigny *Research Centre in Ecology	
Ministry of Planning and Development Programming			* National Bureau of Technical and Development Studies *NGOs	National Bureau of Technical and Development Studies		NGOs	National Bureau of Technical and Development Studies	

Decision-making procedure [1: Request; 2: CNBios Advice; 3: Decision; 4: Dispute]

