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WEST AFRICA AGRICULTURAL PRODUCTIVITY PROGRAMME

(WAAPP 1C)

(Benin, Guinea, Liberia, Sierra Leone and Togo)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

FINAL REPORT

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ABBREVIATIONS

ABE	*Agence Béninoise pour l'Environnement* (Environmental Agency of Benin)
AIDS	Acquired Immunodeficiency Syndrome
ANGE	*Agence Nationale de Gestion de l'Environnement* (National Environment Management Agency)
ANPROCA	*Agence Nationale de Promotion Rurale et de Conseil Agricole* (National Agency for Rural Devlopement and Agricultural Consultancy)
BSD	*Bureau de Stratégie et de Développement* (Strategy and Development Office)
CAADP	Comprehensive African Agricultural Development Plan
CARI	Central Agricultural Research Institute
CRD	*Communautés rurales de développement* (Rural Development Communities)
ESMF	Environmental and Social Management Framework
CSLP	*Cadre stratégique de lutte contre la pauvreté* (Strategic Framework for Poverty Alleviation)
DAGRI	Department of Agriculture
DICAF	Department of Agricultural Council and Operational Training
ECOWAS	Economic Community of West African States
EA	Environmental Assessment
EFP	Environment Focal Point
EIS	Environmental Impact Study
EPA	Environment Protection Agency
FAO	Food and Agriculture Organization
FO	Farmers' Organization
FSNS	Food Security and Nutrition Strategy
GDP	Gross domestic product
HIV	Human Immunodeficiency Virus
IPDM	Integrated Pest and Disease Management
ICAT	Technical Support and Advisory Institute
ITRA	National Agricultural Research Institute of Togo
INRAB	National Agricultural Research Institute of Benin
IRAG	National Agricultural Research Institute of Guinea
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
IRD	Institute of Research for Development
IDA	International Development Association
LPDA	Policy Letter for Agricultural Development
LPDE	Policy Letter for Livestock Development
MA	Ministry of Agriculture
MEPN	Ministry of Environment and Nature Protection
MAEP	Ministry of Agriculture, Livestock and Fisheries
MOA	Ministry of Agriculture (Liberia)
MAFFS	Ministry of Agriculture Forestry and Food Security
MERF	Ministry of Environment and Forest Resources
NARS	National Agricultural Research System
NGO	Non-Governmental Organization
NSADP	National Sustainable Agriculture Development Plan
OCB	Grassroots Community Organization

SPASR	Strategic Plan for Agricultural Sector Rehabilitation
PNIA	National Programme for Agricultural Investment
PNIASA	National Programme for Agricultural Investment and Food Security
PNGE	National Programme for Environmental Management
PNADE	National Programme for Environmental Management Decentralized Actions
PUASA	Emergency Programme for Support to Food Security
PRSP	Poverty Reduction Strategy Paper
PAN/LCD	National Action Plan for Desertification Control
PGES	Environmental and Social Management Plan
PGPP	Pest and Pesticide Management Plan
PP	Plant Protection
ROPPA	*Réseau des Organisations Paysannes et des Producteurs Agricoles de l'Afrique de l'Ouest* /Network of Peasant Farmers and Agricultural Producers' Organization of West Africa
NSFS	National Strategy for Food Security
SNDPI	National Strategy for Small-scale Irrigation Development
SRPA	Strategy for Agricultural Production Rehabilitation
SPVCP	Plant Protection and Phytosanitary Control Service
SLARI	Sierra Leone Agricultural Research Institute
UEMOA	Union Economique et Monétaire Ouest Africaine/West African Economic and Monetary Union
WAAPP	West Africa Agricultural Productivity Programme
WECARD	West and Central African Council for Research and Development

EXECUTIVE SUMMARY

The West African Agricultural Productivity Programme (WAAPP), supported by the World Bank, aims at contributing to agricultural productivity and competitiveness through four (4) components: Regional cooperation in the areas of technology generation and dissemination; Centres of Excellence; Technology generation; Coordination, management, monitoring and evaluation. This WAAPP 1 C study covers the following countries: Benin, Republic of Guinea, Liberia, Sierra Leone and Togo.

WAAPP will finance agricultural technologies research and dissemination activities the implementation of which may impact negatively on the environment. Actually, the outcomes of agricultural research will bring benefits to local populations but they could, if the appropriate measures are not taken beforehand, generate negative effects in some cases, at environmental and social levels. The challenge is thus to combine both the development of agricultural research and extension activities with protection and environmental and social management requirements. In order to minimize these adverse effects, the formulation of this Environmental and Social Management Framework (ESMF) was required.

The formulation of the Environmental and Social Management Framework allows to identify the risks associated with the various interventions of the project and to define mitigation measures to be implemented during project delivery.

The Environmental and Social Management Framework (ESMF) is designed as a selection mechanism for the environmental and social impacts of the project activities. It enables to assess, extensively and prospectively, for each component, the environmental and social impacts of the future activities of the project, to plan a project assessment grid as well as mitigation or compensation measures. The ESMF will have a regional scope.

The policy and legal framework of the environmental and social sectors and of the areas of intervention of the WAAPP 1C, is marked by the existence of strategic planning papers as well as relevant laws at legislative and regulatory levels in the targeted countries. However, at institutional level, particularly in the area of rural development, limitations were observed in terms of environmental and social management capacity, coordination and synergy capacity in the environmental and social planning and monitoring of the projects implementation. Thus, the environmental and social management of the sector needs to be strengthened.

Regarding natural resources, human habitat and socio-economic activities, the ESMF identifies existing potentials at environmental and social levels, in terms of soil, water and biodiversity resources but also urban and rural environment in the areas targeted by WAAPP 1 C. It also provides a regional assessment of the status of natural resources and environmental and socio-economic challenges in the project areas, namely in relation with the project activities development.

In order to highlight the potential environmental and social issues that could result from WAAPP, the ESMF also identified the potentially positive and negative impacts of the various activities.

The positive impacts of WAAPP 1C activities include the following elements: food security; job creation; trade development; local production development; reduction of losses in agricultural products; increase in income of producers; use of environmentally friendly management techniques; APO capacity strengthening; improvement of living and socio-economic conditions of populations; improved water resources management; reduction in rural exodus; diversification of agricultural activities; improved pasture management; improved agricultural production techniques, etc.

The negative effects on the human environment include:

Negative environmental impacts:

- Deforestation, soil degradation through erosion;
- Destruction of sensitive habitats;
- Clearing of wooded areas;
- Soil erosion and loss of soil fertility;
- Soil salinization, alkalinisation and acidification through diversification and production chains organization;
- Pollution of groundwater, stream, and surface water through the use of high amounts of fertilizers, pesticides and herbicides;
- Destruction of unintended targets by pesticides;
- Soil trampling and compaction by cattle;
- Selective plant grazing by cattle.

Negative social impacts:

- Risk of land loss and expropriation;
- Risk of income insecurity for small-scale producers in case of discrimination, non-transparency or lack of accompanying measures;
- Sanitary risks related to the use of pesticides mainly due to the lack of an actual integrated control of crop enemies;
- Increase of water-borne diseases leading to a loss or displacement of labour;
- Poor management of pesticides packaging;
- Loss of pasture land (conflicts between livestock breeders and farmers with the development of farming sites);
- Contamination of cattle through watering;
- Pollution of wells and water supply sources by cattle;
- Increase of water-related diseases and poisoning due to pesticides;
- Water pollution and outbreak of water-borne diseases due to fish farming;
- Risks related to poor capacity (biotechnology and biosafety area);
- Social conflicts between farmers and livestock breeders (particularly in Benin, Guinea and Togo) related to the management of farming sites and wandering livestock, particularly after harvests; destruction of stored harvests; raping of women by shepherds; stealing of cattle; occupation of pastures by crop farms;
- Exclusion of vulnerable categories, namely women, in the allocation and management of farm lands.

WAAPP 1C is directly concerned with four (4) conservation policies (Environmental assessment, Natural habitat, Pest control, and Involuntary resettlement of populations), as indicated in the table below.

World Bank Conservation Policy	**Applicability to WAAPP**

	1C
4.01 – Environmental Assessment	**Yes**
4.04 – Natural Habitats	**Yes**
4.09 – Pest control	**Yes**
4.11 – Cultural Heritage	No
4.12 – Involuntary Resettlement	**Yes**
4.20 – Indigenous people	No
4.36 – Forests	No
4.37 – Security of dams	No
7.50 – Projects related to international waterways	No
7.60 – Projects in conflict areas	No

The ESMF includes an Action plan and an environmental and social activity selection process (research, testing) to be executed within the framework of WAAPP 1C, but also future extension activities. This environmental and social selection process identifies the orientation framework of future interventions in terms of national environmental and social priorities management, in terms of the additional needs of an environmental and social work, addressing the requirements of the World Bank's conservation policies.

Nevertheless, the environmental assessments due for the WAAPP 1C activities should be in line with national environmental and social legislations as well as with the guidelines from the World Bank (Guidelines on Health and Environmental Security; General Environmental Guidelines; Guidelines on Waste Management; Guidelines on Dangerous Waste Management; Guidelines on Safety and Health at the workplace; Guidelines on Monitoring-Evaluation). The ESMF puts a particular emphasis on technical support: the Environmental and Social Impact Study (ESIS) to be realized; good environmental practices manual, and database), capacity strengthening; training of actors and the sensitization of populations on the challenges of the project.

To improve the management of the environmental and social aspects of WAAPP 1C, it was suggested, in the ESMF, an external and internal monitoring programme that will be mainly implemented by the Environment and Social Focal Point within the ES/CORAF/WECARD, but also in the Research Institutes (PFE and PFS in INRAB, Benin; PFE and PFS in IRAG, Guinea; PFE and PFS in CARI, Liberia; PFE and PFS in SLARI in Sierra Leone; and PFE and PFS in ITRA, Togo) and of agricultural extension (PFE and PFS in MAEP, Benin; PFE and PFS in IRAG, Guinea; PFE and PFS in MOA, Liberia; PFE and PFS in MAFFS, Sierra Leone; PFE and PFS in ICAT and in MA for Togo). The ESMF also provides detailed recommendations regarding the institutional provisions for implementation and monitoring.

The ESMF has, in distinct documents, (i) a Pest and Pesticide Management Plan (PPMP) to address the concerns and constraints to be identified regarding the use of pesticides. The project shall prepare a Resettlement Policy Framework (RPF) to address any displacement at the level of of National Specialization Centres (NSC) experimentation farms.

The total cost of ESMF measures is estimated at **FCFA 412,500,000** including: technical costs (Organization of an ESMF regional exchange and sharing workshop ; organization of national validation and dissemination workshops; realization and implementation of ESIS/PGES; Development of manuals on good agricultural practices; establishment of an

environmental and social database; regional monitoring of the WAAPP 1C's ESMF implementation ; Permanent monitoring of WAAPP 1C's ESMF implementation; Evaluations (mi-term and final) of the implementation of ESMF, of capacity strengthening costs in terms of training and sensitization of actors.

1. INTRODUCTION

1.1. Background of the study

This WAAPP 1C study concerns the following countries: Benin, Republic of Guinea, Liberia, Sierra Leone and Togo.

The West African Agricultural Productivity Programme (WAAPP), funded with support from the World Bank, aims at contributing to agricultural productivity and competitiveness through four (4) components: Regional cooperation in creating and disseminating technologies; Centres of Excellence; Technology generation; Coordination, management, monitoring and evaluation. The programme has set to widen its scope of intervention so as to cover, by the end of the programme, all the ECOWAS member countries.

WAAPP 1C is an extension phase towards other countries where Phase 1A (Ghana, Mali, Senegal) and Phase 1B (Nigeria, Burkina Faso, Niger, Côte d'Ivoire) were realized. WAAPP 1C will be based on the structure and accomplishments of these two phases. Not only does it enable to reinforce the favourable conditions for dissemination and the monitoring and evaluation of gains, it will mainly focus on strengthening National Specialization Centres (NSC) launched during the implementation of WAAPP 1A. WAAPP also enables to systematize the integration of the competitive agricultural grant scheme guided by the request and adoption on a larger scale of agricultural technologies.

The WAAPP will finance agricultural technologies research and dissemination activities the implementation of which may have a negative impact on the environment. In effect, the outcomes of agricultural research will bring benefits for local populations, but they could generate in some cases, adverse effects at environmental and social levels, if the appropriate measures are not taken beforehand. The challenge is therefore to combine the development of agricultural research and extension activities with environmental and social protection and management requirements. In order to minimize these adverse effects, it was necessary to formulate this Environmental and Social Management Framework (ESMF).

1.2. Objective of the Environmental and Social Management Framework (ESMF)

The development of the ESMF helps to identify the risks associated with the various project interventions in the agricultural research and extension systems, and to define mitigation and management procedures and measures to be implemented during the project delivery. The ESMF is designed as a selection mechanism for the environmental and social impacts of investments and activities unknown prior to the evaluation of the project. Therefore, it is an instrument to determine and assess the potential environmental and social impact of the sub-projects to be financed by the Programme. As such, it serves as a guide for developing specific Environmental and Social Impact Studies (ESIS) for sub-projects, the number, sites and environmental and social features of which remain unknown. Furthermore, the ESMF should define the monitoring and surveillance framework, as well as the institutional measures to take during the implementation of the programme and the realization of the activities in order to mitigate the adverse environmental and social impact, or to eliminate or reduce them to acceptable levels.

1.3. Methodology

Our methodological approach was based on the concept of a systemic approach, in consultation with all the actors and partners involved in the WAAPP. The study used a participatory approach that enabled to progressively integrate the views and arguments of the various actors. Our workplan revolves around major intervention areas:

- Analysis of the project documents and other strategic and planning documents at national or local level (the ESMF capitalized on the numerous environmental studies conducted in the 5 countries, namely those concerning agricultural projects);
- Meetings with the institutional and socio-professional actors mainly concerned by the project: Ministry in charge of Environmental and natural resources; Ministry in charge of agriculture and rural development; National agricultural research centres; Agricultural development programmes; Agricultural advisory agencies or services; Producers' organizations (farmers' organizations); etc.;
- Analysis of environmental information and studies already conducted in the environment and agriculture sectors.

The information collected served as a basis for the environmental study which includes several aspects, notably the primary analysis, the identification of impacts, the sub-projects selection process, the environmental and social management plan which encompasses the implementation provisions, the environmental and social selection procedures of the project activities, the needs in terms of environmental capacity strengthening and the monitoring-evaluation.

2. PROJECT DESCRIPTION

2.1. Objectives and phases of the programme

The West Africa Agricultural Productivity Programme (WAAPP), funded with support from the World Bank seeks to contribute to productivity and agricultural competitiveness through four (4) components: Regional Cooperation in generation and dissemination of technology, Centres of excellence; Technology Generation, Coordination, management, monitoring and evaluation.

2.2. General components of WAAPP 1C

The WAAPP 1C includes four main components described as follows:

• Component 1: Enabling conditions for regional cooperation in the generation and dissemination of technologies. This component seeks to strengthen mechanisms and procedures for the dissemination of technologies to enable countries to fully benefit from regional cooperation in technology generation. It uses achievements as a springboard, and will therefore be built on the achievements of the first phase of WAAPP to better support the improvement and alignment of national standards and regulations with those of ECOWAS.

Specifically, this component supports the following key areas: (i) the establishment of common regulations on genetic materials, pesticides and other crop protection products (CPP) at the ECOWAS level, (ii) a common framework for intellectual property rights (IPR) and other rights, such as farmers' rights and Geographical Indication (GI), (iii) the creation of national committees for recording and intellectual property rights for genetic material and pesticides in the participating countries, (iv) strengthening information systems on agricultural technologies and research expertise at the regional level, (v) the sharing of knowledge on adaptation to climate change.

• Component 2: Strengthening the National Centres of Specialisation (NCS). This component aims at strengthening the alignment of national priorities with regional priorities within the national agricultural research systems of participating countries (NARS).

• Component 3: Financing of the generation and adoption of technology based on demand.

• Component 4: Coordination, management, monitoring and evaluation. The sub-regional coordination of the Project is provided by the CORAF.

2.3. Components of WAAPP 1C country by country

2.3.1. Benin

- Component 1: Enabling conditions for regional cooperation in the development and dissemination of improved technologies:
  - Sub-Component 1: Updating and implementation of regulations on biotechnology and Biosafety
  - Sub-Component 2: Plan of intellectual property in the agricultural field;
  - Sub-Component 3: Communication

- Component 2: National Centre of specialization:
  - Sub-Component 1: "Capacity building"
  - Sub-Component 2: "Research, development research and scientific mobility"

- Component 3: Funding upon request for development and technology adoption
  - Sub-Component 1: Financing of development research on the basis of competitive funds;
  - Sub-Component 2: Financing the operation of the Competitive Fund;
  - Sub-Component 3: Funding of technology transfer based on competitive grant.

- Component 4: Project coordination, management, monitoring and evaluation

2.3.2. Republic of Guinea

- Component 1: Policy, Regulation and Regional Cooperation
  - Sub-Component 1: Information System on seeds and markets
  - Sub-Component 2: Harmonization and Regulations on inputs

- Component 2: Centre for specialization, Research and Support Council
  - Sub-Component 1: Centre for specialization
  - Sub-Component 2: Technology development
  - Sub-Component 3: Agricultural Council and Technology dissemination;
  - Sub-Component 4: Capacity building centres and research stations

- Component 3: Access to Rice markets
  - Sub-Component 1: Support to small local processing
  - Sub-Component 2: Market information system
  - Sub-Component 3: Micro-credit to small-scale rural rice traders
  - Sub-Component 4: Support for the structuring of the system (industry)

- Component 4: Project coordination
  - Sub-Component 1: Support for Programme coordination;
  - Sub-Component 2: Monitoring and Evaluation activities;
  - Sub-Component 3: Training;
  - Sub-Component 4: Impact Studies

2.3.3. Liberia

- Component 1. Establish Enabling Conditions for Regional Cooperation and Market Integration
    - Adoption of regional regulations on genetic materials and agrochemicals;
    - Support to the formulation and implementation of National Seed Policy (NSP), an Agricultural Research Policy, establishing a National Seed Certification System and National Registration Committee;
    - Support to regional rice market integration; and
    - Knowledge management, communication and information systems.

- Component 2. Building centres of specialization along the value chain that
    - Focus on areas of national priority aligned with a regional priority;
    - Demonstrate sustained public support for core priority activities;
    - Commit to collaboration with regional and international institutions; and
    - Commit to develop together and share results with other countries.

- Component 3. Technology generation and dissemination
    - Sub component 3.1 Support to Competitive Agricultural Grant System
    - Sub-component 3-2a: Support to accelerated adoption of released technologies
    - Sub-component 3-2b: Comprehensive action plan for human capacity building
    - Sub-component 3-3: Facilitating access to improved seeds

- Component 4. Project Coordination, Management, Monitoring and Evaluation

2.3.4. Sierra Leone

- Component 1: Enabling Conditions for Regional Cooperation and Market integration
    - Subcomponent 1.1 Common Regulations for the Registration of Genetic Materials and Agrochemicals at the ECOWAS level
    - Subcomponent 1.2 National frameworks for the seed sector and genetic materials
    - Sub component 1.3 Regional Rice & Cassava Market Integration
    - Subcomponent 1.4 Knowledge Management, Information and Communication System

- Component 2: National Centres of Specialization
    - Sub-component 2.1 Upgrading core facilities and equipment
    - Subcomponent 2.2 Building the Capacity of Researchers and Development Workers
    - Subcomponent 2.3 Supporting R&D programs of National Centres of Specialization

- Component 3: Funding of Demand-Driven Technology Generation and Dissemination
    - Sub-component 3-1: Demand-Driven Technology Generation
    - Sub-component 3-2: Technology Transfer

- Sub-component 3-3: Support to agribusiness development for rice and cassava value chain

- Component 4: Project Coordination, Management, Monitoring and Evaluation

2.3.5. Togo

- Component 1: Conditions conducive to regional cooperation in the development and dissemination of improved technology
  - Sub-Component 1.1: Community regulations on genetic materials, pesticides and other phytosanitary materials at ECOWAS level.
  - Sub-Component 1.2: National Committee on Approval of genetic materials and pesticides
  - Sub-Component 1.3: Information system on agro-forestry-pastoral technologies and research skills at the regional level.

- Component 2: National Centre of specialization
  - Sub-Component 2.1: Strengthening infrastructure and equipment
  - Sub-Component 2.2: Improved mechanisms for technology transfer
  - Sub-Component 2.3: Improved mechanisms for technology transfer
  - Sub-Component 2.4: Capacity strengthening of researchers and technology transfer actors

- Component 3: Funding upon request for development and adoption of technologies
  - Sub-Component 3.1: Establishment of Competitive Funds
  - Sub-Component 3.2: Operationalisation of Competitive Funds
  - Sub-Component 3.3: Strengthening national research and development systems

- Component 4: Project coordination, management, monitoring and evaluation

3. BIOPHYSICAL AND SOCIOECONOMIC FRAMEWORK OF TARGET COUNTRIES

3.1. Biophysical and socio-economic profile of Benin

3.1.1. Introduction and Analysis

The Republic of Benin is a country in West Africa located between 6 and 12° 30° 30 latitude to the north and 1° and 3° 40 longitude to the east. It is bounded to the north by the Niger River 120 km, to the north-east by Burkina Faso 270 km, to the south by the Atlantic Ocean about 125 km, to the east by the Federal Republic of Nigeria and about 750 km, and to the west by Togo 620 km. Covering an area of 114,722 km2, Benin extends from the Atlantic Ocean about 700 km; its width is 125 km to the south between Hilacondji and Krake, 325 km at latitude Korontière and 120 km to the extreme north. Aboriginal Benin, which is part of the old levelling surface of West Africa, has an undulating topography with the following large features: plains, plateaus, the crystalline peneplain and the Atacora chain.

Climate

Benin has several climatic features:

- In the sub-equatorial area, near the ocean, temperatures vary between 24° and 32° and the annual temperature ranges are low. Humidity is relatively high and the high annual rainfall varies between 800 and 1400 mm.

- The climate of the Sudanese regions, which has two features:
  - In the moist tropical or south Sudanese area, temperatures vary between 30 and 34°. There are two seasons here: a rainy season that lasts up to five months with 1100 mm rainfall and a dry season lasting 7-8 months;
  - The dry tropical or north Sudanese or Sudano-Sahelian area. The annual temperature ranges are higher especially during the harmattan. The year is divided into two distinct seasons, a dry season from November to early May and a rainy season from May to October;
- The Atacora climatic zone, which covers the north-west. It rains from April to October and an annual rainfall of 1300 mm.

State of Natural Resources

Soil: The tropical ferruginous soils occupy over 80% of the total area of the country and vary a lot depending on their place in the slope. They are found in central and northern Benin. Other types of soil are low lateritic soils (8%) found in the south and generally contain of good quality agricultural raw mineral soils (7%) on the coast and north of the country, hydromorphic soils (3%) in the valleys, basins and the alluvial plains, and the vertisols in the depressions.

Forests: About 65% of Benin's territory is covered by woody vegetation made up of: Dense forest (631 km2), open woodland forests and savannah woodlands (12 744 km2 and savannas (60,956 km2). Benin is also home to other specific ecosystems such as swampy formations (mangrove) which can be found throughout the coastal fringe.

Inland water: Benin has approximately 7000 line km of rivers. These waters play important roles in farming, fishing and the daily lives of people. But Benin shares waters partly with a section of its major river basins (Niger, Pendjari and Mono).

Fresh water: They are estimated at 10 billion cubic meters (m3) for surface water and 2 billion cubic meters (m3) for renewable groundwater. But water is not always available everywhere in quantity and in quality.

Socio-economic Situation

Benin is one of the least developed countries in the world. It is classified as low-income countries by the World Bank. The Gross Domestic Product (GDP) per capita, currently standing at 268,000 CFA per year, has had its ups and downs. The purchasing power is low and the trade balance is in deficit. Since 1995, the poverty index has remained stable. In 2002, 29.6% of the population was counted as poor. Benin's economy is based on the primary sector where agriculture accounts for 35-40% of GDP. The cotton sector is of particular importance, representing the first highest foreign exchange earner.

In Benin, agriculture contributes over 36% to Gross Domestic Product (GDP) and represents about 45% of assets. Indeed, in 2002, the population of Benin was estimated at 6,769,914 inhabitants. And the official estimates of 2008 put it at approximately 8,290,000 inhabitants.

The employed labour force (excluding the unemployed) stood at 2,811,753 persons, of which 48.2% have jobs in the agricultural sector (agriculture, livestock, fisheries and forestry, including farm workers). Over 60% of active males and 35.9% of active females are actually employed in the agricultural sector. Thus, out of every 10 active male employees, six are in the agricultural profession. For active female employees, the ratio is 4 to 10.

As in other countries in West Africa, agriculture in Benin suffers a whole lot of problems in spite of the enormous potential it enjoys (availability of arable land, irrigated land, an important emerging market). It is characterized by low productivity and correspondingly high prevalence of poverty. Indeed, poverty, which affects over 30% of the regional population, rising up to 68% in some countries, is prevalent in rural areas where the inhabitants are hardest hit. In Benin, according to EMICOV survey results, nearly 4 in 10 Beninese live below the poverty line, with an index of 39% in rural areas against 35% in the cities. In 2002, these rates were estimated by INSAE at 29% for Benin as a whole, 24% for the cities and 32% for the countryside. Far from decreasing, income poverty has, therefore, rather increased from 2002 to 2006, with a significant number of households (over 200,000) coming below the poverty line. In spite of the reduction in the poverty gap between city and countryside, poverty continues to dominate in rural areas in Benin.

Regarding livestock, two livestock production systems are practiced in Benin: (i) the extensive pastoral system (cattle and small ruminants) practiced in the north and slightly to the centre and in the Plateau, (ii) the peri-urban animal breeding (poultry, small ruminants, rabbits) and sedentary herding of small numbers from March to October cattle associated with small ruminants. The agro-pastoral system is more developed in northern Benin thanks to the use of animal traction and the use of manure to increase soil fertility.

In the area of fisheries, Benin has a coastline of about 125 km and two complex tidal lagoons: the one to the south consists of rivers Oueme, Mono and Couffo and Niger River Basin with these tributaries. The main activity is artisanal fishing (sea and lagoon) and

some fish farming activities (ranging from acadja and fish holes to modern fish farming techniques, which are gaining popularity).

In the health sector, it should be noted that the Round Table set out broad guidelines. The state has committed itself to allocating to the health sector at least 6% of the national budget (as against 3% for the preceding years). In this context, the Ministry of Public Health has made malaria control its priority area of action.

3.1.2. Environmental and social constraints of the agricultural sector

Environmental constraints

Agriculture in Benin has to grapple with constraints of the following nature:

- natural, because it is still dependent on weather and unexpected natural disasters;
- structural, as regional disparities are very prominent on the distribution of land. Similarly, the way these lands are administered leads to a drastic reduction of fertility since mining activities are allowed on them;

Moreover, vegetation is seriously degraded Benin, with significant crisis in some regions (northern Benin and the coastal strip). The causes of this decline are multiple.

Population pressure

Benin's population growth (3.2%) has led to over-exploitation of farmland; arable land for families is reducing more and more; fallow land barely exists, all of which further impoverishes farmland.

Agricultural practices

Agricultural practices are no longer adapted to the current situation and are characterized by: burning for farming purposes, thus leaving the land fallow and consequently preventing soil restoration, the clearing of more space for improper cultivation, overgrazing, inappropriate fishing techniques (construction of fish pens), bush fires etc... all of which lead to a considerable degree of degradation of the vegetation cover to the extent that this cover disappears entirely in certain areas. This results in a significant reduction in forest cover which occupies less than 12% of the country today as against 29% in 1949.

It is estimated that over 1,000 km^2 of land is cleared every year. In the northern and central parts of Benin, bush fires, burnt each year and in order to increase cotton production at a rate of 100,000 ha per year (FAO, 1990), account for the destruction of over 50,000 ha of vegetation each year. Currently agriculture is claiming more and more protected areas and marginal lands.

Energy problems

In Benin, 80% of the population use wood or charcoal as a source of energy. This has contributed greatly to deforestation.

Growing poverty

In spite of the many efforts underway to reduce the rate of poverty in Benin, a lot still remains to be done since the misery of people continues to constitute a threat to the environment. There is little integration of agriculture and livestock, and thus, little recycling of organic matter from livestock farming whereas cropping systems would

normally yield better results from that integration. Overgrazing and pruning activities associated with livestock farming worsen the phenomenon of deforestation.

In all agro-ecological zones, the late deforestation and bush fires activities lead to uniformity of the landscape and reduce the biodiversity of different ecosystems, which are increasing affected by human activities.

Social Constraints

In Benin, there are problems with funding for the production and marketing of agricultural products. Furthermore, the level of producer efficiency is very low, and education has been identified as the main contributory factor. The level of supervision of farmers is also low and the agricultural sector records a low level of mechanization and fertilizer use in the production process. Apart from cotton, the marketing of agricultural products is most often disorganized and infrastructure for the clearing and sorting of products is also lacking.
With regarding to livestock production, inadequate health cover for animals constitutes a major constraint not only for their vaccination but also for their care.

Conflict between farmers and livestock breeders

In Benin, there are social conflicts between farmers and livestock breeders for access to fodder resources and water, particularly in the face of the cross-border transhumance phenomenon. Transhumance is "an animal breeding system characterized by cyclic seasonal movements of various degrees of intensity. These movements take place between complementary ecological zones, under the care of a few people, most of the group remaining sedentary. Socially, there are still difficulties and conflicts associated with the movement of livestock throughout the region, notwithstanding the adoption by the Heads of State of the A/DEC.5/10/98 Decision on the regulation of transhumance between Member States of ECOWAS. Each year, transhumance movements are characterized by red tape and serious incidents in the host areas, resulting from non-compliance with national and regional regulations, damage caused to fields and/or crops, grazing in protected areas, loss of animals, etc. This climate of permanent tension between livestock farmers and the inhabitants of host areas leads to conflicts, sometimes bloody.

Mounting pressure on land and other natural resources leads to the occupation of traditional grazing land (grazing areas, cattle trails, etc), resulting in an increasing conflict between livestock farmers and the other users of natural resources (farmers, foresters, etc). Between 1986 and 1994, conflicts related to transhumance have caused 90 deaths in Benin, including 57 in the district of Zou alone, which provides excellent pastures. These conflicts have created a permanent tension between the migrant herders and those of host communities, which tension limits the opportunities of the migrant herders.

On issues related to the transhumance, arrangements are made including the creation of grazing areas and the designation "Fulani leaders mediating between host populations and transhumant pastoralists" in the host areas. However, it is clear that the creation of the grazing lands has not materialized completely, that some plots of crops still occupy the transhumance portions, and that the timetable for the passage of transhumance is not known in advance by the host populations. The rules and regulations are not pretty much known to the transhumant pastoralists who come from neighbouring countries and are, therefore, considered foreign. This is especially true given that the management committees of the transhumance are not functional.

The place of gender in the agricultural sector

In spite of the very active role played by women in different fields of economic activity in general and in the rural sector in particular, they seem not to have equitable access to resources, projects and agricultural development programs. To help women develop more confidence in themselves and be more proactive in their promotion, Decree No. 2001-364 dated September 18, 2001 on the responsibilities, organization and functioning of the Ministry of Agriculture, Livestock and Fisheries (APRM), established within the Department of Planning and Prospective Studies, the Women's Wing of Agricultural and Rural Development (CFDAR).

3.2. Biophysical and socio-economic development of the Republic of Guinea

3.2.1. Introduction and Analysis

Background and presentation

The Republic of Guinea is located in the southwestern part of West Africa with an area of 245,857 km^2. It is a coastal country with 300 km of Atlantic coastline. It is bounded to the east by Côte d'Ivoire and Mali, to the south by Liberia and Sierra Leone, to the west by the Atlantic Ocean and Guinea Bissau and to the north by Senegal and Mali.

Statistics from the last census reveal that the Republic of Guinea had a population of 6,000,000 inhabitants in 1996, with a growth rate of 2.8% per year. The population in 2009 was estimated at 10,611,141 inhabitants with an average annual growth rate of 3.1% according to the Ministry of Finance document on macro-economic framework. Women represent 51% and youth below 18 years represent 57% of the population.
The administrative division of the Republic of Guinea is as follows: 8 administrative regions, 33 prefectures, 304 Rural Development Communities (CRD).

The climate of the country is characterized by with two seasons whose duration varies by region. The rainy season ranges from less than 3 months in the north to over nine months in the south-east. The annual water depth ranges from year 4000 mm (Coastal Region) to 1300 mm (Upper Guinea); peak rainfall throughout July and August. Changes in rainfall patterns often affect Agriculture (cessation of rains during the planting season, delay of the rainy season, heavy but temporary rains).

Guinea is characterized by heterogeneous soils, with only 25% of arable land (6.2 million ha) out of which less than 30% is actually cultivated each year. The drainage system is abundant. The many rivers and streams that go to water the neighbouring countries make of Guinea the water tower of the sub-region. Today, unfortunately, this water tower is threatened by the widespread drought that is the unfortunate result of human activities (deforestation, slash and burn agriculture, bush fires, etc.)

In terms of vegetation, the country has four main geographical areas: mangrove, dry forest, savannah and rainforest. The huge diversity of landscapes resulting from the large variety of mountains contributes to the creation of diverse local climatic conditions with their own ecosystems. The territory of Guinea is divided into four distinct natural regions on the basis of the diversity of its ecological conditions. Each of the four natural regions has a particular type of climate with specific temperature, rainfall, soil, fauna, flora and topography. The water piping system is unevenly distributed among these four areas. These areas therefore have different climatic, hydrological and ecological characteristics. These are: Lower or Maritime Guinea; Middle Guinea; Upper Guinea; Forest Guinea.

Lower Guinea or Maritime Guinea

It covers 15% of the total area (36,200 km2) and includes a marshy coastal area behind which lies a plain rising slowly to the foot hills of the Fouta Djallon. The annual rainfall ranges from 2000 to 4000 mm.

Farmland potential is 1.3 million hectares, out of which 0.38 million are cultivated each year. Mangrove and lowland rice, cassava and palm oil are the main food crops in the coastal zone, while rice, maize, acha, cassava and vegetables are grown in the piedmont.

The development of plains for intensive agriculture there is often the subject of monetary transactions and land issues. The pressure on land (demographics and the quest for good land by businessmen in Conakry) calls for a reduction of the fallow period and the use of fertilizers.

The area south of the coastal lowlands (Kindia Forecariah, Coyah, Dubréka) is well suited to a diversified commercial agriculture and the emergence of modern agriculture thanks to its natural potential (fruit export , cash food crops, small livestock , vegetables, tubers, rice rain, etc..) and near the city of Conakry.

In Conakry, the degradation of forest potential following the extension of farmland (including rice cultivation in mangroves) and the use of firewood is very pronounced in this region. Currently, forests cover only about 8% of the area. The mangrove is essentially composed of Rhizophora and Avicenia. Production is estimated at about 55 m3 / ha, a volume up more than 6.6 million m3 in the areas of forest production.

Transhumance mainly from the Fouta Djallon is increasingly important in this region and is often in competition with agriculture, especially with rice cultivation in lowland which serves as pastures during the dry season.

Middle Guinea

It houses the high plateau of the Fouta Djallon, where the altitude ranges from 600 to 1500 m in the north-west regions, the lowland regions of Gaoual and Koundara. It covers 63,600 km2 ie 26% of the total area of the country and includes 1.6 million inhabitants (27%), of which 1.4 million rural people (88%). The annual rainfall ranges from 1500 to 2000 mm. The soils are degraded to a very large extent. The main crops are acha, maize, cassava and peanuts, rice and vegetables. The stable nature of tapada cultivation thanks to the use of organic manure with high yields, is a good source of income. The potential arable land is 800,000 ha, out of which over 450,000 ha are cultivated each year, with 80,000 ha going to the tapadas. The tapadas and valley bottoms are real opportunities for commercial and intensive agriculture.

The forest cover only occupies 13% of the region, representing 800,000 ha of dry forest and 50 000 patches of mesophilic dense forest, which are relics of the former dense forest elevation. There no longer exists more of forested land apart from few gazetted forests relatively preserved and 450 ha of Dalaba pine plantations. Elsewhere, mainly groves leading river sources and galleries along the rivers, gorges and trees scattered on the Bowes, can be found.

The north-western part of this area (Gaoual-Kundara plains) boasts of the largest number of cattle thanks to the wet pastures of the middle valleys. The ever growing imbalance

between demand and availability of land has caused a migration of pastoral activities to Guinea Maritime.

As for soil, declining fertility is attributable both to physical erosion and to differential degradation of their physicochemical structure. The Bowes dominate the plateaus and hills, and spread quickly through etching; the soils on lower slopes are generally acidic and chemically poor; soils of the plains are often poorly structured, highly acidic and very rich in decomposed organic matter. Only a few low-land soils have a good production potential when put to proper use.

Following its ecological importance as a regional water tower in West Africa, this area has already attracted a large number of development-oriented and environmental-protection-oriented projects. The Fouta Djallon forms part of a regional restoration and integrated management program.

Upper Guinea

It covers 96,700 km2, representing 39% of the territory. It is a savannah region, situated between an altitude 200 and 400 m. The rainfall varies between 1,300 and 1,700 mm per year. The main crops such as upland rice, cassava, groundnuts, and recently cotton, are cultivated under rainy conditions. The cultivation of lowland rice is done through the uncontrolled river flows. This region has a very high agricultural potential. The potential of arable land over 2.7 million acres (100,000 ha of floodplains), of which 400,000 ha are cultivated each year.

The dry dense forest covers 8.3% of the region, representing 800,000 ha, but the condition of the forest in the region has two contrasting aspects. On the one hand, in areas of heavy agricultural activities of ancient times, i.e. around cities such as Kankan or Faranah and along the rivers, the forest has completely disappeared , creating serious problems of soil erosion, resulting from rain and erosion, the silting of river beds; and the problem of supply of fuelwood and services and other forest products (medicines, game...); on the other hand, in sparsely populated areas where, either due to the prevalence of onchocerciasis or their inaccessibility, we meet little clumps of relatively uncultivated dry dense forests, with an average size of 50 to 200 ha, which are very fertile because of their soil depth. But they are highly threatened by the agricultural settlement following the progressive elimination of onchocerciasis and the intensity of fires.

The major land issues encountered are the emergence of social tension during the construction of irrigation projects and the problem of customary rights originating from the reclaiming of major territories, following the disappearance of Onchocerciasis.

The region should be the focus of an environmental protection action plan because of the devastation of bushfires, uncontrolled control of mining activities, high firewood consumption in the major metropolitan areas, the need to preserve areas for breeding, and the extension of rainfed areas.

Forest Guinea

It covers 49,500 km2, representing 20% of the total area of Guinea. Its potential arable land is 1.4 million ha, of which more than 400,000 hectares are cultivated annually. Rice as a staple food is the main crop, occupying 52% of cultivated areas. In most parts of the dense forests, coffee and cocoa have been introduced in the forestry understorey.

The time for regeneration of soil fertility is about 6 to 8 years, a situation which creates a problem with the increased land requirements generally associated with population growth. An improvement in techniques for the management of fertility is at Centre of region's problems. Production conditions are still extensive, interviews are generally insufficient, and organic and mineral fertilizers are hardly used.

A study revealed the poor condition of the forest and the small remaining area of dense forest which has decreased by about one third since the late 1970s following clearings for agricultural purposes mainly in the recently colonized areas (migration, refugees).

3.2.2. Environmental and social constraints of the agricultural sector

Ecosystems and their resources are affected by a generalized process of degradation due primarily to anthropogenic factors and variability / climate change.

Environmental constraints:

- Clearing of trees, deforestation and land clearing for agricultural purposes (clearing and reduction of primary and secondary forests);
- The presence of pests (caterpillars) in low Guinea (Boke region) and the forest zone;
- Approximately 40% decline in yield in the lowlands, compelling producers to fall back on the slopes ;
- The change in water body systems, drying up of rivers and silting of major rivers;
- The resurgence of floods between August and September and the destruction of crops;
- Poor soils (high acidity and low organic matter content), low quantities of fertilizer used by farmers and poor availability of inputs to meet the needs of farmers for fertilizer, pesticides, etc.);
- weed invasion that affects all types of existing rice farms in Guinea: storm hill mangroves plains, floodplains and inland valleys or not;
- Bushfires.

Social and Institutional Constraints:

- Constraints relating to mining operations and their attendant consequences: population displacement, loss of farmland, land clearing;
- inappropriate agricultural practices (shifting cultivation, cultivation on slopes, deforestation of marginal lands with steep slopes, wandering animals, overgrazing, lack of water control, farmland clearance etc.);
- Poor sensitization on the seed policy and non-enactment of the Seed Law;
- non-use of water control systems by producers;
- the very low use of fertilizers and improved seeds;
- lack of storage facilities for crops;
- low level of mechanization of agriculture;
- poor mastery of production techniques to ensure product quality and prevalence of parasites affecting high quality commercial export;
- weak financial capacity of the private sector;
- the weakness of the state budget allocated to agriculture (less than 3% of the national budget , a far cry from the 10% recommended by the Maputo agreements);
- tenure insecurity and difficult access to land, especially by women and the youth, reducing the possibilities for extending the farmland;

- the absence of producer association on mechanization (which would have facilitated access to materials) ;
- Inadequate infrastructure for processing.

Conflicts between herders and farmers

The following table summarizes the conflict in Guinea.

Types of conflict	**Scale**					
	Family		Lineage		Involving several families/ lineages	Emanating from the village
Boundary Disputes	X		X		X	
Claims on a plot			X		X	
Heritage	X					
Disputes over management of heritage		X				
Access to planted fruit trees		X	X			
Resident Farmers/Animal Breeders Conflict			X		X	
Transhumance Farmers/Animal Breeders Conflict					X	

(Source: Handbook on prevention, analysis and management of conflicts in Guinea, Volume I, Facilitator's Guide)

Most of the conflicts in Guinea are managed by traditional authorities to the satisfaction of the population. Their way of managing conflict is based on custom, norms and values accepted by society. In general, knowledge of the Basic Law or legislation, such as the community code and the land code is very poor.

The gender dimension in the agricultural sector, notably the inclusion of poor and vulnerable groups

Land conflicts have a considerable impact on women, as they already suffer more than men due to weak legal systems, limited institutional capacity and customary and traditional practices. There is often a significant lack of participation from men and women in decision-making processes relating to land in rural areas, even though these decisions affect them directly.

3.3. Biophysical and socio-economic profile of Liberia

3.3.1 Introduction and Analysis

Located on the west coast of Africa, Liberia (4°18', 8°30' north; 7°30', 11°30' west) occupies a land area of approximately 111 370 km2 of which 96 160 km2 (86 percent) is dry land. The rest, 15 210 km2 and constituting 14 percent of the surface area, is covered by water. It shares borders with Guinea to the north, Côte d'Ivoire to the northeast and east, Sierra Leone to the northwest and the Atlantic Ocean to the south and southwest, with a coastline of about 520 km in length.

The population is estimated at approximately 3.5 million (2004 figure), 52 percent of which is rural, with an estimated total of about 230 000 farming families. It is estimated

that Monrovia alone accounts for nearly 40 percent of the population, with most of the returning refugees preferring to settle in Monrovia. At a projected growth rate of 2.3 percent per annum, the population is expected to reach approximately 5 million in 2020. According to the Ministry of Agriculture (MOA; 2006), approximately 40 percent of the total population of Liberia is between the ages of 15 and 35 years.

Liberia's economy, as described by the contribution of the various sectors to the gross domestic product (GDP), can be summarized for the period 1997 to 2005 as: agriculture and forestry (64–77 percent); industry (4–10 percent); services (19–26 percent). The unstable economic environment resulted in the decline of the contribution of industry to the GDP, particularly when most of the revenues from mining were unaccounted for. The war in Liberia has rendered the country one of the poorest in the world, with a reported per capita GDP of approximately US$ 130 in 2003. Eight out of every ten people are said to be living on less than a dollar a day. The Government's strategy for poverty reduction has been first to stabilize the economy and secondly to increase resource allocation to the social sectors.

The climate of Liberia can be summarized as follows: rainfall ranges from about 1 700 mm in the north to > 4 500 mm in the south; temperature 24–28 oC; relative humidity 65–> 80 percent; sunshine duration 2–8 hours/day; evapotranspiration 3.0–4.5 mm/day. The wind conditions are described as generally mild. The topography comprises mainly flat to rolling coastal plains running into some interior plateaus and then mountains in the northeastern part of the country. The country is made up of four physiographical units: coastal plains (0-100 m), interior hills (100–300 m), interior plateaus (300–600m) and the mountainous areas (> 600m). The country has nine major river systems, all of which are perennial, and run in a northeast to southwest direction into the Atlantic Ocean, draining about 66 percent of the country and taking their sources from neighbouring Sierra Leone, Guinea or Côte d'Ivoire.

There are also short coastal water courses, draining about 3 percent of the country. The total renewable water resource is estimated at approximately 232 km3/year, making Liberia one of the African countries with the highest *per capita* renewable water resources, about 71 000 m3/year.

The geology of Liberia can be classified into three major rock age provinces: the Liberian age province (2.7 billion years), the Eburnean age province (2 billion years) and the Pan African age province (0.55 billion years). There are three types of soil in Liberia, namely laterites (latosols), sand (regosols) and swamp, covering 75, 21 and 4 percent, respectively, of the land surface.

Nearly 5.4 percent of Liberian land, amounting to about 600 000 ha, is said to be cultivated, and 220 000 ha of this is reported to be under permanent crop or plantation, while the rest is arable. Broadly, the land can be divided into uplands and lowlands or swamps. Swamps can be classified as mangrove, riverine grassland, floodplains or inland valleys. The level of suitability of the swamps for production is not known because they have not been characterized, but there is a general assumption that the swamps are more productive when used for growing rice.

Irrigation potential is estimated at about 600 000 ha, but only approximately 1 000 ha can be described as having a surface irrigation facility. The total water-managed area in 1987, including swamp rice control, was estimated at about 20 100 ha.

Liberia shares international water resources with her neighbours: St John Basin (Liberia and Guinea), St Paul Basin (Liberia and Guinea), the Cestos Basin (Liberia and Côte d'Ivoire), the Cavalla Basin (Liberia and Côte d'Ivoire), the Moa Basin (Liberia, Sierra Leone and Guinea); and the Mano Basin (Liberia and Sierra Leone).

There are nine major rivers in Liberia with catchment areas varying from 4 000 (Farmington/Du) to 28 000 km2 (Cavalla). The Mano, Lofa, St Paul, St John, Cestos and Cavalla together drain approximately 65.5 percent of the country.

3.3.2 Environmental and social constraints facing the agricultural sector

Agriculture and Environment: Issues and constraints

- Increasing agricultural activities in the environment and high rates of uncontrolled wood-fuel production have resulted in increased deforestation, soils erosion and soil and water contamination, and beach erosion;
- Shortening period of fallow in shifting cultivation, timber and wildlife hunts are producing high levels of lands degradation, deforestation, and displacement of native species;
- Loss of forest, as a result of encroachment of farms and mismanagement of the land and uncontrolled logging, is extensive;
- Introduction of alien species that may eventually be invasive is increasing;
- Lack of land use policy may have contributed to destruction of landscapes and ecosystems;
- Sustainable land management is an integral part of agricultural extension messages; however issues relating to sustainable land management are not being addressed holistically
- Ineffective inter-agency collaboration to address agricultural-related environmental issues;
- Environmental impact assessment is legally required of any project that may have significant adverse effect on the environment. and
- Providing adaptation measures to mitigate climate change.

Climate change coping mechanism: Issues and constraints

- Shifting cultivation with a fallow period of less than 12 years, uncontrolled logging, charcoal production, and improper waste disposal contribute to climate change;
- Livelihood along coastal areas are and will continue to be seriously affected by sea level rise;
- Food production could be affected by changes in rainfall patterns that are especially shorter and of high intensity and increased incidence of insects, diseases, and invasive plants; and
- Global warming could extend the range of disease-causing vectors such as mosquitoes.

Sustainable natural Resource management: Issues and constraints

- Periods for traditional bush fallow farming systems are now being reduced; and
- Indiscriminate felling of cleared land trees by logging companies in the past and small scale pit sawyers at present expose large areas of forests to the heavy rainfall patterns in the country, adding to the degradation of soil cover and fertility.

Agricultural research: Issues and constraints

- Liberia's agricultural research system, formerly dominated by the public sector, was severely disrupted and terminated by war, and is now being revived;
- Agriculture research is carried out by multiple public and private sector and civil society organizations among which the Central Agricultural Research Institute (CARI) is predominant. Regrettably, these activities are not coordinated;
- Smallholders have not benefited from research mainly because the service is supply driven and limited in scope, and not seen to directly respond to the production problems of farmers;
- There are no clear organizational frameworks or institutional mechanisms (e.g. competitive grant systems) to encourage cost effectiveness and inter-agency partnerships in research, nor is there a formal mechanism to bring together researchers, extension agents, producers, processors, policy makers and the private sector;
- There are no clearly defined and well-thought out programs for agricultural research; and
- NGOs have some potential but currently contribute little or nothing to research efforts.

3.4. Biophysical and socio-economic profile of Sierra Leone

3.4.1. Introduction and Analysis

Sierra Leone is located in West Africa with the capital Freetown, on the coastal belt of the Atlantic Ocean. It has three provinces with a total of 12 districts and is in the lowland humid tropics with a land area of 7.3 million hectares (ha), of which 5.4 million ha (74% of total land) are potentially cultivable. Eighty (80%) percent of the total land area is upland and the rest is lowland with potential for high rice yields. The potential cultivable lowland area comprises 630,000 ha of inland valley swamps, 120,000 ha of bolilands, 110,000 ha of riverine grasslands and 200,000 ha of mangroves swamps.

The climate is monsoon type humid tropic with two distinct seasons. The raining season spans from May to October and the dry season from November to April. The annual rainfall averages about 3,000 millimetres (mm), ranging from a low of 2,000mm in the North to a high of 4,000mm in the coastal areas. Average monthly temperature ranges from 23 to 29°C, with a maximum of 36°C, in the lowlands towards the end of the dry season to a minimum of 15°C in the high lands, at the beginning of the dry season. The soils are generally highly weathered, leached, and acidic.

There are abundant water resources, with nine major rivers with catchments areas varying from 720 square kilometres (Km2) (Peninsular) to 14,140 Km2 with high river discharges. It is estimated that the renewable water resources could amount to 160 Km2 per year.

Sierra Leone receives abundant rainfall and run off is high and ranges between 20% and 40% of the total annual rainfall. Sunshine is abundant but varies with the amount of cloudiness, averaging 6-8 hours per day during the dry season but only 2-4 hours per day during the raining season, when crops are mainly cultivated. Humidity is usually high between 95-100% from July to September, and drops to as low as 20% during the harmattan. The combination of high temperature and humidity encourages high post harvest losses especially for vegetables.

The Northern parts of Sierra Leone have an excess of precipitation over evapotranspiration during seven months in the year, in the South the period increases to eight and half months. There is soil moisture deficit from between January and April in the North and between February and April in the South. It is probable that period of soil moisture deficit is now longer. During the period of moisture deficit, arable crops without irrigation and tree crops undergo severe moisture stress.

The economy of Sierra Leone is predominantly agrarian, employing about 70% of the working population. Poverty and Food insecurity are major issues of concern. The 1995 poverty profile estimated 75% of the population lived in poverty and more than 66% of the poor lived in conditions of extreme poverty. Poverty is generally a rural phenomenon and the incidence of poverty is highest among farmers.

Chronic malnutrition prevails in situations of low productivity owing to poor policies and strategies, poor feeding and care practices and inadequate water and sanitation facilities. There has been tremendous growth in the economy since the cessation of hostilities in 2001, and in 2008 the Gross Domestic Product (GDP) is projected to grow by 6.5%.

Currently, the total population is 4.9 (2004 CENSUS) million and is expected to increase by 5% in 2010 to 5.7 million and by 15% to 6.3 million by 2014. About 61% lives in the rural areas. The rural population has increased from 3.2 million in 2005 to 3.3 million in 2008 and is projected to increase to 3.4 million by 2010. On the other hand the urban population increased from 1.9 million in 2005 to 2.1 million in 2008 and is projected to increase to 2.3 million by 2010 and 3.0 million in 2014, indicating 43% increase over 2008. The average population density is 68 persons / km2.

Land Tenure

Land tenure in the Republic of Sierra Leone is characterized by a dual ownership structure. Land in the Western Area, which is the area originally settled by the Creole, the liberated slaves on their arrival in the country, is held under the English system of freehold interests. It is believed that the land was acquired through negotiation with the natives by the English and passed on to the settlers. This area includes the capital city, Freetown. It is also the area that has seen considerable growth and is clearly distinguishable from the rest of the country by the level and quality of development. Land in the rest of the country is held in communal ownership under customary tenure and is controlled by traditional rulers who administer it on behalf of their communities in accordance with customary principles and usage. The result is a dichotomy between modernization and tradition. While in the Western Area interest in land can be assigned with little difficulty, in the Provinces, the traditional authorities are unwilling to assign interests in land, which would connote any possibility of perpetual alienation such as freehold interests as this will deprive posterity of its ancestral heritage.

Gender

The inter-relationships between men and women; boys and girls in households predominantly engaged in agriculture are generally determined by traditions and stereotyped roles for the sexes. There are indications from various studies undertaken1 that inequity exists within the agricultural sector which impede the equal contribution of men and women to agricultural attainments. The traditions include land tenure systems that do not favor land ownership by women; practices that discourage women from owning certain types of livestock (e.g. cattle) and unequal distribution of household chores. These

notwithstanding there are an increasing number of women engaged in the poultry rearing industry where rural women mainly rear small scale free-range chickens while urban women are more involved in medium scale poultry production.

Predominantly a women's activity, agro-processing is still done by traditional methods on a wide scale. Women bear a greater responsibility in feeding the family and as the traditional set-up imposes certain limitations on them, there is the need to build their capacity especially in agro processing, trade and easy access to potable water, where they have the comparative advantage in terms of skills so that they can adequately support their families.

Agricultural Sector Constraints

Small scale producers dominate farming operations and farm sizes averaging 1. 63 ha. Food crop production is the main source of livelihood for over 75% of the work force. About 660,000 ha of the land [just over 10% of cultivable land] are cropped every year. The combination of Customary and Statutory land laws has permitted the co-existence of traditional farming with the establishment of tree crops plantation, as well as reclamation of swamps for farming. The Agricultural Sector Review [MAFFS 2004] summarized the constraints facing the agricultural sector as follows: increased pressures and threats to macro-economic stability over the medium term, (2) limited possibilities for the expansion of land area that is annually cropped, (3) declining soil fertility and low crop productivity [no sustainable alternative has been found to tradition bush fallow system in the upland], (4) inadequate research system, (5) poor extension services, (6) poor and in adequate rural infrastructure, (7) lack of agricultural finance, (8) population growth rate is more than agricultural rate, accentuating food insecurity in the country.

3.4.2. Environmental and Social Pressures on Land in the Farming Sector

The causal factors to environmental damage and social pressures on land in the farming sector are summarized below:

- Land is the only physical asset the small-holder farmers owns or have access to, and population increases [poverty and food insecurity] as a result of projections made for 2010 is 5.5 million and 61% of the population lives in the rural areas is estimated at 3.4 million. Food demands from an expanding population place great strains on what are mostly called low input systems. This leads to degradation of natural resources in agricultural pastoral lands, deforestation and expansion of marginal areas affecting critical environmental services such as flood and erosion control, carbon sequestration and water purification. Enhanced climatic variability from global climate change is an additional threat.
- The Agricultural Sector Policy to commercialize agriculture and enhance self-sufficiency in Rice by 85% in the medium term plan. The commercialization of agriculture through cultivation of 358,000 ha in Rice and rehabilitation of 2000 Km of feeder roads will significantly have an impact on the land and the environment in general.

- The WAAPP Project is expected to trigger demand for land to increase production on rice and cassava, by farmers and it would have some impact on the environment.

- Deforestation due to population pressures and demand for timber extraction, upland farming, fuel wood, charcoal production mining, infrastructural development and fish smoking, have caused significant land and environmental damage. It is

estimated that in the Western Area has consumed 625,000M3 of fuel wood and 4500 tons of Charcoal annually.

- Rainfall Run-off ranges between 20% and 40% annually, combined with the discharges of the nine rivers is estimated at 70 billion cubic meters. The run-off causes flooding in low land and depletes soil nutrients and causes soil erosion. The iron toxicity in rice fields reduce yields significantly and is attributed to the run-off.

- Indiscriminate bush fires destroy land, plants and animal and wild life species, and slowing the growth rate and regeneration of indigenous plant species, and long gestation period for plantation species.

- Declining soil fertility and low yields, limited farm size [1.6ha] and the current traditional bush fallow system in the uplands has limited expansion of crop production. This scenario will trigger demand for farmers to seek new farms and increase production of rice, cassava and other crops.

3.5. Biophysical and socio-economic profile of Togo

3.5.1. Background and analysis

Geographic situation of Togo

Togo is a West African country situated between 6 and 11degrees of the Northern Latitude and the 0° and 1°40 meridian of the Eastern Longitude. It has a land surface of 56 600 Km² and covers a narrow strip with a length of 650 km between the Atlantic Ocean to the South and Burkina Faso to the North and a breadth between 50 km to 150 km, between Benin to the East and Ghana to the West. Its terrain is relatively even except for the Atakora mountain range that sprawls across the country from the South-west to the North-east.

It had an estimated population of 5,598,000 in 2008, 51.3% of whom are female and 48.7% male. With an average growth rate of 2.4%, its population density changed from 34 inhabitants per km2 in 1970 to more than 100 inhabitants per km² in 2007. It is a predominantly rural population (> 60%). Young people below 15 years represent 43.7% of the total population.

The country enjoys an inter-tropical climate that varies significantly between the North and the South. It has a sub-equatorial climate with two rainy seasons (with heavier rains between April and July and less heavier rains from September to November) and 2 dry seasons (the longer one from November to March and the shorter one from July to August); which allows for two crop seasons per year. In the North, the climate is a two season Sudanese-type climate: one rainy season (May to October) and one dry season (November to April). The average rainfall obtained in the last 20 years ranges from 800 to 1000 mm per year in the regions with less rainfall (marine and savannah regions) and 1200 to 1400 mm per year in the other regions.

Farmlands

In terms of availability of land, Togo has 3.4 million hectares of arable land that has been partially developed. At national level therefore, the issue of land unavailability does not arise, but there is a real problem regarding access to land, which has to do with the existence of a dual land tenure system in the form of customary law and modern law. Regarding soil characteristics, Togo is divided into six agro-ecological zones, namely: the

dry savannah northern zone, the entire Oti hydro-morphological zone, the dry mountainous zone of northern Atakora, the sub-humid zone of mid and southern Atakora, the entire hydro-morphological zone of Mono, the dry intertidal and pre-littoral zone.

Water resources

Surface water is estimated to be an average of between 8 and 12 billion m^3 per year, split among three major basins: the Volta Basin, 26.700 km², representing 47.3% of the territory, the Mano basin with le basin 21.300 km² and the Togo Lake basin, 8.000 km². Underground water is estimated to be more than 9 billion m^3 per year for an estimated annual consumption of 3.4 billion m^3.

Forest resources

Togo has three broad categories of natural landmarks: dense forest (10% of the national territory), open landmarks and savannah woodland (83% of the total land surface of the country), river shores situated in more or less flood prone valleys of major rivers (2% of the country's land surface).

Togo's plant formations are situated in a transition zone between the dense semi-deciduous forest and the Savannah and comprise:(i) the guinea-sudan forest, now degraded and mainly situated in mountainous areas, notably in the western part of the Plateau Region; (ii) the galleria forest bordering the drainage areas of major water bodies; (iii) the dry savannah or dense woodland made of a population of deciduous species, primarily in the central and northern parts of the country; (iv) the savannah woodland in the northern and central regions of the country until the ninth parallel and the north of the Togo Mountains in the Oti and Kara, and in the Danyi, Akpaso and Akébou Plateaux; and (v) the bush shrub is primarily found in the sand bar plateux and in the humid lowlands of the la Lama structural saddle of la Lama.

The entire plant formation described above is badly degraded in the zones with high rural activity. The increasing erosion of the plant formation as well as mountain forests is very disturbing in view of the dominant role it plays in the regulation of water, rivers and streams and also in the protection of watersheds.

The agricultural sector

Agriculture in Togo is primarily rain-fed and largely for subsistence. The farm landscape in Togo is dominated by smallholder farms of less than 0.5 hectares. The main food speculators include cereals (maize, sorghum, rice), tubers (yam, cassava) and leguminous grains (cowpeas, peanuts, soya).

The agricultural sector plays a fundamental economic and social role in Togo in view of its contribution to: (i) achieving food security, (ii) creating jobs and generating income for the active population and, (iii) creating goods and services. It employs nearly 70% of the active population and contributes 38% to the formation of the gross domestic product (GDP).

Social conflicts between farmers/livestock breeders

There are many social conflicts among farmers and livestock breeders in Togo connected with stray animals, especially in the post harvest period. Generally, these stray animals come from neighbouring countries (Benin, Mali, Niger, etc.), creating a lot of problems with local populations. The root cause is that the transhumance corridors are not marked and the animals enter just anywhere, destroying stored crops. There are cases of rape and

cattle raiding, leading to violence, with loss of human lives. Transhumance management committees are set up, and are relatively endowed with resources. They also have periodic meetings to take stock of the situation in the prefectures.

3.5.2. Environmental and social constraints in the agricultural sector

However, the plant production sub-sector is still plagued by a number of difficulties namely: low crop yield due to (i) little investment in the sub-sector, (ii) the use of unproductive technologies caused by the failure of the extension and agricultural technical support services (iii) research with little focus on development; degradation of the edaphic and forest heritage due to (i) overexploitation in some zones, (ii) little use of soil conservation techniques, (iii) the degradation of forest and tree resources due to the extension of farms, the overexploitation of woodfuels and charcoal, land and cultural issues regarding replanting and (iv) excessive dependence on a few export crops (cotton, coffee, and, to a lesser extent, cocoa) which sectors also show weaknesses in terms of organization and sensitivity to international prices.

The major environmental and social constraints are: soil degradation, deforestation and the loss of biodiversity, pollution caused by inputs, especially pesticides, and social conflicts linked to land access. It must, however be pointed out that beside pollution by inputs, which could be specific to cotton, the rest of the problems are common throughout the agricultural sector. The ecological impacts related to soil degradation are: (i) increase of the area sown; (ii) chemical pollution of water resources; (iii) loss of agricultural productivity; (iv) change in the flow regime; (v) deterioration of the landscape, and (vi) loss of the vegetation cover and biodiversity. The loss of habitats and terrestrial flora in Togo is largely due to land clearing linked to the slash and burn shifting cultivation practiced by farmers.

4. LEGAL, INSTITUTIONAL AND POLITICAL FRAMEWORK

4.1. Agricultural policy framework

4.1.1. Regional agricultural policy

4.4.1.1. ECOWAS agricultural policy

CAADP is part of the ECOWAS agricultural policy the guidelines of which are intended to influence West African agricultural cumbersome trends while trying to remove obstacles to productive investment, productivity improvement and create a conducive trade environment for producers in the region.

The overall aim of the agricultural policy of the West African economic community is to contribute in a sustainable manner to ensuring food needs for the populations, to socio-economic development and to poverty alleviation in Member States, as well as inequalities between territories, zones and countries of the region. Its first area of intervention aims to increase productivity and agricultural competitiveness among others: (i) modernization of small-scale farming (inputs and equipments, agricultural research and dissemination of findings, of human capacities building), (ii) promotion of value chains and agro-processing chains, (iii) strengthening of information systems, (iv) organisation of stakeholders and promotion of dialogue and (v) agricultural funding.

4.4.1.2. UEMOA Agricultural Policy (UAP)

The UAP overall objective is to contribute sustainably to the assurance of food needs for the population, to the socio-economic development of Member States as well as poverty reduction in rural areas. The three major areas of intervention of UAP are: (i) the adaptation of production systems and the improvement of production environment, (ii) the deepening of a common market in the agricultural sector and management of shared resources as well as (iii) the inclusion of national productions in the regional and global market. The scope of UEMOA's Agricultural Policy includes agriculture, livestock, fisheries and forestry.

4.4.1.3. Comprehensive Africa Agricultural Development Programme (CAADP)

It is a strategy aiming at encouraging development induced by agriculture in order to reach and contribute to the achievement of the Millennium Development Goals (MDG) related to poverty alleviation and hunger eradication. After the approval of CAADP, whose specific objective is to reach an average annual growth of 6% by 2015, Regional Economic Communities have adopted it as a vision for the recovery of agricultural growth, food security and rural development in Africa.

4.4.1.4. Regional Strategy for Promoting Fertilizer in West Africa

This strategy was adopted on April 13, 2006 at the Summit of the ECOWAS Heads of States held in Abuja. It aims at a productive agriculture through a promotion of fertilizer use. Its overall objective is to promote the increased and efficient use of fertilizers in order to improve sustainably agricultural productivity for food security and the fight against poverty in West Africa.

4.1.2. National agricultural policies

4.1.2.1. Benin

Since 2006, Benin has undertaken to define an agricultural policy through its Strategic Plan for Revitalizing the Agricultural Sector (SPRAS) showing a coherent link with reference documents at the national and international level and constitute the framework for their operations in order to make the agricultural sector one of the key areas of the new dynamics of socio-economic development in Benin. It assumes the responsibility of OSDs for the agricultural sector and sets its overall objective to «improve the performances of the Beninese agriculture so as to ensure in a sustainable manner food sovereignty for the population and contribute to Benin's socio-economic development in order to achieve the Millennium Development Goals (MDG) and poverty reduction». The specific objectives deriving from this are: (i) promote the development of promising sectors to ensure nutritional and food security and participate in sub-regional trade ; (ii) improve productions and competitiveness in agriculture for the development and dissemination of technological innovations, as well as adaptation of chains to their economic and regulatory environment; and (iii) improve the institutional, financial, legal and political environment so as to create the required conditions for a competitive and attractive agriculture.

Among thematic groups established to discuss the SPRAS, a group worked on « Planning and land management mechanisms enabling a sustainable intensive agriculture in favour of local farmers while respecting the safeguard of natural resources and the environmental protection ». Thus, it enabled to include in the top priority areas of SPRAS, a reference document for the Benin Government for boosting the agricultural sector, environmental aspects through a sustainable management of natural resources.

This principle of taking into account environmental aspects is also achieved for many projects which include the BOOSTER project for the fight against malaria in Benin and the Emergency Programme for support to Food Security (PUASA).

4.1.2.2. Republic of Guinea

As part of the socio-economic development of the Republic of Guinea, the Government has developed several under sectoral strategy and policy documents for the development of the rural sector. This includes especially the following policy and strategy papers:

- National Food Security Strategy (SNSA) in 2003;
- Poverty Reduction Strategy Paper (PRSP) in 2002;
- Framework Programme Gender and Agricultural Development (PCGDA) in 2002;
- National Investment Program in the Agricultural Sector within the framework of NEPAD in 2004;
- National Agricultural Investment Program (PNIA);
- National Development Strategy of the Small Irrigation (NDSSI) in 2001; Guinea: 2010 vision in 1998;
- National Agricultural Development Strategy – by 2010 (1997, re-updated in 2001 to 2015);
- Strategic Plan for the Agricultural Research in Guinea 1995-2005;
- National Action plan for Environment and a National Strategy on Biological Diversity (2001);
- Policy Letter for Livestock Development (LPDE) in 1998;

- National Research Development Programme (PNRD) 2009 2015
- A document "Strategies and Action Plans for Livestock Development in the Medium and Long term" in 1997;
- A Document "Framework programme of the Livestock sub-sector by 2010» in 2000.
- The following National Agricultural Development Policies: LPDA1 (adopted in 1992), LPDA2 (adopted in 1998), PNDA (adopted in 2007).

Despite the willingness of Guinean authorities to provide the rural sector and its under sectors with strategic guidance documents, it is clear that the impact of these documents on food security for populations is limited due to a low level of dissemination, implementation and follow-up, but especially to their low level of ownership by stakeholders at the grassroots level.

The New National Policy for Agricultural Development (PNDA) vision 2015 was adopted since 2007. Its overall objective is part of a national reference created by the Poverty Reduction Strategy Paper (PRSP) and international that forms the Millennium Development Goals. This is to help reduce by half by 2015 food insecurity and poverty among the Guinean populations.

4.1.2.3. Liberia

The Poverty Reduction Strategy (PRS) recognizes the role and contribution to be made by the agriculture sector towards poverty reduction.

National food security and nutrition Policy

The Liberia Food Security and Nutrition Strategy (FSNS) established an institutional framework for the coordination of food security and nutrition activities and the monitoring of food security and under nutrition in the country.

Sector policy and strategy

The Ministry Of Agriculture is preparing a Draft Policy (Food and Agriculture Policy and strategy) based on the following principles and strategies:

- Policy 1: Improved food and nutrition security:
- Policy 2: Enhanced competitiveness and linkage to market
- Policy 3: Strengthened human and institutional capacities

Strategies within national policies:

- Integrated Pest and disease management applied widely by farming communities and monitored utilization of agrochemicals (Establishing Plant Protection Unit and Regulatory services Bureau at the MOA that is integrated with the extension system using Farmer's Fields Schools' approach in applying Integrated Pest and Disease Management -IPDM- farming).
- Wide awareness of link between food and health
- Access to land, tenure security, and sustainable land use
- Effective and efficient management of water resources for agriculture and other purposes
- Mainstreamed environmental considerations in agricultural programs (establishing an Environmental Unit in MOA and strengthening collaboration with EPA including monitoring of activities in agricultural sector)
- Effective transition from shifting cultivation to sedentary farming

- Monitored sector activities to prevent contribution to climate change; reduced impact of climate change in sector
- Empower agricultural women through access to credit, technology and markets

4.1.2.4. Sierra Leone

The Agenda for Change is Sierra Leone's Second Poverty Reduction Strategy Paper (PRSPII). It places top priority on energy, infrastructure and agriculture for national development efforts. The Agenda now calls on agriculture to be the engine for economic growth with a focus on production, processing and marketing of domestically consumed and export oriented crops, livestock, forestry and fisheries products.

The National Sustainable Agriculture Development Plan (NSADP) elaborated provides the broad framework for putting the objectives of the Agenda for Change (PRSP II) into action in Sierra Leone. It provides the roadmap for moving agriculture, forestry and fisheries forward to both address Sierra Leone's growing needs due to population growth and to create additional income to the national economy.

In a wider context, the NSADP serves as the Comprehensive African Agricultural Development Plan (CAADP) Compact under the African Union's NEPAD activities to assist countries and development partners to share a common vision for development. The CAADP compact with donors was signed on September 18, 2009 committing the Government and the Bank to support agricultural development. For Sierra Leone is to achieve the MDG1 (poverty and hunger reduction) by 2015, focus should be on the development of rice, cassava, Oil palm, fisheries and non-timber forest products (firewood, charcoal, rattan, raffia and value addition

4.1.2.5. Togo

The different policies and strategies aiming at a sustainable development of the agricultural sector are summarized below:

Poverty Reduction Strategy Paper (PRSP). In the field of Agriculture and rural development, priority strategies to be implemented by 2015 to: (i) improve agricultural productivity and food supply; (ii) improve access level of vulnerable groups to quality foods and promote rural income generating activities; (iii) improve the nutritional level of the vulnerable population; and (iv) sensitize the population on the impact of good nutrition on their health.

The agricultural policy note adopted in 2006 is the strategic reference framework of interventions in the agricultural sector for 2007-2011 in the absence of a declaratory statement on the country's agricultural development policy. It is focused on (i) strengthening the legal and institutional framework; (ii) structuring the rural and professional agricultural milieu; (iii) improving sustainably access to productive resources.

The Strategy for boosting agricultural production (SBAP). Adopted by the Council of Ministers on 30 July 2008, the strategy aims to tackle food crisis and fight immediately against the vulnerability and food insecurity that occurred during the 2008 crises.

***The National Programme for agricultural investment and food security (PNIASA*).** After a broad consultation and negotiation process with stakeholders of the agricultural sector, Togo acquired a National Programme of Food Security (NPFS) adopted by the Government in November 2009. This programme serves as a basis and reference tool to define a National Programme of agricultural Investment and food security (PNIASA). It is

structured in five sub-programmes with the first three focused on vital sub-sectors related to agriculture, livestock, fisheries, the fourth sector focused on research and agricultural consultation and the last one related to institutional capacity building and sectoral coordination.

4.2. Social and environmental policy framework in targeted countries

In targeted countries by WAAPP 1C, environmental and social management policies have been very much developed and reinforced by many sectoral policies and other strategy papers. These papers are in line with the search for sustainable socio- economic development conditions compatible with an ecologically rational development of natural resources and of the environment. Note: National action plans for environment (PANE or PNAE); National action to combat desertification (PAN/LCD) ; strategies and plans of action for the conservation of biodiversity ; national strategies for the implementation of programmes of adaptation to climate change; Strategy Papers on Poverty Reduction; etc. These policies are intended primarily to develop the integration of environmental concerns in all plans, programmes and development projects.

4.2.1. Benin

The environmental policy is marked by: the environmental action plan; the national agenda 21; the National communication on climate change; National Strategy for the fight against air pollution in the Republic of Benin; the National Plan for the fight against Pollutions; the national strategy and the action plan for biodiversity conservation; The national programme of action to combat desertification; the National Wetlands management strategy; the national environmental management programme. It must be noted that the Poverty Reduction Strategy was assessed based on the integration of environmental aspects and the “greening of DSRP 2”.

4.2.2. Republic of Guinea

Strategies and national and/or sectoral programmes that lend itself well to the environment and management of natural resources are as follows: (i) The national action plan for environment (PNAE), which comprises three framework programs outlined as follows: natural resources management, community and environment and then pollution and nuisances; (ii) national action plan on climate change adaptation for Guinea (PANA) ; (iii) the national forestry action plan (PAFN-Guinea).

4.2.3. Liberia

Currently, the country does not have a global strategy paper on environment (like National plans of action for other countries), but rather sectoral papers such as the National Programme of action on climate change adaptation (developed in 2008 with the support of GEF and UNEP).

4.2.4. Sierra Leone

In October, 1994 a National Environment Policy was developed. The Policy goal of the EPA is to achieve sustainable development in Sierra Leone through sound environmental management. The objectives to achieve the Policy Goal are: (i) to secure a quality environment adequate for the health and well-being of all Sierra Leoneans, (ii) to conserve and use the environment and natural resources for the benefit of the present and future generations, (iii) to raise public awareness and promote understanding of the essential linkages between environment development and to encourage individual and community participation in environmental improvement efforts. The Environment Policy document also elaborates eighteen sectoral goals and policies in areas such as: Land Tenure, Land Use and Soil Conservation, Water Resources Management, Forestry and Wild Life, Biodiversity and cultural heritage, Air Quality and Noise, Sanitation and Waste

Management, Toxic and Hazardous Substance, Mining and Mineral Resources, Coastal and Marine Resources, Working Environment (Occupational health and safety), Energy Production and Use, Settlement, recreational space and green belts, Public Participation, Quality of life, Gender issues and the environment, Institutional and government arrangement, Legal arrangement, and Follow-up actions. The major constraint of the EPA is to enforce the policies and monitor projects and programmes.

4.2.5. Togo

The environmental policy framework consists of several factors including declarations of intentions evidenced by strategic guidance texts that define the Government's policy. This policy is implemented through investments choices that translate priorities in the strategic papers. The implementation of investment programs is done by various institutions which public strength is based on a legislative and regulatory corpus. In Togo, the major papers are as follows: the National Environmental Policy (PNE); the National Environmental Action Plan (PNAE); The National Programme for Environmental Management (PNGE) ; the National Programme for Decentralized Actions on Environmental Management (PNADE).

The sectoral strategies below exist and have a strong synergy with environmental management. There are: Policy/strategy on Integrated Management of Resources; National Policy on Hygiene/sanitation for Togo; national forestry policy; National Policy for Bioversity Management; decentralization policy.

Most of these sectoral policies have influenced the content of the on Poverty Reduction Strategy Paper whose strategic area of intervention 3.2. (Consolidation of the economic recovery and promotion of a sustainable development) tackles environmental and natural resources questions.

The socio-political environment of this last decade marked by budgetary difficulties and the freezing of relations with key technical and financial partners, did not allow the effective implementation of these policies and programmes.

Furthermore, all countries have signed sub-regional and international agreements and conventions on environmental protection, on the fight against desertification, management of species and worldwide ecosystems, against pollutions, nuisances as well climate change.

4.3. Regulatory and legislative framework for socio-environmental management

4.3.1. Benin's socio-environmental legislation

Legislation on environmental and social assessment

- Act N°030-98 of 12 February 1999 on a framework law on the Environment;
- Decree N°2001-235 of 12 July 2001, on the organization of the procedure for the environmental impact assessment;
- Decree N°2001-093 of 20 February 2001, laying down the conditions for developing an environmental audit in the Republic of Benin;

Other socio-environmental texts affected by WAAPP 1C

- Act N° 87-012 of 21 September 1987 on forestry in the People's Republic of Benin repealed by Act n°93-009 of 02 July 1993 on the regime of forests;
- Act N° 87-014 of 21 September 1987 regulating of nature protection and hunting in the People's Republic of Benin repealed by Act N°2002-016 of 18 October 2004 on fauna in the Republic of Benin;
- Act N°87-015 of 21 September 1987 on Public Hygiene;
- Act N°87-013 of 21 September 1987 regulating vein grazing, domestic animals herding and transhumance in the Republic of Benin;
- Act N°2007-03 of 16 October 2007 on Land regime in the Republic of Benin;
- Act N°87-016 21 September 1987 on Water in the Republic of Benin;
- Act N°2006-17 of 17 October 2006 on mining and mining tax legislation;
- Act No.91-004 of 11 February 1991 on phytosanitary regulation;
- Decree N°97-616 of 18 December 1997 on the enforcement of Act N°87-015of 21 September 1987 on Public hygiene in the Republic of Benin;
- Decree N°2001-109 of 04 April 2001 setting waste water quality standards;
- Decree N°2001-093of 20 February 2001 setting potable water quality standards;
- Decree N°2001-110 of 04 April 2001 setting air quality standards;
- Interministerial Order N°136 MISAT/MEHU/MS/DC/DATC/DE/DHAB of 26 July 1995 on solid waste collection, disposal, treatment regulation in the Republic of Benin.

4.3.2. The Socio-environmental legislation in the Republic of Guinea

Legislation related to socio-environmental assessments

In Guinea, the EIA procedure finds its legal base

- in the order 045/PRG/87 of 28 May 1987 on the protection and the development of the environment;
- in the decree 199/PRG/SGG/89 of 8 November 1989 codifying impact assessments;
- in the order 990/MRNE/SGG of 31 March 1990 regulating the EIA;
- as well as the order N° 8993/SGG/ of 11 October 1993 set the technical nomenclature of classified installations.

Other socio-environmental texts affected by WAAPP 1C

The legal framework for environment and natural resource management contains texts that enact general rules and specific rules. It is stated in these texts the willingness of the legislator to make populations accountable vis-à-vis the management of their territories and the consideration of the environment as being the heritage for all.

Major legislative and regulatory texts enacted in the field of environment and natural resource management are:

- Order N°045/PRG/87 of 28 May 1987, on the environment and its regulation;
    - Decree N°199/PRG/SGG/89 codifying environment impact assessments;
    - Order N°990/MRNE/SGG/90 of 31 April 1990, on the methodology and the procedure of environmental impact assessment;
    - Order N° 8993/SGG/ of 11 October 1993 setting the technical nomenclature of classified installations;
- Order N°019/PRG/SGG/92 of 30 March 1992 on Estates and land policy and its regulations;
- Law L/94/AN of 22 June 1994 adopting and enacting the law on forestry;
- Joint decree A/96/1195/MAEF/MF setting timber royalty rates and the selling price of Mélina and Teak;
- Law L/94/005/CTRN of 14 February 1994 on water and its regulations;
- Law L/95/036/CTRN on mining in the Republic of Guinea of 30 June 1995;
- Law L/97/038/AN adopting and enacting the code on the protection of wildlife and hunting regulation and its regulations;
- Law L/2006/Law/AN of 15 May 2006 adopting and enacting the law on communities in the Republic of Guinea,
- Law N° L/96/009 of 22 July 1996 related to natural and anthropogenic disasters in Republic of Guinea;
- The code on livestock production and animal products of 29/08/1995;
- The pastoral code of 29/081995; of 23 February 1985 and updated in 1995;
- The sea fishery code enacted in accordance with the order N°038/PRG/85 of 23 February 1985 and updated in 1995.

Most of the codes do not have regulations and those that have them are not highly disseminated. These factors limit significantly their effectiveness in protecting the environment.

4.3.3. The socio-environmental legislation in Liberia

Legislation related to environmental assessment

Article 7 of the 1986 Constitution of the Republic of Liberia sets the fundamental basis for the constitutional, legislative, and institutional frameworks for the protection and management of the environment. It also encourages public participation in the protection and management of the environment and the natural resources in Liberia.

The Environment Protection Agency (EPA) Act (Law, 26/11/ 2002). The Act provides the Agency with the Government authority for the protection and management of the environment in Liberia. It provides for an Environmental Administrative Court to hear from aggrieved parties. It re quires that an Environmental Impact
Assessment (EIA) be carried out for all activities and projects likely to have an adverse impact on the environment.

The Environment Protection and Management Law (Law, 26/11/ 2002). The Act enables the Environment Protection Agency to protect the environment through the implementation of the Law. It arranges the rules, regulations, and procedures for the conduct of EIA. It establishes regulations for environmental quality standards, pollution control and licensing, among others.

The National Environmental Policy Act (Law, 26/11/ 2002). It de fines policies, goals, objectives, and principles of sustainable development and improvement of the physical environment, quality of life of the people and ensures coordination between economic development and growth with sustainable management of natural resources.

Environmental Impact Assessment - Procedural guidelines, 2006:
This manual is a result of the joint effort of the Environmental Protection Agency and the national stakeholders including line ministries/agencies and the private sectors. The intention is to provide the EPA, sector agencies, private sectors, NGOs, members of the public and consultants a set of approved guidelines for the conduct and review of Environmental Impact Assessments (EIA) in Liberia.

The 26 November 2002 Act on the management and protection of the environment indicates in its Annex 1 the list of projects and activities that need to be subjected to an environmental impact assessment (particularly fishing activities), but give no procedure for categorizing these projects.

Other environmental legislation concerning WAAPP

- Conservation of Forests of the Republic of Liberia (Law, 1953). This Law provided the framework for the use of forest and wildlife resources and allowed for the creation of government reserves, native authority reserves, commercial forests, national parks and wildlife refuges.

- Supplementary Act for the Conservation of Forests (Law, 1957). This Supplementary Law also provided the framework for the use of forest and wildlife resources and allowed for the creation of government reserves, native authority reserves, commercial forests, national parks and wildlife refuges.

- The Act that created the Forestry Development Authority (Law, 1976). The Act established and de fined the responsibilities of the FDA, outlined forest offences and penalties; made provision for an Advisory Conservation Committee and specified powers of forest officers with regard to trees in reserve areas.

- Public Health Act (Law, 1976). It contains provision for the protection of drinking water resources and the inspection of potential sources of pollution.

- The Natural Resources Law of Liberia (Law, 1979). This Law includes chapters on forests, fish, and wildlife, soil, water, and minerals.

- Wildlife and National Parks Act (Law, 1988). The Act identifies a number of protected areas; specifies policies and objectives regarding wildlife and conservation in the country.

- National New Forestry Reform Law (Law, 2006). The administration of this Act provides for the Forestry Development Authority to exercise the power under the Law to assure sustainable management of the Republic's forestland, conservation of the forest resources, protection of the environment, sustainable economic development with the participation of and for the benefit of all Liberians and to contribute to poverty alleviation in the country.

- Environmental quality standards: Several environmental quality standards are under preparation by EPA. Some of these environmental quality standards shall include: 1) Air Quality Standards; 2) Noise Level Standards; 3) Combustion Conditions and Emission Standards for Municipal and Hospital Wastes Incineration; and 4) Selected Standards for Discharge into Surface Waters.

4.3.4. The Socio- Environmental legislation in Sierra Leone

Environmental Impact Assessment Procedures

The Environmental Impact Assessment Procedures are outlined in Part IV-Sections 23 -36 of the Act. Section 23.1 Prohibits any person to undertake or cause to be undertaken any of the projects set out in the ''First Schedule'' unless he holds a valid License in respect of such project. Application for project Licenses set out in First Schedule with accompanying documents is outlined in Section 24. 1-2. Sections 25-26 elaborates on approval and the need for Environmental Impact Assessment with reference to the ''Second Schedule'' and Environmental Impact Assessment should contained the information referred in the 'Third Schedule'. Section 37 empowers the EPA to monitor all projects in respect of which licenses' have been issued in order to assess their effect on the environment or ascertain compliance with this Act.

Environmental Assessment Procedure and Guidelines

The Environmental Impact Assessment Procedures and Guidelines were elaborated in July, 1999 along with the Environmental Impact Assessment Screening Form which should be completed by Applicants.

4.3.5. The socio-environmental legislation in Togo

Legislation related to socio-environmental assessment

The legal foundation of environment was updated through the adoption of the Act no. 2008-005 of May 30, 2008 on an environmental framework law in Togo. But it is important to note that texts that are more necessary for integrating environment in activities and operations already exist for many years in this respect:

- The Decree N° 2006-058/PR of July 5, 2006 drawing the list of works, activities and planning documents subjected to environmental impact assessment and the main rules for this assessment;
- The Order N° 013/MERF of 1st September 2006 on the regulation of the procedure, methodology and content of the environmental impact assessment;
- The Order N° 018/MERF setting the modalities and procedures for the public's information and participation in the EIA process.

Other environmental texts affected by WAAPP

The Act N° 2008-009 of June 19, 2008 on Forestry updates all legislative provisions on flora and fauna management. The draft legislation on Water defines the mechanisms for Integrated Water Resources Management and makes provision specifically for provisions related to protecting the quality and sustainable management of wetland ecosystems. The efficient implementation of these legislative instruments is potentially guaranteed through specific provisions of 2007-011 Act of 13 March 2007 related to decentralization and local freedom through its provisions on territorial communities recognized skills in terms of environmental management and natural resources.

4.4. Institutional framework for the socio-environmental management of WAAPP 1C

Several national and regional institutions are involved in the implementation of WAAPP.

4.4.1. ES/CORAF/WECARD

4.4.1.1. Missions, functions and objectives

The West and Central African Council for Research and Development (CORAF/WECARD) was created to establish a regional collaboration, pool synergies and resources in order to tackle common problems encountered in agricultural research and development.

CORAF/WECARD's vision
Between now and 2015, CORAF/WECARD aims to contribute to a sustainable reduction of poverty and food insecurity in West and Central Africa. To achieve this, it will work towards increasing economic growth, generated by agriculture and improve the agricultural research system in the sub-region.

CORAF/WECARD's mission
CORAF/WECARD's aim is to meet the social demand of populations in the sub-region. That is why CORAF/WECARD is concerned about improving, in a sustainable manner the productivity and competitiveness of agricultural markets in West and central Africa.

CORAF/WECARD's objective
CORAF/WECARD's objective is to improve the effectiveness and the efficiency of small-scale farmers and promote the agroprocessing industry. To do this, it places agricultural producers and users at the centre of research.

CORAF/WECARD's bodies
The following bodies constitute the organizational structure of CORAF/WECARD: The General Assembly; the Board of Directors; the Scientific and Technical Committee and the Executive Secretariat which is the body for enforcing decisions.

4.4.1.2. Socio-environmental management capacities of CORAF/WECARD

The WAAPP will be implemented at the regional level by CORAF/WECARD being the implementing body designated by ECOWAS. CORAF/WECARD, through its executive secretariat based in Dakar, will assume the overall coordination of WAAPP. CORAF/WECARD's Executive Secretariat has an Executive Secretary, a Scientific Coordinator, a Finance and Administration Director, an information and communication Director and an Expert responsible for the Programme on Natural Resources Management which will function as a Focal Point on Environment (PFES).

As observed in its key missions, environmental aspects occupy a central place in CORAF/WECARD's activities. The Executive Secretariat of CORAF/WECARD, being the implementing body, has an Expert responsible for the Programme on Natural Resources Management who will function as the Focal Point on Environment (PFES-CORAF/WECARD) for the institution. However, this expert needs to build its capacity in terms of environmental assessment and monitoring of projects (research, extension).

4.4.2. Inter governmental organizations (IGO) of the sub-region

4.4.2.1. Presentation

At the regional level, there are several intergovernmental bodies (particularly CEDEAO/ECOWAS, UEMOA and CILSS) which could help CORAF/WECARD implement the project. Indeed, these organizations will transmit research and development findings obtained through CORAF/WECARD at the Ministerial level for developing the policy as well as decision-making. CORAF/WECARD and the Economic Community of West African States (CEDEAO/ECOWAS) have signed in 2005 a Cooperative Agreement for the purpose of establishing between parties a collaboration for the implementation of agricultural and innovative agroprocessing research and also contribute within CEDEAO/ECOWAS to achieve the assurance of basic food needs for the population and to socio-economic development and to poverty reduction. Cooperation between CEDEAO/ECOWAS and CORAF/WECARD is focused on research priorities defined by CEDEAO/ECOWAS and CORAF/WECARD within the framework of the Community Agricultural Policy (ECOWAP) and the Cooperation Strategic Plan developed by CORAF/WECARD

4.4.2.2. Socio-environmental management capacities

At UEMOA's level, there is a common policy to improve the environment and a Common Agricultural Policy (PAU). This UEMOA's agricultural policy focused first on the implementation of the first generation community programme in the area of rural development (water control, development of meat production systems, agricultural sector funding, organization of professionals in the agricultural sector, setting up of a regional network of technical, commercial and technical information in agriculture) then on the formulation of a common agricultural policy. In the Union Member States, adjustment programmes in the agricultural sector (PASA) currently represent the basis for national agricultural policies. These programmes serve as a reference in formulating texts on the Union's common agricultural policy. The Union's environmental policy focused first on the implementation of a first generation community programme on environment: coastal erosion; fight against desertification, cross-border ecosystems management. Currently, the Union does not have an environmental policy paper.

4.4.3. Socio-environmental management capacities in Benin

4.4.3.1. The Ministry for Environment and Nature Protection (MEPN)

The mission of the Ministry for Environment and Nature Protection (MEPN) established under the Decree 2007-493 of 02 November 2007 on the responsibilities, organization and function of the Ministry, is to propose national policies in the environment and nature protection sector and also ensure its implementation.

The Beninese Agency for Environment (ABE)

At the Ministry level, the Beninese Agency for Environment (ABE) is responsible for implementing an environmental policy defined by the Government. For that matter, it is particularly responsible for implementing procedures of Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) and also for the Evaluation of reports on Environmental Impact Assessment.

To ensure the supervision of evaluation and impact assessment procedures, a general guide for conducting these impact assessments on the environment has been drafted in

accordance with Article 88 of the Framework Law on Environment. This guide is complemented by sectoral guides for promoting the environmental procedure. However, the process of environmental screening and project classification is not applied by ABE except for micro projects conducted at the local level. Moreover, the general guidance for conducting an environmental impact assessment developed since February 2001 has not yet been updated and disseminated to all stakeholders.
In the implementation of the EIA procedure, many constraints can be noted: Some services of ABE, particularly the training centre on environmental management and the environmental education service are not functional. It is also clear that the low capacities of actors limit their effective involvement in the environmental assessment process and justifies the low level of implementation of the regulation on impact assessments.

ABE is responsible for the operation of environmental cells at the ministries involved in activities requiring environmental. Environmental cells are for most part in a state of lethargy and ABE does not have the financial resources to reactivate them.

4.4.3.2. The Ministry of Agriculture, Livestock and Fisheries

Different structures are directly involved in the implementation of activities and policies in the agricultural sector, first the Ministry of Agriculture, Livestock and Fisheries (MAEP) established under the Decree N° 2006-582 of 02 November 2006 on the responsibilities, organization and function of the said Ministry, is to propose national policies in the environmental and nature protection sector and also. Its mission is to create an enabling environment for improving production, agricultural income and living standard for populations. To fulfil this mission, the ministry's organization is putting in place eight (8) Technical Directorates. The Department of Agriculture (DAGRI) and the Department of Agricultural Consultancy and Operational Training (DICAF) are the key bodies for implementing WAAPP.

The Department of Agriculture (DAGRI)
It is the linchpin of the ministry and its mission is to implement the Government's policy on crop production and to ensure its operation. It is responsible among others for determining technical and economic conditions for crop production development and monitoring their implementation. It is also responsible for basic seeds production from varieties developed by the National Agricultural Research Institute in Benin (INRAB). It is structured around seven (07) services including the Plant Protection and Phytosanitary Control Service (SPVCP), established under the Order No. 3541/MAEP/D-CAB/SGM/DRH/DAGRI/SA of 29 November 2005. There are no socio-environmental focal points at the MAEP services level and it is the same for socio-environmental tools that are not found within these structures.

SPVCP is organized in three divisions centrally: The Early Warning and Phytosanitary Intervention Division (DAIP), responsible for coordinating monitoring and phytosanitary activities on the national territory; The Product Management and Phytosanitary Products Division (DGPMP) in charge of control and analysis; The Inspectorate Division (DI), in charge of inspecting plants and plant products. SPVCP does not have an environmental focal point and agents of the three divisions have a shortfall in terms of support for the environmental dimension. There is no screening process in place to determine the effects of actions carried out by SPVCP services and mitigating measures.

4.4.3.3. The National Agricultural Research Institute of Benin (INRAB)

INRAB is a public scientific and technical institution created in 1992. Its mission is to produce technologies for the rural world in harmony with the conservation of natural resources and to contribute to the advancement of science. It is organized around a Directorate General supervised by the Scientific Directorate made up of the Scientific Animation Service (SAS) and the Monitoring, Evaluation and Planning Unit (MEPU) and of Agricultural Research Centres (ARC) housing research programmes that bring solutions to agricultural activity related-constraints.

To conduct its research programmes, INRAB forms multidisciplinary research teams. These regional centres teams are supported by six research development teams (RD) based in Natitingou, in Ina, in Kandi, in Savé, in Bohicon and in Niaouli. INRAB researchers are also supported by researchers of other bodies within the National Agricultural Research System (NARS) and extension agents, particularly in the generation of technologies that are technically and economically powerful.

In terms of agricultural research, there is no procedure for selecting environmental and social research topics. However, INRAB incorporate pesticides in its research activities particularly through the study of the effects of pesticides used in soil experiments, harvested products, fauna and flora species and certification trials carried out by the Crop Protection Laboratory (LDC). In implementing programmes and research activities, each specialist is responsible for environmental issues related to its field of specialty.

4.4.3.4. The Directorate for Agricultural Council and Operational Training (DICAF)

The Department of Agricultural Consultancy and Operational Training (DICAF) has the mandate to develop, define and oversee the implementation of national strategies and policies of Agricultural Council and Operational Training for the technical staff and the producers. It is also responsible for finding, in collaboration with the Ministry of Agriculture, Livestock and Fisheries, practical solutions to problems encountered by small-scale farmers and for translating them to enable their dissemination and their adoption. To achieve this, DICAF is structured in 05 services among which the most operational within the framework of WAAPP are: the Service for Support to Agricultural Consultancies (SACA) which develops the follow-up strategy for producers; the Operational Training Service (SFO) and the Monitoring Evaluation Service (SSE). In the implementation, DICAF relies at the regional level on Regional Centres for Agricultural Promotion (CERPA), at the community level, on Community Centres for Rural Development Promotion (CECPA) and at the district level on multi-disciplinary Teams Zone (MT-Zone) made up of advisors on plant production, livestock and fisheries. These MT-Zones are working in villages with Advisers in Small-scale farming management (CGEA).

The technology transfer process is ensured by DICAF. It has published hundreds of fact sheets related to initiatives on good agricultural practices in Benin. These fact sheets were developed based on a value chain approach. Some of them have taken into account the use of synthetic chemical pesticides in good agricultural practices. Thus, the conditions for undertaking effective treatments to help protect treated crops by avoiding phytotoxicity problems are clearly identified. However, a clear strategy proposing follow-up areas and measures necessary for mainstreaming the environmental and social dimension into the promotion of good agricultural practices is not yet defined.

4.4.3.5. Producers Organizations

Producers Organizations (PO) provide services to their members to enable them have access to inputs, loans and market opportunities and also have their say in the decision-making process. Concerning the implementation of WAAPP in Benin, PO are represented in consultations on institutional arrangement and priority value chains to be implemented in the competitive funding mechanism for financing the development and dissemination of requested technologies by the National Platform for Farmers Organizations and Agricultural Producers of Benin (PNOPPA-Benin). However, it should be noted that at PNOPPA's level, the available expertise cannot solve environmental issues.

4.4.4. Socio-environmental management capacities in Guinea

4.4.4.1. The Ministry for Environment and Sustainable Development

The responsibility and the administration of the procedure were till 2008 to the mandate of the National Service for Environmental Assessments (SNEE), within the Cabinet of the Minister for Environment and sustainable Development. The National service for environmental assessments was later attached[1] to the Office for Strategy and Environmental Development (OSD) now in charge among others of: (i) analyzing and advising on feasibility documents and socio-environmental assessments of projects and programmes; (ii) participating in the follow-up implementation of socio-environmental management Plans of projects and programmes (PGES).

The Strategy and Development Office

The office for Strategy and Development is made up of a support cell, technical divisions as well as regional cells of the OSD. One technical division is mainly responsible for socio-environmental management issues; it is the division for environmental study and assessment. The office for Strategy and Environmental Development has the necessary skills and capacities in socio-environmental management. On the 25 officers, 8 of them have their master's degree in environmental studies with a specialization in environmental assessment and 3 of them have subsequently been trained on environmental impact assessment.

The National Department for Environment

Under the authority of the Minister for Environment and sustainable development, the National Directorate on Environment has the mandate to « plan, develop and implement the government's policy on the prevention and fight against all forms of resource degradation, pollutions and nuisances». There is no socio-environmental management capacity in terms of socio-environmental assessment.

4.4.4.2. The Ministry of Agriculture

In Guinea, the coordination for the planning, implementation and monitoring-evaluation of the Government's policy in terms of agriculture is primarily done by the Ministry of Agriculture. This Ministry is responsible for developing and implementing strategies of the sectoral policy. The Ministry of Agriculture in its current structure is made up of: a general secretariat, public institutions, programmes and projects as well as advisory bodies.

[1] The Order on the functions and organization of the office for Strategy and Environmental Development has not been signed yet.

The General Secretariat coordinates the activities of six national directorates including the National Department for Agriculture, the National Department for Animal Production and Industries, the National Veterinary Services Department, the National Zoo-Economy Department, the National Rural Engineering Department and the National Rural Roads Department. At a less concentrated level, there are eight agricultural regional directorates, 33 district directorates.

There is no socio-environmental management capacity in terms of socio-environmental assessment within the National Department for Agriculture. However, a specialized team Quest (Quality, Environmental Protection and Health Safety of Treatments) established with the support of FAO is present within the national Service for Plant Protection.

4.4.4.3. Agricultural Research Institute of Guinea (IRAG)

The Agricultural Research Institute of Guinea (IRAG) is leading applied research programmes in various areas. It includes a Directorate General with a scientific directorate and seven agricultural research centres. There are no socio-environmental management capacities. Moreover, environmental impacts of research findings are not taken into consideration by researchers in their publication. Therefore, socio-environmental impacts of research findings on the field are not considered.

4.4.4.4. The National Agency for the Promotion of Rural Development and Agricultural Council (ANPROCA)

The National Agency for the Promotion of Rural Development and Agricultural Consultation (ANPROCA) whose mandate is to promote and support the structuring of producers in different production zones and advise them; to provide support in terms of operations and logistics for the 8 Regional antennas and ensure the operation of the three Training and Extension centres. There is no socio-environmental management capacity in terms of socio-environmental assessment.

4.4.4.5. Producers Organizations

After the withdrawal from commitment of the State, it was quickly obvious that private « entrepreneurs » were not ready to take over and ensure the development of the agricultural sector. It appears that agricultural producers remain indispensable because family farming although traditional still provide the bulk of agricultural production. There are several strong professional organizations bringing together professional organizations of the agricultural sectors: the National Confederation of Farmers Organizations of Guinea (CNOP-G); of fisheries referred to as the National Coordination of Fishermen of Guinea (CONAPEG); etc. There is no socio-environmental management capacity in terms of socio-environmental assessment.

4.4.5. Environmental and Social Management Capacities in Liberia

4.4.5.1. The Environment Protection Agency of Liberia (EPA)

The Environment Protection Agency of Liberia (EPA) was created by the Legislative Act of November 26, 2002 and published on April 30, 2003. The establishment of the EPA marks a significant step forward in the protection and management of the environment of Liberia. Part II, Section 5 of the Act designated the EPA as the principal Liberian authority for environmental management which shall coordinate, monitor, supervise, and consult with relevant stakeholders on all the activities for environmental protection and the sustainable use of natural resources. Section 6 (b) of the Act stipulates that the EPA should propose environmental policies and strategies to the Policy Council and ensure the

integration of environmental concerns in the overall national planning. The EPA should also provide high quality information and advice on the state of the environment and for matters connected therewith.

Moreover, the Agency (EPA) is empowered to carry out among others, the following aspects of environmental protection and management in Liberia:

- Establish environmental criteria, guidelines, specifications, and standards for production processes and the sustainable use of natural resources for the health and welfare of the present generation, and in order to prevent environmental degradation for the welfare of the future generations;
- Identify projects, activities, and programs for which environmental impact assessment must be conducted under this Act.
- Review and approve environmental impact statements and environmental impact assessment submitted in accordance with this Act;
- Monitor and assess projects, programs, and policies including activities being carried out by relevant ministries and bodies to ensure that the environment is not degraded by such activities and that environmental management objectives are adhered to and adequate early warning and monitoring on impending environmental emergencies is given;
- Review sectoral environmental laws and regulations and recommend for amendments and to initiate proposals for the enactment of environmental legislations in accordance with this Act or any other Act;
- Encourage the use of appropriate environmentally sound technologies and renewable sources of energy and natural resources;
- Function as the national clearinghouse for all activities relating to regional and international environment related conventions, treaties and agreements, and as national liaison with the secretariat for all such regional and international instruments.

4.4.5.2. The Ministry Of Agriculture

The provision of extension services is the responsibility of the Extension Division of the MOA, at the central level, and of CACs and DACs at the country and district levels respectively. The main constraints faced by the ES are: (i) a supply-driven approach with emphasis on transfer of technology, with limited feedback mechanisms; (ii) emphasis on supply and distribution of inputs and equipment to farmers free of charge; (iii) limited public funding and thus limited logistical means to carry out the assignments; (iv) limited trained field staff. Many NGOs and international assistance agencies serve as surrogates of extension services in the counties and districts with no clear coordination and distribution of responsibilities.

Human resource and institutional capacity of extension remain weak.

4.4.5.3. Agricultural Research Institutes

Research activities are under the responsibility of the Central Agricultural Research Institute (CARI) which was created in 1980 as a semi-autonomous organ of the MOA. Semi-autonomy status provided CARI relative freedom to operate with minimum interference from the line ministry. CARI's programmes and activities were governed by a Technical Committee headed by the Minister of Agriculture. Other members of the Technical Committee include representatives from the Universities, the Liberian Institute for Biomedical Research, the commercial private sector, and the Development Partners.

Before the war, CARI implemented research programmes in all sub-sectors and possessed well equipped laboratories with trained technicians.

CARI is among the public institutions hardest hit by the protracted civil war. CARI has also suffered major man power resources losses, as trained and very experienced professionals were either killed, have migrated out of the country or sought alternative employment opportunities elsewhere. Few support staff are present in the country, and a fewer more have given indications of their availability should the Institute be rehabilitated.

4.4.6. Environmental and Social Management Capacities in Sierra Leone

4.4.6.1. The Environment Protection Agency (EPA)

In July 2008, the Government with a view to strengthened Environment Management and Protection, repealed the Environmental Protection Act 2000, and enacted the Environment Protection Agency Act and established the Environment Protection Agency (EPA). The EPA is now the lead Agency with autonomous authority for Environmental Protection and Management and for other related matters.

The EPA has a governing body called the Board of Directors consisting of an Executive Chairman and members representing the Ministries of: Environment, Local Government, Mineral Resources, Marine Resources, Agriculture and Forestry, Tourism, Trade and Industry, Transport, Health, Petroleum Unit and three other members outside the Civil Service and the Executive Director of EPA as Secretary. The Board shall have overall control and supervision of the Agency and provide policy guidance and advice, as well as ensure the efficient implementation of the functions of the Agency and enhance the overall performance of the Agency. The EPA has plans to establish three offices in the provincial headquarter towns at Bo, Kenema and Makene, at the District level in order to educate and sensitize the entire populace on the functions of the Agency and the need for environmental protection, when resources are available.

The assessment of existing capacities of the EPA has been conducted, with a view to assess environmental management capacities and details of the existing capacities are as follows:

Strengths /Capacities:

- Availability of legal and institutional framework to enhance the protection and management of the environment,
- Availability of core professional personnel for administrative and technical work, highly trained, which form the basis for its existence and competence,
- Availability of GoSL budgetary quarterly allocations,
- Membership to multilateral environmental agreements such as: Convention on Biodiversity, Land degradation/desertification, Climate Change and Kyoto Protocol,
- Cooperation with United Nations Environment Programme (UNEP) and Global Environment Facility (GEF)
- Supportive Board and staff commitment to implement the policies of the EPA,
- Available logistics in terms of computers and accessories, furniture, etc.

Weaknesses

- Lack of Regulation on Pesticide Management
- Lack of adequate and train personnel in pesticide management
- Lack of adequate office space and site to construct an office complex for EPA,

- In adequate National Environmental Action Plan,
- Lack of harmonized National Environmental Policy and Legislation, and Regulations,
- Lack of training programme on environmental and natural resources management for staff and Inadequate trained staff,
- Under-resourced due to inadequate annual budgetary allocations from GoSL.
- Insufficient computers and furniture
- Inadequate mobility for data and information collection, monitoring and evaluation of projects and state of the environment,
- Poor internal communication network,
- Lack of enforcement and compliance on EIA Guidelines and Procedures
- Inadequate EIA Guidelines
- No Documentation Centre
- Lack of equipment to test air and water qualities and noise levels,
- Lack of offices in the Provincial Towns and Districts,
- Lack of effective cooperation among national institutions, departments and line Ministries

Opportunities

- The enactment of the Environmental Protection Act 2008 and its enforcement is important milestone towards the protection and management of the environment ,
- The support and good will gestures of bilateral and multi-lateral institutions such as UNEP, GEP, IDA/WB, USAID, DFID, UNDP, EU and UNIDO is appreciated and solicited,
- Quarterly budgetary allocations from the GoSL to the EPA is appreciated and solicited,
- Enforcement of the existing EIA procedures and guidelines

Challenges

- Harmonization of the National Environmental Policies and Legislations of other Ministries for better environmental protection and management,
- Reviewing and updating the National Environment Action Plan, to reflect the current situation and challenges,
- Development of environmental standards and regulations to deal with issues not addressed by the EPA Act, 2008.

The institution and the human resource capacity in areas such as: natural resources management and environmental pollution, and recruit more staffs.

- Promoting strategic partnership with the public and private sector, NGOs, sub-regional and regional organizations, concerned with environmental protection and management.
- Incorporating environmental agreements into national policies, programmes and projects,
- Resource mobilization from national development partners, sub-regional and regional organization, bilateral and multi-lateral institutions, to implement programmes,
- Conduct regular assessments of the country's environment to know the level and extend of damage caused and take appropriate actions with mitigation measures.

4.4.6.2. The Ministry of Agriculture Forestry and Food Security (MAFFS)

The Mission Statement of MAFFS is to make agriculture the engine for socio-economic growth and development, through commercialization and private sector promotion. The Sector Development Objective is to enhance increased agricultural productivity (intensification), promote commercial agriculture through private (extensification) and improve research and extension service delivery to farmers.

The MAFFS is located in the capital Freetown. The Head of the MAFFS is the Minister of Agriculture, and is assisted by the Deputy Minister and his Permanent Secretary, the Director General and Deputy Director General. The Ministry has Six Divisions and each is headed by a Director, namely:
[1] Crops Division, [2] Livestock Division, [3] Forestry Division, [4] Agricultural Engineering, Land and Water Management Division, [5] Planning, Evaluation, Monitoring and Statistics Division, [6] Agricultural Extension Services Division.

4.4.7. Socio-environmental management capacities in Togo

4.4.7.1. The Ministry for Environment and Forestry Resources (MERF)

Mainly, the procedure for environmental impact assessment is operational through the efforts of the ***Department for the Environment*** which has clearly internalized the procedure in certain jurisdictions. Much of the Ministry's institutional setup is no more in compliance with the current legislation. This new institutional framework which is being implemented is shown as follows:

The General Department for the Environment (DGE): It is not yet in operation and is sub-divided into two through the Directorate for Environmental and life environment Preservation and the Directorate for Classified Installations and Hazardous Materials. It will take over some of the responsibilities of the Directorate which has not yet been dissolved and which is currently leading the EIA procedure and the environmental audit procedure.

The Directorate for Environment has a small division responsible for Environmental Impact assessments and audits (DEIAE) with few experts in environmental assessment (EES, EIA, Audit). A summary analysis of the size of the staff at the Ministry in charge of environment shows a high rate (more than 80 %) of foresters who often do not have additional training in environmental assessments meanwhile they are almost Heads of less populated directorates (regions and districts). On the other hand, DEIAE does not have any technical tool (Database, Material and financial means, etc.) for monitoring PGES and the environmental audit recommendations. In a nutshell, there are no sufficient human resources, tools and material means within regional and central structure responsible for the environment.

Although certain administrative procedures contain environmental provisions contributing largely to the environmental compliance with EIA, institutional provisions, necessary to systematize this practice at all levels are deficient. Nevertheless, several projects still escape this procedure for various reasons.

Environmental standards not being yet defined, there are neither standard plots nor a standard national environmental framework in the significant areas in terms of (i) solid or liquid effluent discharge, (ii) exhaust emissions, (iii) threshold of heavy metals in industrial effluents, (iv) environmental recommendations for infrastructure building (energy, mining,

sanitation, etc.), (v) the quality of receiving water, (vi) air quality in urban agglomeration, etc.

The National Agency for Environmental Management (ANGE): created in accordance with the framework- law on environment and repeated in the Decree No. 2008-090/PR of July 29, 2008, is a public institution with a legal entity and a financial autonomy under the supervision of the Ministry in charge of Environment. Its main mission is to i) develop and coordinate the implementation of a National Programme for Environmental Management, ii) implement national environmental assessment procedures (SEA, EIA) and audits procedures, iii) set up a national system for environmental information, iv) coordinate the preparation of the annual progress report on environment, v) research and mobilize financial and technical resources necessary to carry out its specific missions and other missions that can be assigned to it. The Agency is not yet functional and its responsibilities are currently carried out by the Directorate for Environment with a lot of difficulties limiting its current performances.

4.4.7.2. The Ministry of Agriculture, Livestock and Fisheries (MAEP)

The Ministry of Agriculture, Livestock and Fisheries (MAEP) is responsible for the development and the implementation of the national policy on agriculture, livestock and fisheries. It develops agricultural development programmes and actions that match with sub-regional, regional and African agricultural policies (UAP of UEMOA, ECOWAP of ECOWAS and CAADP of NEPAD). MAEP consists of three main entities: the General Secretariat, the Institute for consultation and technical support (ICAT) and the Togolese Institute for agricultural research (ITRA).

The General Secretariat is the animation, coordination and supervision body of central services programmes and institutions under the Ministry's technical supervision. The General Secretariat currently coordinates the activities of 10 central departments and 5 regional departments that are the Regional Departments of Agriculture, Livestock and Fisheries. The 10 central departments: The Department of Agriculture (DA), Department for Planning and Agricultural Cooperation (DPCA), Human Resource Department (DRH), Department of Rural Development and Facilities (DAER), Department of Statistics, Information Technology and Documentation (DSID), Department of Livestock (DE), Department of Fisheries and Aquaculture (DPA), Department of Finance and Administration (DAF), The Seeds Department (DS) and The Plant Protection Department (DPV).

4.4.7.3. The Togolese Institute for Agricultural Research (ITRA)

The Togolese Institute for agricultural research's mission (ITRA) is to carry out research activities to develop powerful technologies in the areas of animal and plant production, farming systems, natural resources management, conservation and processing of agricultural produce. It includes a Directorate General with Scientific Directorate and 4 agricultural centres each based on the 4 major ecosystems of the country.

4.4.7.4. The Consultation and Technical Support Institute (ICAT)

The Institute for consultation and technical support (ICAT) has the mandate to contribute to the promotion of development in rural areas through the professionalisation of agricultural producers. For that matter, it is responsible for agricultural extension and follow-up support of producers. It includes a Directorate General, 5 Regional Directorates and Agencies at the District level and relayed at sub-district levels by agricultural antennas.

4.4.7.5. Producers and their organizations

Agricultural producers are key stakeholders in the national economy and are a slightly more than 3,000,000, which is 70% of the Togolese population. Professional Agricultural Organizations (PAO) defend the interests of producers and facilitate agricultural inputs supply, access to credit and the commercialization of agricultural produce as well the mobilization of farmers in implementing and managing socio-economic activities. There are approximately 8,200 basic PAO bringing together more than 180,000 members, grouped in 55 apex organizations (Regional and District Unions and federations) and organized around socio-economic activities.

4.4.7.6. Teaching/training and research

The national agricultural training apparatus includes:

Agricultural Science College (ESA): created in 1972, it is the only agricultural college. Its mission is to train agricultural engineers to be used in the areas of agriculture, livestock and agricultural socio-economy. It is under the supervision of the Ministry if Higher Education and Scientific Research. ESA has trial research sites at the University in Lomé, Kara, Kovié. The teaching staff conducts agricultural research.

The School for Biological and Food Techniques (ESTBA): It trains engineers in food and medical works. It is under the Ministry of Higher Education and Scientific Research. Here also, research activities related to agro-processing are conducted. ESTBA develops partnership agreements with agro-processing companies to train agents, analyse products and develop food technologies.

Faculty of Science: It is an institution for Higher Education under the Ministry of Higher Education and Scientific research. It forms officers at masters, postgraduate and doctorate level, which benefited a lot of researchers and technicians of ITRA. Research works in various areas such as biology, botany, entomology etc. that are related to agriculture.

The National Institute for Agricultural Training (INFA) of Tové: It trains agricultural technicians with "A" level or bachelor's degree (level 300). It is under the supervision of the Ministry of Agriculture, Livestock and Fisheries.

4.4.8. Socio-environmental capacities synthesis

Taking into account the socio-environmental dimension in the agricultural sector in general is a major concern for all stakeholders as well: administration, researchers, producers' organizations, etc. If a certain category of actors (research institutes, agricultural services, agricultural projects, etc.) there are proven specialists in the areas of specific natural resources management (soil scientists, biologists, agronomists, pastoralists, veterinarian, foresters, etc.), it remains that these experts are not always familiar with socio-environmental assessment procedures of research projects and also with the environmental impact assessments of research findings before their application.
At the level of research institutions, taking into account socio-environmental concerns in research outlines are still rough, even non-existent. Therefore, some improvements are needed, particularly in terms of capacity building for all researchers in socio-environmental assessment.

In integrating the environment in the field of research and in the application of agricultural and agro-processing research findings, the report shows that important results have been

obtained by national research institutions and their partners. These results are presented in a form of knowledge, technologies ready for use or decision-making tools for a sustainable agricultural development. These results have been mostly, transferred to end-users and have helped boost production or give a significant surplus-value to agricultural products through conservation or processing techniques proposed by the research. Significant efforts have been made to better introduce the use of machinery in production and processing systems, with series of production and processing materials developed, introduced, tested, validated and disseminated through a collaboration work with all partners of the sector– research, development, industry, crafts.

In terms of capacity building, Producers Organizations have been provided with training themes with the support of farmers organizations: composting; processing and conservation of vegetables and agricultural produce; cattle fattening; dyeing; soap making; seed recovery; etc.

However, it is regrettable to note that a relatively large number of knowledge and technologies generated are still in the drawers of researchers for various reasons, particularly the non-satisfaction of producers' expectations and the insufficient consideration of socio-environmental aspects. It should be noted that a significant portion of materials created or introduced had to be abandoned for various reasons, particularly due to their inadequacy to socio-economic and technical farming conditions and to the performances of production systems.
The assessment of the institutional context of the socio-environmental management in the agricultural research sector reveals all the same some constraints related to the coordination, flow of information and extension of environmentally-friendly technologies. In addition, in the agricultural sector as well as in the livestock sector, we note virtually, the absence of a complete and updated « environmental » database.

4.4.9. Recommendations for the socio-environmental management in the agricultural sector

4.4.9.1. Benin

An effective involvement of DAGRI namely SPVCP, extension (DICAF) and research development through multiple actions among which are; (i) a validation workshop and an ownership of the framework plan for socio-environmental management, (ii) capacity building of DICAF agents, particularly at the Monitoring- Evaluation service level and SPVCP at the national level particularly, at the level of division of interventions and of extension agents, (iii) capacity building at the level of PO and CERPA.

ABE, is the linchpin in establishing a facility responsible for the environmental aspects of activities carried out in various areas among which, agricultural projects will be monitored within PGES in order to re-update general and sectoral guidance documents and share them with WAAPP partners and stakeholders.

The National Agricultural Research System, responsible for implementing competitive funding mechanism through INRAB, needs to see capacities at UPSE's level and the committee for selecting strengthened bid offers. This strengthening is about the integration of socio-environmental dimension in bid selection procedures and the monitoring of funded projects as well as the development of the screening sheet for projects and research protocols.

At INRAB and the National Centre for specialization's level, the socio-environmental dimension was not taken into account during the development of research activities. As for research teams, they must receive capacity building training so as to integrate the socio-environmental dimension from the development of research activities and programmes. In the area of research, a partnership and a collaboration should be establish with regional partners and even with extra-regional partners such as: The Centre for International Cooperation for Agricultural Research and Development (CIRAD) providing three assistants to CRA-CF who are permanently present respectively in the area of genetics, agronomy and entomology; The Research Institute for Development (IRD) at the Centre for Biotechnology's level (palm oil tree, vegetable and food crops farming; West Africa Rice Development Association (WARDA); International Livestock Research Institute (ILRI); International Institute for Tropical Agriculture (IITA); Northern countries Universities; Sub-regional NARS; various research networks; research centres; etc.
Environmental cells should also be reactivated in the ministries where they are in a state of lethargy. To do this, there is a need to make them operational by equipping them with the necessary means. They should also be subjected to a thorough analysis.

It is also indicated that environmental focal points should be appointed in each of the structures involved in the project plans; it is about building the capacity of partners, beneficiaries, implementation agencies in socio-environmental management and network them. This will avoid the dilution in support for these aspects at the environmental cells level.
With a view of integrating the gender dimension, it is advisable, before any capacity building action, appointment of focal point, to proceed to an « analysis of gender inequality ».

Producers organizations involved at the regional and local level also need to build their capacities for an efficient implementation of PGES that will be developed.

It is indicated in the project document that: "WAAPP-Benin will play the role of project manager; therefore, except for the component 'National Centre for Specialization', there is no staff implementing directly the activities. Any activity implementation of WAAPP-Benin will be entrusted to a public, private body or a competent association through a duly signed contract". For that matter, the selection of targeted bodies should, in addition to compliance with regulations in force in the Republic of Benin, take into account the socio-environmental function. This requires the capacity building of one of UCP members.

Thus, collaboration between the project stakeholders and the services of the Ministry of Agriculture, Livestock and Fisheries is needed to define the roles and responsibilities of WAAPP in the overall socio-environmental management procedure.

To this end, the Coordinator will be responsible for appointing the person empowered to manage the socio-environmental component. Concerning social aspects, particularly conflicts between pastoralists and host populations in host areas the issue will be to:

- Revitalize local committees on transhumance management and build members' capacity particularly on their missions, the functions and the recognition of grazing areas;
- Define boundaries, materialize and maintain grazing areas;
- Sensitize producers organizations and their members particularly on the respect of distances between farming plots and grazing areas
- Sensitize locally elected officials
- Inform communities and management committees on the number of heads to be received by host zones

- Create a think tank between cross-border apex farmers and livestock producers' organizations and those of host areas.

The success of these actions is based on knowledge of texts and laws governing the environmental management by the project stakeholders and beneficiaries. Thus, a dissemination of these texts after update if necessary should be done particularly through a broad information campaign. This should be done also in order to improve stakeholders, beneficiaries and partners' knowledge on the project.

4.4.9.2. Republic of Guinea

In addition to the initial training on socio-environmental tools to develop for all stakeholders, it would be wise to appoint in each structure a focal point on environment who will be mobilized as required, to validate the socio-environmental planning documents.

The Ministry of Agriculture

The Office for Strategy and Agricultural Development

It is important on one hand, to train all staff of the Directorate for Agriculture on socio-environmental assessment tools of projects and development programmes and on the other hand to appoint one to two agents as environmental focal point of OSD.

The National Directorate of Agriculture

- On one hand, it is important to train all staff of the National Directorate of Agriculture on socio-environmental assessment tools of projects and development programmes and on the other hand to appoint one to two agents as environmental focal point of NDA.
- Extend environmentally-friendly agricultural intensification methods;
- Sensitize farmers and push them to migrate to the side of the hills towards the deeps;

National Agency for Plant Protection

- Train all NAPP agents on the strategy to adopt in order to respond to an anti-locust invasion
- Put in place storage facilities for pesticides in compliance with FAO standards;
- Train the staff of the Directorate General for Plant Protection on socio-environmental assessment tools of projects and development programmes;
- Train specialized teams on treatment monitoring (efficiency, human health and environment), and independent at the operational level, who will monitor operations regularly;

The National Agency for Rural Development and Agricultural Advisory

Train all agents of ANPROCA on socio-environmental assessment tools of projects and development programmes;

The Institute for Agricultural Research of Guinea (IRAG)

- Provide for a section on the socio-environmental impact of research findings in fact sheet publications/research protocols ;
- Train all researchers on socio-environmental assessment tools of projects and development programmes;
- Appoint a group of researchers already trained in environmental assessment and who will be responsible to check the consideration of socio-environmental impacts in fact sheet publications;

The National Chamber of Agriculture (CNA)
Train all members of the Chamber on socio-environmental assessment tools of projects and development programmes;

The Ministry for Environment and Sustainable Development
The Office for Strategy and Environmental Development

- Train the staff of OSD on the complete range of environmental assessment tools (Strategic environmental assessment, environmental audit, Environmental impact assessment) ;
- Train the staff of OSD on environmental monitoring of development projects as well equipment and infrastructural projects;
- Nominate focal points and train them systematically on environmental assessment in various institutions participating in the environmental impact assessment report;

The National Directorate for Environment
Train all members of the National Directorate for Environment on socio-environmental assessment tools of projects and development programmes;

- Introduce a component on awareness, education, information, mobilization on key environmental issues (climate change, carbonization, bush fire, overcutting) in trainings to be conducted;

- Disseminate texts that have already been enacted, revise codes that are already old (code on environment, water and forests).

National Directorate for forestry and fauna
Train all members of the national directorate on socio-environmental assessment tools of projects and development programmes;

The Ministry for High Education and Scientific Research
The Centre for research and environmental study
Organize training sessions for trainers in strategic environmental assessment and environmental audit;

Farmers Organizations
The National Confederation of Farmers Organizations of Guinea
Train the staff of the national technical cell of CNOP – G on socio-environmental assessment tools of projects and development programmes;
Create the awareness of members of the national confederation of farmers' organizations of Guinea on socio-environmental assessment tools of projects and development programmes;

4.4.9.3. Liberia

- Build the capacities of EPA to support MOA in the socio-environmental management of agricultural projects;
- Incorporate EPA in the selection Committee of research activities
- Ensure the socio-environmental training of researchers

- Make EPA accountable in terms of the socio-environmental capacitation of stakeholders (researchers, etc.)
- Build the capacity of producers in terms of socio-environmental management of agricultural activities (use of agricultural fertilizers, etc.);
- Put in place a Directorate in charge of Plant Protection
- Set up laboratories to analyse agricultural pollutants (pesticides, etc.);
- Promote integrated pest management and pesticide management ;
- Develop standards on pollution related to agricultural activities;
- Develop guidance documents on good agricultural practices.

4.4.9.4. Sierra Leone

Therefore the proposed recommendations for capacity building under WAAPP 1C, related to Environmental Management and other areas are divided as follows:

Environmental Management for WAAPP 1C :

- Environmental Baseline Assessment (EBA), Environmental and Social Impact Assessment [EIA], Monitoring and Reporting, Environmental Protection and Management [for Scientist and Technicians, working in all the Eight Research Centres].
- Training of Trainers [Farmers Organizations, Extension Agents and NGOs] on Integrated Production and Pest Management (IPPM), including Value addition, processing and marketing, preservation and storage, and raising Tree Crops Nurseries.
- Training of Extension Agents on Participatory Research Methodologies, farmer Training, Project Monitoring and Evaluation
- Training of Research Scientist on Conventional and Participatory Research Methodologies, proposal writing and Marketing, time management, project implementation and monitoring, project evaluation and report writing
- Training on Pesticide Management (for Research Scientist and Technicians and Participatory Research Farmers for dissemination of technologies).
- Establish a Pest Management Research Programme to address the current and future pest and pesticide management issues [using biopesticides, botanicals, biological control agents etc. on pests of rice and cassava].
- Provision of mobility to enhance the effective implementation of research and development activities for the project
- Rehabilitate structures of the Research Centres to enhance their functioning and delivery of the results expected of the Centres;
- Training of staff in the EPA on ESIA monitoring, Evaluation and Reporting
- Provision of Mobility to EPA to enhance effective monitoring of ESIA of WAAPP C 1 implementation

Capacity building of Stakeholders

- Training for Integrated Agricultural Research for Development (IAR&D) [farmer organization, NGOs, and the private sector]
- Conduct Meeting /workshops [to empower communities to articulate their needs]
- Conduct Meetings/workshops [Advocacy and lobbying skills development within the membership of the Sierra Leone NARS]

Capacity building of SLARI Directorate

- Establish innovation platforms in partnership with actors and stakeholders to strengthen the institution.
- Training Bio-Scientist to include socio economic aspects in their work to address those needs,
- Develop polices to attract the private sector expertise to work for SLARI on contractual basis,
- Establish Research Fund for priority development research areas, to Influence academia to adapt their research curricula more towards addressing the priority development needs for Sierra Leone,
- Provision of special support for weaker organizations such as farmers' organizations and stakeholder groups.
- Review and improve human resources policies to enhance capacity building.
- Conduct needs assessment on the IAR&D to determine requirements for capacity building and delivery of results anticipated, create partnerships with actors and stakeholders
- Developing skills in action research with multiple stakeholders and partners, and sensitize national policy makers for acceptance and implementation.
- Training of staffs on management, procurement, monitoring and evaluation to enhance efficiency and delivering of results towards the objectives of the Institute.

4.4.9.5. Togo

- Socio-environmental training for Researchers (ITRA, etc.)
- Socio-environmental training for monitoring agents (ICAT, etc.)
- Expand and reinforce the monitoring staff profile to acquire other socio-environmental qualifications;
- Set up laboratories to analyse agricultural pollutants (pesticides, etc.);
- Promote integrated pest management and pesticide management ;
- Develop standards on pollution related to agricultural activities;
- Develop guidance documents on good agricultural practices.
- Support and revitalize transhumance management committees in the Districts
- Disseminate socio-environmental texts related to agricultural activities (pesticide management, etc.)
- Promote bio-agriculture
- Strengthen exiting research laboratories
- Include reforestation programmes in agricultural activities (develop silviculture)
- Educate communities on the socio-environmental issues of agricultural activities
- Support the creation and materialization of pasture areas and transhumance corridors
- Provide grazing lands and map transhumance corridors.

5. THE WORLD BANK SOCIO-ENVIRONMENTAL CONSERVATION POLICIES

5.1. Analysis of conservation policies

The World Bank socio-environmental conservation policies include both Operational Policies (OP) and the Bank Procedures (BP). Conservation policies are designed to protect the environment and the society from potential adverse effects of projects, programmes, plans and policies. The most common socio-environmental conservation policies are:

- OP 4.01 Environmental Assessment, including the Public's participation
- OP 4.04 Natural Habitats
- OP 4.09 Pest Management
- OP 4.11 Cultural Heritage
- OP 4.12 Involuntary resettlement of populations
- OP 4.10 Indigenous populations
- OP 4.36 Forests
- OP 4.37 Safety of Dams
- OP 7.50 International Waterways-related Projects
- OP 7.60 Projects in disputed areas

Socio-environmental conservation policies of the World Bank that can be applied to activities to be implemented within the framework of the WAAPP 1C implementation are: OP 4.01 « Environmental Assessment »; OP 4.04 Natural Habitats; OP 4.09 « Pest Control» and OP 4.12 Involuntary resettlement of populations. Activities triggering the aforementioned policies should be considered by WAAPP. The remaining operational policies are not triggered by WAAPP.

OP 4.01: Environmental assessment
The OP 4.01's objective is to ensure that projects funded by the World Bank are environmentally viable and feasible and that the decision-making process has been improved through an appropriate evaluation of action and their possible environmental impacts (OP 4.01, paragraph 1). This policy is triggered if a project will encounter potential risks and environmental impacts (negative) in its sphere of influence. OP 4.01 covers impacts on physical environment (air, water and earth); life environment, health and safety of populations; physical cultural resources; and cross-border as well as global environmental concerns. WAAPP is concerned with this policy because some research or agricultural extension activities may be subject to an environmental impact assessment.

Dissemination: The OP 4.01 also outlines the requirements for consultation and dissemination. For the category : (i) of projects A and B; et (ii) sub-projects classified as A et B in a program lending, the Borrower shall consult groups affected by the project and non-governmental organizations (NGOs) on the environmental aspects of the project and takes into account their opinions. The Borrower shall begin this consultation immediately. For the category of projects A, the Borrower shall consult these groups at least twice: (a) a bit before the environmental selection and at the end of the draft EIA terms of reference; and (b) once the EIA report is prepared. In addition, the Borrower shall meet with these groups throughout the project implementation as often as necessary to address issues related to EIA that affect them. The Borrower shall give relevant information as quickly as possible and in a language accessible to consulted groups.

The Borrower shall make the EIA available (for projects of category A) or any EIA separate report (for projects of category B) in the country and in the local language, publicly accessible to all groups affected by the project and to local NGOs before the assessment. Upon the Borrower's authorization, the Bank will disseminate the appropriate reports to Infoshop. Sub-projects of category A will not be financed as part of the current programme classified in category B.

OP 4.04, Natural Habitats

OP/BP 4.04, *Natural habitats,* do not fund projects degrading or converting critical habitats. Natural sites are of a particular interest and are important for the conservation of biological diversity or because of their ecological functions. Particular attention should be paid to natural habitats during environmental impacts assessment. It must be noted that in some countries like Sierra Leone and Liberia, research and trial sites are located around mangroves that are sensitive habitats and have a particular ecological function (spawning area, etc.). From this point of view, this policy is triggered by WAAPP 1C's activities. Therefore, to be in compliance with this policy, the SEMF makes socio-environmental management provisions (selection procedures; check-list of mitigation measures and follow-up plan) that will help take into account mangroves protection.

OP 4.09, Pest Management

To meet the requirements of the OP, a Pest and Pesticide Control Plan (PPCP) was developed by WAAPP, in a separate document. This Plan identified major pests and pesticides issues that are the concern of WAAPP and defined the institutional and public health context (particularly in relation to vector control as part of the programme for the fight against Malaria), and defines the overall parameters for minimizing specific potential adverse effect on human health, environment and to promote integrated vector control. During the implementation of its activities, WAAPP will ensure that its actions are in conformity with this Pests and Pesticides Control Plan.

OP 4.11, Cultural Heritage

OP 11.03, *Cultural Heritage* shall carry out an investigation on potentially affected cultural resources and their inventory. It incorporates mitigating measures when there are negative impacts on material cultural resources. WAAPP is in compliance with this policy because activities related to cultural heritage have not been planed for.

OP 4.12, Involuntary resettlement of populations

The objective of the OP 4.12 is to avoid or minimize involuntary reinsertion where it is feasible, by exploring other alternatives routes of viable projects. Moreover, the OP 4.12 intends to assist displaced people by improving their old living standards, their income generating capacity, production levels or at least restore them. WAAPP 1C is planning the construction and/or rehabilitation of National Centres for Specialization (NCS), particularly agricultural experimental plots that will require in some cases land acquisition. If in five countries, provisions have been made to put in place these structures within the national research institutions (in terms of building extension rehabilitation of existing buildings), experimental plots however, can lead to expropriation. From this point of view, this policy is triggered by the activities of WAAPP 1C to comply with this policy.

OP4.20, Indigenous populations

Indigenous populations, in the World Bank's definition, do not exist in countries targeted by the project. Therefore, WAAPP is in compliance with this conservation policy without the need to take specific measures.

OP 4.36, Forestry

OP 4.36, Forestry supports sustainable and forest conservation-oriented silviculture. It does not support commercial activities in primary tropical rainforests. Its overall objective aims to reduce deforestation, reinforce the contribution of cultivated forests to the environment and promote afforestation. The World Bank: does not fund commercial activities or the purchase of equipments for logging in tropical rainforests. WAAPP is in compliance with this policy because none of its components are related.

OP 4.37, Safety of dams

OP/BP 4.37, *Safety of dams* recommends to carry out a technical survey and periodical safety inspections for big dams by independent experts specialized in dam safety. Thus, WAAPP is in compliance with this Conservation Policy since the project does not make provision for the construction or management of dams.

OP 7.50, International waterways-related projects

OP 7.50, *International waterways-related Projects,* verify that there are riparian agreements and guarantee that riparian States are informed adequately and do not oppose the project's interventions. There is no public consultation but notifying riparian States is a requirement. There are international watercourses (the Mono River, etc.) in the project's zone but globally, WAAPP is not making provision for projects (such as the construction of bridges and dams) directly related to these international watercourses. Thus, the project is in compliance with this Conservation Policy.

OP 7.60, Projects in disputed areas (in dispute)

The OP 7.60, *Projects in disputed areas* ensure that people claiming their right to disputed areas have no objection to the proposed project. WAAPP does not undertake activities in these disputed areas. Consequently, WAAPP is in compliance with this Conservation Policy, without taking specific measures.

5.2. Conclusion

In conclusion, it is clear that WAAPP is in compliance with the following Conservation Policies without specific measures: 4.11, 4.20, 4.36, 4.37, 7.50 7.60. To meet the requirements of Conservation Policies 4.01 (Environmental assessment**);** 4.04 (Natural habitats), 4.09, (Pest Control) and 4.12 (Involuntary resettlement of populations), specific measures and actions were proposed in the text below and in the Environmental Management Framework in general. In conclusion, it can be said that WAAPP 1C is in compliance with Conservation Policies, without special measures being taken, provided that the recommendations outlined in the current Socio-environmental Management Framework Plan are implemented.

6. SOCIO-ENVIRONMENTAL IMPACTS OF WAAPP 1C

6.1. Positive socio-environmental impacts of agricultural activities

The WAAPP 1C plans to contribute to the use of sustainable agricultural technologies for the environment. The project will support environmentally sustainable and socially acceptable agricultural practices. It will not approve funding of projects that have major negative impacts at the regional and national level. It will encourage proposals that include pest control and integrated soil conservation that promote the profitability and sustainable use of chemicals in agriculture. For this purpose, it will examine all research proposals before their funding. WAAPP will also work with concerned institutions to encourage the certification and the harmonization of pesticide use in the region.

The positive impacts of WAAPP 1C's activities, mainly, concern the following points: intensification, competitiveness development and diversification of agropastoral activities and harvesting through : (i) improvement of techniques and production systems particularly through research improvement–extension (crop farming techniques adapted to the nature of soils, conservation techniques / soil fertility reconstitution, wind and water erosion management, improvement of water management in irrigation areas,…) ; (ii) reduction of losses after harvesting ; (iii) revenue increase and trade conditions ; (iv) a better value enhancement of production through processing; (v) extension of product range; (vi) value chains stakeholders capacity building (producers, traders, transporters, investors) ; (vii) information and training on good practices (quality, environmental and hygiene standards).

Moreover, WAAPP is within the framework of ECOWAS agricultural policy whose guidelines aim at influencing West African agricultural heavy trends by removing obstacles to productive investment, to productivity improvement and to create an enabling trade environment for producers in the region. From this point of view, the overall impacts of WAAPP are globally positive because they contribute effectively to achieving these objectives. In total, the following positive impacts can be identified:

6.1.1. Positive environmental impacts

- ***Impacts of microproject financing for agricultural inputs acquisition***
  The use of agricultural inputs will be necessary to obtain better yields.
- ***Positive impacts of agricultural technologies***
  The dissemination of all irrigation methods and distribution of water on the plots will help to better manage soil and water resources in limiting their over-exploitation and their degradation

  The drip irrigation method is a simple, efficient and innovative technique that enables to reduce water consumption considerably.

  Research activities to promote horticulture, vegetable farming and fruit trees as well the production of improved seeds will be dedicated to agricultural production diversification to enable an improvement of farming zones.

  The development and mastery of integrated pest management techniques will help prevent the risk of pollution through the use of chemicals as long as these

techniques include biological control mechanisms. Most IPM methods reduce chemical use to find the minimum amount needed to manage pests.

Research on soil fertility improvement methods will produce the positive impact of maintaining high levels of fertility of farmlands without crippling the levels of agricultural production.

In managing risks associated with the use of pesticides, herbicides and fertilizers, WAAPP 1C provides an opportunity for the development of experiments and use of credible alternatives to chemical control and the drafting of national laws and implementation of a strategy to check these risks.

The techniques for sustainable intensification of agricultural systems will help conserve and improve the natural resource base and provide sound management of natural resources by providing integrated approaches to solving major problems such as soil fertility and water management.

- ***Positive Environmental Impact of Livestock Breeding Technologies***
  A thorough knowledge of the strategies on the part of agro pastoralists will enable local authorities to support a more efficient and more sustainable pastoral resource. Thus the risk of overgrazing and rangeland degradation will be reduced.

  The development of techniques for cattle dropping and management systems in agricultural areas where irrigation is the principal activity, will provide opportunities for reduced use of chemicals which greatly benefit the environment.

  Epidemiological surveillance will lead to a reduction in the prevalence of disease.

- ***Positive environmental impact of institutional strengthening measures***
  Research activities will also provide for sound management of natural resources by providing integrated approaches to solving major problems such as soil fertility and water management. The development of recovery techniques in agricultural production will result in the regeneration of soils and reduced use of chemical fertilizers.

- ***Promotion of sustainable agricultural technologies***
  The WAAPP intends to contribute to the use of sustainable agricultural technologies for the environment. The project will support environmentally sustainable and socially acceptable agricultural practices. It will not approve funding for regional and national research projects with disastrous negative impacts. It will encourage proposals involving integrated pest management and soil conservation, which enhances the profitability and sustainable use of chemicals in agriculture. In addition, the WAAPP will encourage the development of partnership among research institutions, producer organizations, utilities, the private sector, NGOs and donors.

- ***Positive impact of seed production by the community***
  The techniques of seed production will help improve the quality of seeds. The WAAPP 1C will take up the challenge of initiating a process for the establishment of a quality seed multiplication plan (using basic seeds) that will benefit producers.

- ***Positive impact of agricultural technologies***
  The development of recovery techniques in agricultural production will lead to the regeneration of soils, preservation of water resources and reduced use of chemical fertilizers which do not always have positive effects on the environment. The

development and mastery of integrated pest management techniques will help prevent the risk of pollution through the use of chemicals as long as these techniques include biological control.

- ***Positive impacts of the processing and extension of agricultural products***
  Research into improving processing facilities, such as packaging and processing plants, will enable the promotion, security and development of local agricultural production (plant, animal), distribution and marketing in compliance with sanitary standards and provisions.
- ***Positive impact of the development of biotechnology***
  The development of biotechnology to achieve productivity and sustainability (to produce more food on the same or a smaller area of land, with more nutritional value and less negative impact on the environment) is a priority area in keeping with the agricultural policy.

- Research activities will also culminate in the sound management of natural resources by providing integrated approaches to solving major problems, such as soil fertility and water management. The development of value enhancing techniques in agricultural bye-products will result in the regeneration of soils and reduced use of chemical fertilizers.

6.1.2. Positive social impacts

- ***Facilitation of new forms of organization***
  The research will develop new forms of social organizations and new rules for managing natural resources, which will lead to greater autonomy for young people and women.
- ***Involvement of local people*** that the most vulnerable social groups are not excluded in their effort to access the new opportunities created by the project;
- ***Improvement of productive capacity of*** vulnerable groups and reduction of gender disparities;

- ***Support to farmer organizations in the area of agricultural methods***
  Extension of new agricultural techniques will help maximize returns without an increase in farmland to the detriment of pastures. Optimization of yields will give rise to the implementation of conservation techniques throughout the conservation period or processing techniques for improved marketing. Then follows the establishment of a processing plant.
-

- ***Positive social impacts of institutional strengthening measures***
  Strengthening research teams into becoming environmental and social scientists will help ensure that these environmental and social aspects will be injected into technological packages to be developed for implementation on the ground. The development of a minimum critical mass of knowledge and skills in the target countries to evaluate the appropriate tools and products of biotechnology is good for the environment. Indeed, national Excellence will be developed to evaluate impacts on biodiversity sites.

6.1.3. Summary of positive impacts of agricultural activities

Activities		Positive Impacts
Support to agricultural production activities Agricultural Development	Farming and animal breeding activities Training of farmer-based organizations Water retention basins Seed production	• Use of sustainable agricultural Technologies for the environment • Capacity building of farmer-based Organizations • Improving the living conditions of the people • Optimal management of water resources • Development of lowlands • Improvement of prepared lands and enhanced production • Enhanced organization and management of farming resources
Agricultural infrastructure	Storage facilities	• Storage of crops, seeds and inputs • Extension of preservation period
	Processing and packaging of agricultural products	• Development of local products • Reduction of losses • Proper preservation of products • Access to foreign markets • Wider supply of fresh products
Strengthening of institutions	Implementation structures	• Improved implementation of activities taking into account the environmental and social aspects

6.2. Negative environmental and social impact of WAAPP 1C activities

It is important to note that the WAAPP will not provide direct funding for investment in agriculture. Primarily, potential negative impacts will occur and will result indirectly from the implementation (spreading) of the research findings and agricultural techniques based on request and adopted in conformity with the research findings.

6.2.1. Negative environmental impact of agricultural activities

- ***Impacts of agricultural systems on water resources***
  Agricultural practices, particularly irrigation, will definitely require the use of a non-negligible quantity of these resources if low-consumption sustainable techniques and technologies are not implemented. In terms of resources degradation, the main possible cause for water pollution could be the unsound use of fertilizers and pesticides.

- ***Risks related to land degradation and soil fertility***
  Whether agricultural or pastoral activities are concerned, land degradation following the use of technology and practices contributing to land degradation are factors restricting both the development of the rural sector and the area of natural resources protection (land salinization; waterlogging; reduction of arable and pastoral lands; etc.)

- ***Forest resources degradation***
  Farms can contribute to the reduction of forest and biological resources (prior clearing; perturbation of habitats and sensitive ecosystems leading to a decrease in biological diversity; etc.).

- ***Impacts of fish farming***
  Fish farming development activities could lead to: a perturbation of wetlands; clearing of pastures; a competition in the use of water; a change in water flow; water pollution (chemicals, etc.); depletion of local fish stocks with the introduction of exotic species; development or water-borne diseases; etc.

- ***Harmful environmental impact of pastoral activities***
  Intensive breeding has harmful environmental effects, notably: soil compaction; soil erosion and linear erosion; destruction of watercourses banks; production of waste in confinement areas leading to the pollution of surface and ground water. The increased concentration of animals around permanent water supplies will lead to resource degradation/pollution while the displacement of shepherds will worsen conflicts between farmers and shepherds and put more pressure on the soil.

6.2.2. Negative social impacts of agricultural activities

- ***Social impacts of the implementation of the NCS***

  The implementation of the NCS, especially the demonstration farms, can lead to loss of land and socio-economic activities on the sites, requiring the expropriation and displacement of people.

- ***Negative social impacts of agricultural Technologies***

With the extension of agricultural technologies, there may express fear of a risk of discrimination in the distribution of land (Sunday farmers to the disadvantage of real peasants)

The lack of transparency in agricultural markets where each economic operator tries to get the maximum profit is likely to make the income of stallholders unstable.
The lack of support to farmer based organizations during the trial periods (beginning of implementation), lack of sensitization, training and supervision of farmer based organizations (FBO) (ownership of technology) could also reduce production capacity.

Another social impact on the risk of massive disappearance of small farms to the advantage of large scale farmers;

The race to extend farm sizes also leads to price hikes of arable land, which in the long run may eliminate the small producers from the system;

- ***Negative impact of agricultural development on human health***
  The development of agricultural water plans are often the source of some waterborne diseases such as malaria due to stagnation of water and bilharzia.

- ***Impact of the use of pesticides on human and animal health***
  Agricultural development will necessarily come with increased cultivation and lead to increased use of pesticides that could constitute a health hazard for humans and animals. In the absence of a really integrated pest control, increased agricultural production could lead to the use of chemical pesticides, whose impact on the environment could be negative.

- ***Negative social impacts of pastoral and transhumance activities***
  Extensive livestock breeding has negative social impacts, notably the destruction of irrigated farms. Further, with transhumance, there are often social conflicts between farmers and livestock breeders as a result of stray animals, especially after harvest: destruction of stored harvest; rape of women by shepherd; stealing of animals; etc. Also, the occupation of pasture lands by cropped are also a source of social tension.

- ***Negative social impacts of agricultural activities***
  The development of farm lands could also lead to loss of grazing lands, wich could lead to conflict between the animal breeders.

- ***Environmental risks related to biotechnology and bio-security***
  In the area of bio-technology and bio-security, one might fear environmental and health problems such as gene leakage.

6.2.3. Summary of the negative impacts of agricultural activities

Negative environmental impacts:

- Deforestation, soil degradation by erosion
- Destruction of sensitive habitats
- Clearing of forest tracks
- Soil erosion and loss of soil fertility
- Salinization, alcalinization and the acidification of soils through the intensification, diversification and development of agricultural sectors
- Pollution underground water and water plan with the use of significant quantities of fertilizers, pesticides, and herbicides
- Destruction of non-targets by pesticides
- Soil trampling and compaction by animals
- Selective grazing of crops

Negative social impacts:

- Risk of land loss and expropriation
- Risk of insecure incomes for peasants in case of discrimination, lack of transparency, or absence of support measures.
- Health risks linked to the use of pesticides, especially due to the absence of a real integrated pest control.
- Increase of waterborne diseases which may lead to a loss or movement of labour
- Poor handling of pesticide pack
- Loss of land for pasture (Conflicts between livestock breeders and farmers with the development of agricultural areas)
- Contamination of animals through when they are made to drink
- Pollution of wells and water sources by the animals
- Increase in water related diseases and poisoning from pesticides
- Pollution of water and emergence of water borne diseases due to fish farming
- Risks related to inadequate capacity in bio-technology and bio-security
- Social conflicts between farmers and livestock breeders, especially in Benin, Guinea and Togo) linked to the development of agricultural areas and stray animals, especially in the post harvest period: destruction of crops stored; rape of women perpetrated by herdsmen; cattle rustling; occupation of pasture lands by farmlands;
- Exclusion of vulnerable groups, notably women, in the allocation and management of farmlands

6.3. Negative environmental and social impacts of the activities of the NCS

Once the site is properly identified, the negative environmental impact of the project will mostly come from the construction and rehabilitation of the National Centres of specialization (NCS): soil erosion, soil and water, the loss of vegetation, disruption of the living environment, generation of liquid and solid wastes; occupation of private lands, etc. Furthermore the potential exploitation of quarries for construction material could also constitute a source of negative impact for the natural environment, which would require restoration activities after use. These impacts mostly depend on the scope and scale of activities, the nature of material used, the need for control and accessibility of this right. In the preparatory phase of construction, the expected impacts are inherent in the felling of trees to clear the base for the construction works and the generation of construction debris.

- ***Risk of pollution of the environment by debris from the works***
  The management of waste and construction debris poses a problem during works. Rehabilitation of the NCS will call for land filling of residues. A chaotic disposal and unsafe disposal of this type of waste can be a source of nuisance to public health if no sustainable management system is put in place. These effects could be either avoided or drastically reduced through implementation of a rigorous system of collection, evacuation and disposal of waste generated by the works (provision of garbage bins, regular disposal, dumping in the places allocated by the local government authorities).

- ***Inconvenience and nuisance linked with poor choice of sites***
  Failure to respect standards set for the choice of sites could engender negative consequences in terms of risk (flood prone lands or those with risks of landslides, etc.), which will increase the risk of accidents. These risks will, however be moderate.

- ***Degradation of vegetations and soils linked to the opening and operation of quarries***
  Supply of construction material is done at existing or open quarry sites for the purpose of the works. The opening and operation of quarry sites for building materials (sand, rocks) also contribute to deforestation and disfigurement of the landscape with the stigma associated with holes bored to extract building materials. Sites from which construction materials are taken, when they are not rehabilitated, could foster the proliferation of vectors (*malaria*), causing drowning, especially among children, and bilharzias due to stagnant waters following rain falls. New quarries could aggravate the degradation of ecosystems at the level of the soil, the flora as well as the fauna, notably through their longer term use after the works for other private construction works. Thus this activity could in the long run cause land losses through soil erosion. To reduce this risk, it will be necessary to promote, as much as possible, the use of existing quarries and to rationalize the exploitation of quarries (compliance with the authorized limits; etc.). This way, the risks would be mitigated.

- ***Pollutions and nuisance related to the movement of vehicles and machines***
  On the human environment, the rotation of vehicles carrying the construction materials and equipment would likely disturb traffic and mobility in general., in addition to nuisance (noise, dust) to which the populations will be exposed. The

same goes for the risk of road accident. Considering the relatively uneven terrain in the rural areas, motorization will be very limited and these impacts will be minimal. However, a good reporting of works, material to cover loads and control of speed limits will make for a significant reduction of these negative effects, however minor.

- ***Risk of social conflicts related to the acquisition of sites***
  In case of establishing the NCS outside the current reserves within research institutions, the choice of sites could be a very sensitive social issue. Indeed, a prospective site could bring about conflicts if a group of people lay claim to it or if they have their farms on it, live on it or use it for other socio-economic, cultural or customary purposes. But these risks would be relatively minimal, if not zero, because, because works will primarily be done within research institutions whose lands have already been secured.

- ***Degradation of the vegetation and soil during works***
  The rehabilitation works of the NCS will have very little negative impact on the biophysical environment in terms of destruction of vegetation, destruction of soils (risks, of erosion), except in case of opening of quarries that require the felling of trees. However, there are no plans to build NCS in protected zones. It must be highlighted that there is no risk of abusive felling of timber for the production of furniture and doors for the NCSs. Overall, impact on vegetation will be minor, while those related to soil erosion will be relatively moderate and could be greatly reduced by a stringent control of movement of machinery and construction trucks, rationalization of quarry exports (compliance with authorized limits).

- ***Risks of degradation of local water resources:***
  The water needs of the construction works will imply some drawings either from the water bodies or nearby lakes, either through the underground or through the grid. The upstream fetching of water by the inhabitants from water bodies may alter the quality of the resource if the appropriate decisions are not taken. However, considering the very limited needs of the construction, the risk of depletion is relatively small. These impacts can be reduced or avoided if drawings are done downstream of the settlements. Measures to reduce turbidity, siltation, and other risks should be taken regardless of whether withdrawals are upstream or downstream of the site

- ***Risk of increase of the cost of living around the NCS:*** the development of the NCS (demonstration sites) could lead to increased value of the neighbouring lands, as well as the activities that will be hosted there.

- ***Potential occupational, health and safety impacts during construction:*** the construction of NCS may have the following negative impacts: deforestation and disfigurement of the landscape in case of opening of a new quarry; pollution due to debris from the construction; risk of accidents for the workers and coastal populations; unchecked opening and operation and uncontrolled operation of quarries.

Table 1*: *Summary of environmental and social impacts of the NCS works

Phase	**Negative impacts**
Preparation	• Risk of social conflicts related to the acquisition of sites

of land	• Poor location of the NCS works • Felling of trees
Construction	• Risk of pollution of the environment by debris from the works • Inconvenience and nuisance linked with poor choice of sites • Pollutions and nuisance related to the movement of vehicles and machines • Degradation of the vegetation and soil during works • Risks of degradation of local water resources • Deforestation and disfigurement of the landscape in case of opening of a new quarry • Pollution due to debris from the construction • Risk of accidents for the workers and coastal populations • Unchecked opening and operation and uncontrolled operation of quarries • Risk of increase of the cost of living around the NCS • Potential occupational, health and safety impacts during construction

6.4. Measures to mitigate environmental and social risks of agricultural activities

6.4.1. General negative impacts on environmental components

Environment	Nature of impact	Mitigating measures
Soil	Decline in fertility	• Organic matter yield • Extension of the use of farmyard manure • Better use of mineral fertilizers as recommended by the guidelines • Fallow/Good agricultural practices • Fight against deforestation • Fight against erosion • Use of nitrogen-fixing plants
	Acidification	• Avoiding the use of nitrogen fertilizers • Allowing fallow periods
	Pollutions	• Strict control of pesticides distributed to farmers • Disposal of obsolete pesticides • Compliance with pesticide dosage prescribed by the guidelines • Better mastery of pesticide application period • Fight against organisms • Genetic control
Water	Pollutions	• Adequately train all the actors in the input utilization chain • Strict adherence to the recommendations in the guidelines on the use of fertilizers and pesticides
Biodiversity	Chemioresistance of pests	• Pest identification and rational application of pesticides to which they are sensitive • Diversification of pesticides used
	• Poisoning of aquatic fauna • Rupture of the food chain • Loss of biodiversity	• Sensitization of public on the risks associated with food poisoning and the value of biodiversity • Fight against desertification • Promotion of organic farming control mechanisms
Human health	Poisoning to Death	• Compliance with provisions on pesticide storage • Sensitization of public on risks associated with food poisoning • Strict adherence to protective measures and insecticide spraying regulations • Monitoring of pesticide residues in crops

6.4.2. Specific Negative Impacts

N°	Environmental and social risks	Consequences	Mitigating Measures
1	Impacts of agricultural systems on water resources	• Competition for the resource (depletion) • Waters pollution by pesticides and fertilizers	• Use of sustainable and low-consuming technologies • Effective use of fertilizers and pesticides • Sensitization and training of producers
2	Risks associated with land degradation and soil fertility	• Land salinization • Soil clogging • Reduction in arable and grazing land	• Use of sustainable technology and sustainable land management practices • Sensitization and training of producers
3	Risks associated with degradation of forest resources	• Prior clearance • Destruction of sensitive habitats and ecosystems likely to cause a decline in biodiversity	• Promotion of intensive organic farming • Sustainable management of wetlands and natural habitats • Controlling the extension of agricultural planning • Restoration of degraded soils • Sensitization and training of producers • Prohibition of grazing and assisted regeneration
4	Health risks associated with agricultural planning	Development of water-borne diseases such as malaria associated with stagnant water and schistosomiasis	(See table below: measures against water-borne diseases)
5	Health risks associated with insecticide use	• Human and animal Poisoning • Contamination of the food chain	• Coordinated fight against the enemies of crops (GIPD) • Sensitization and training of producers
6	Risks associated with fish farming	• Disturbance of wetlands • Competition over the use of water; • Water pollution; • Development of water-borne diseases	• Preservation of natural habitats • Rational management of waters • (See table below: measures against water-borne diseases)
7	Social risks associated with agricultural and pastoral activities	• conflicts between animal breeders and farmers (loss of grazing grounds, movement from place to place) • overgrazing and soil trampling by livestock • pollution by livestock	• Dialogue between animal breeders and farmers (Prevention and conflict management mechanisms) • Delineation of transhumance routes and grazing grounds • Sensitization of stakeholders • Protection of water sources

		around water sources	
8	Environmental risks associated with biotechnology and biosafety	• Gene leakage	• Sensitization and training of stakeholders • Control and monitoring

6.4.3. Measures against water-related diseases

Activities	**Impacts**	**Effects**	**Mitigation measures**
Agricultural planning (retention dam, irrigated farmland, etc ;)	Development of water-related diseases	Diseases transmitted by drinking water ; Typhoid fever, cholera , hepatitis	• Improve water quality • Avoid occasional use of untreated water
		• Amoebic dysentery • Scabies, trachoma	• Increase the amount of water used • Improve access to and safety of water supplies
		Water-based diseases : • Schistosomiasis • Bilharzia	• Reduce the need for contact with infected water • Reduce fecal-urine pollution of surface water • Control snails and Cyclops
		Diseases transmitted water-borne insects: • Trypanosomiasis • Malaria	• Increase the amount of water used Improve access to and safety of water supplies

6.4.4. Mitigation measures of social impacts associated with transhumance

Negative impacts associated with transhumance	**Mitigating measures**
Social conflicts between animal breeders and farmers (particularly Benin and Togo) relating to stray animals, especially after harvest: • Destruction of stored stock; • Rape of women by herders • Livestock theft • Occupation of pastures by crop fields	• Support and revitalize the management committees of transhumance in the Prefectures • Broadcast environmental and social laws on agricultural activities (pesticide management, etc.) • Promote organic farming • Reinforce existing research laboratories • Incorporate reforestation programs in agricultural activities (develop forestry) • Educate communities on the environmental and social challenges of farming • Support the creation and materialisation of grazing areas and transhumance zones • Provide grazing fields and map out corridors for transhumance • Build the capacities of leaders of PO and elected local officers in conflict management • Support the establishment of fora for discussion between the ridge farmers of the farmer organisations and animal breeders of Benin and Togo and those from the transhumance countries of origin

6.4.5. Measures to mitigate the environmental and social impact of the works of the NCS

Phase	Negative Impacts	Mitigation Measures
Site Preparation	• Bad location of construction site for NCS • Tree felling	• Judicious selection of sites • Compensatory reforestation
Construction	• Deforestation and destruction of the landscape in the event of the opening of a quarries • Pollution caused by wastes from works • Risk of accidents for workers and people from surrounding areas • Opening and uncontrolled exploitation of quarries	• Giving priority to existing quarries • Rehabilitation after construction • Sensitization and protection of workers • Environmental management of building waste

6.5. Impacts of climatic changes on agriculture and food security

6.5.1. Issues

Anytime there is change in climate (temperature, rainfall…), agriculture is obviously one of the main activities that suffer the consequences. Climatic change will affect not only the average surface temperature of the planet but will also have an effect on the spread of seasonal temperatures (temperature range), extreme weathers and water resources. These changes will have an impact on the quantity and quality of agricultural production and the environment (soil, water, biodiversity, etc.) and widen the areas of action of certain pests. The projected effects on agriculture are still uncertain but since crop and livestock production will be high in the specific climatic zones, yields and crop production will certainly be affected.

Agriculture, a factor of climatic change

Carbon Dioxide (CO2) emissions result mainly from the burning of fossil fuels. However, agriculture and forestry also contribute to CO2 emissions. An important element of live, carbon is mostly found in oceans but also in soils and plants. About a quarter of greenhouse gas emissions originate in the agricultural sector (change in land use, deforestation and biomass burning). Methane contributes only minimally to warming, but it comes from agriculture mainly, particularly domestic ruminants, forest fires, wetland rice cultivation and waste. Traditional tillage and fertilization methods account for 70% of carbon dioxide nitrous oxide emissions. On the whole, agricultural sources account for 30% of global warming. One-quarter of GHG emissions originate in agriculture but agriculture is responsible for one-third of global warming. The main gasses emitted are: CO2 (Carbon Dioxide), CH4 (methane) and N2O (Nitrous Oxide). The CO2 equivalent values are based on global warming potentials of 21 for CH4 and 310 for N2O.

Plant Production

Climatic change will have a direct and/or indirect impact on crops depending on the type of crops. Generally, climate change will influence (i) the seasonal distribution of rainfall, thus affecting soil moisture and water availability; (ii) an increase average temperature which will lead to shorter crop farming cycles and will therefore affect production (faster rate of development and less growth); (iii) an increase in the high temperatures will be disastrous for production ; (iv) The spread of insect and plant diseases increases the risk of harvest losses. On the contrary, an increase in the concentration of CO2 in the atmosphere should stimulate photosynthesis in certain plants and consequently net primary production.

Livestock breeding

Generally, the positive effects of climate change could result in longer farming seasons, lower winter mortality rates and faster growth rates at high latitudes. Some of the negative effects are that there could be a disruption of established reproductive patterns, migration routes and ecosystem relationships. The livestock sector could also be affected through its relationship with sectors such as the cereal sector, since the latter could also be affected.

Crop production and agricultural soils as carbon « sinks »

Unlike the other sectors, agriculture can also constitute a carbon « sink ». This means that crops, in absorbing organic matter from atmospheric CO2, store carbon (in the stems and the roots) which is then partly absorbed in the soil. According to research, land use and farming practices affect the level of these stocks in the stocks in the soil. Thus, a limited use of land and the survivability of the grassland ensures the storage of higher levels of

carbon. Moreover, these practices reduce erosion, improve soil quality, water and biodiversity, checks overflooding and save fossil energy.

Effects of climatic changes on agriculture

Global warming is becoming more and more pronounced and has many effects on agriculture: accelerating the growth of certain crops, early flowering, bringing forward the crop production and vine-growing season and reducing the quality of certain products, geographical spreading of pathogens and crop pests, and northward migration of certain species. In sum, the decisive parameters of biodiversity are affected by climate change: during breeding or migration, length of growing seasons, species distribution and population densities, frequency of parasitic infections and diseases; disruption of the grazing season and organic composition of grasslands; disruption of crop cycles, high growth rate of species and flowering periods.

Climate change: a threat to food security

Climate change could exacerbate climate variability, while it continues to be one of the main causes of the instability in food production from one year to the other. This variability can be seen in the change in the frequency of extreme conditions. Moreover, among the effects of climate change on food production and food security at the country level, significant changes in the geographical distribution of climates and land use patterns associated with them would be considered. These could lead to a change in the geopolitical balance of crops, with potentially a net positive impact on national production and negative effects in the target countries of the WAAPP IC.

6.5.2. Recommendations for dealing with climate changes

Adapting agriculture to climate change

Agricultural practices have an effect on greenhouse emissions. Reducing CH4 and N20 emissions therefore requires a better management of animal and plant organic matter. For instance, by aerating compost and by limiting nitrogen inputs to meet crop needs, by adopting for pig farms beddings in which manure is mixed with straw. Conversely, the equipment, variety selection, adjustment of calendars and risks due to crop enemies with cultural techniques, will probably need to be improved. Finally, agricultural usage could come to play a role in the reduction of these greenhouse gases. The agricultural sector should also take into account changes in water resource opportunities and the multiplication of extreme weather conditions and periods of heat waves.

Actions to reduce the effects of greenhouse gas emissions

The main measures that could help prolong the reduction of these emissions include : control of nitrogen fertilizer, pilot development of new agricultural practices, reducing the purchase of tractors ; collection and upgrading of biogas from dung and agribusiness ; upgrading and development of products derived from biomass (biofuels, fuel wood, construction wood).

At the individual level, by changing their eating levels slightly, it is possible to reduce their contribution to the greenhouse effect. To do so, they must direct their choice toward products that emit less greenhouse gases. In other words, they should consume locally produced foods, eat seasonal fruits and vegetables, reduce their meat consumption and eat more poultry meat and less red meat.

7. environmental and social management plan (ESMP)

The project's Environmental and Social Management Plan (ESMP) aims at describing institutional mechanisms with regard to (i) a methodology for the formulation, approval and execution of the activities of the WAAPP 1C (environmental and social screening process) which should help identify potential environmental and social impacts that be caused by the project activities ; (ii) monitoring and implementation of mitigating measures; (iii) capacity building; (iv) estimating the costs involved and the timeline. The ESMP will be incorporated in the Operational Manual of the WAAPP IC. The ESMP focuses on measures for mitigating the impacts of the implementation of the project activities. The Environmental and Social Management Plan (ESMP) of the WAAPP 1C includes the following:

7.1. Selection process of the environmental and social impacts of the projects

To identify more appropriately the environmental and social issues pertaining to the implementation of the activities of the WAAPP IC project, it is important to do an evaluation of the environmental and social impacts at three levels: (i) during the preparation and construction of National Centres of specialization; (ii) during the preparation and experiment of research requests (iii) during the implementation of research findings on the ground (implementation/popularization). The screening process of the environmental and social impacts outlined below could help dispel these fears.

In that respect, there are four parts to the proposed screening process:

- The first part relates to the ***construction/renovation of the National Centres of specialization (NCS)*** or the development of experimental plots;
- The second part relates to ***Research Requests*** on technology
- The third part has to do with ***the application and dissemination of technologies*** arising from research and relating to major projects;
- The fourth part relates to ***the application and dissemination of technologies*** arising from research and having to do with micro-projects (small scale).

The environmental and social screening process complements the shortcomings identified in the national processes relating to environmental and social impacts in the five countries, particularly in the area of sorting and classification of the projects. The ESMF aims at filling this gap. The categories of environmental and social impacts of the projects will be determined by the results of the screening. Inspection and approval of the projects will be done by qualified personnel at both the local and regional levels.

This selection process seeks to:

- determine the activities of the WAAPP that may have negative environmental and social impacts;
- identify appropriate mitigation measures for activities with adverse impacts;
- identify activities that require additional work on the environmental and social problems;
- describe the duties of institutions charged with analyzing and approving the results of the screening, the implementation of proposed mitigation measures, and the preparation and implementation of additional work on the environmental and social problems;

- monitor the environmental and social parameters (works phase; research and extension phase).

7.1.1. Selection of research topics on basis of their treatment of environmental and social issues

a. Selection stages

- ***Stage 1 : Writing the research proposal***
  The drafting and writing of research proposals (upon request) is done by individuals (researchers), or research institutions, or by Local Producers Associations, in line with a framework that incorporates environmental and social concerns (see model below).

Research proposal drafting plan (including the environmental and social component)

- General information on the project
- Background – Justification
- Objectives
- Expected outcomes
- Beneficiaries
- Methodology and research plan
- Link and consistency with national priorities
- ***Evaluation of the project's environmental and social impacts***
  - *Summarise the major positive and negative environmental and social impacts*
  - *Summarise the environmental and social management measures (as additional research or as part of the main research project), capacity needs, institutional responsibilities and related costs*
- Technical Implementation Plan
- Logical framework (including environmental and social indicators)
- Team composition
- Budget
- Explanatory note on budget
- Consideration of various participants
- Bibliographical references

- ***Stage 2 : Selection and classification of research proposals on basis of their treatment of environmental and social issues***
  The research projects are referred to the appropriate National Funding or Research Implementation Institution (INRAB in Benin; IRAG in Guinea; CARI in Liberia; SLARI in Sierra Leone; and ITRA in Togo) who will fill out the screening forms (Appendix 1) to identify potential negative impacts and determine the necessity or otherwise for further work on environmental issues (Environmental Classification of Research Topics). This work shall be coordinated by two Focal Points: an Environmental Focal Point (EFP) and a Social Focal Point (SFP) which shall be designated within these national research systems (EFP and SFP/INRAB in Benin; EFP and SFP/IRAG in Guinea; EFP and SFP /CARI in Liberia; EFP and SFP/SLARI in Sierra Leone; et EFP and SFP/ITRA in Togo) in collaboration with other national institution concerned.

- ***Stage 3: Approval of the environmental and social classification of the research proposals***
  The results of the environmental classification of the research proposals shall be referred to National Institutions responsible for the EIAS (Environmental Impact Analysis): ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE in Togo.

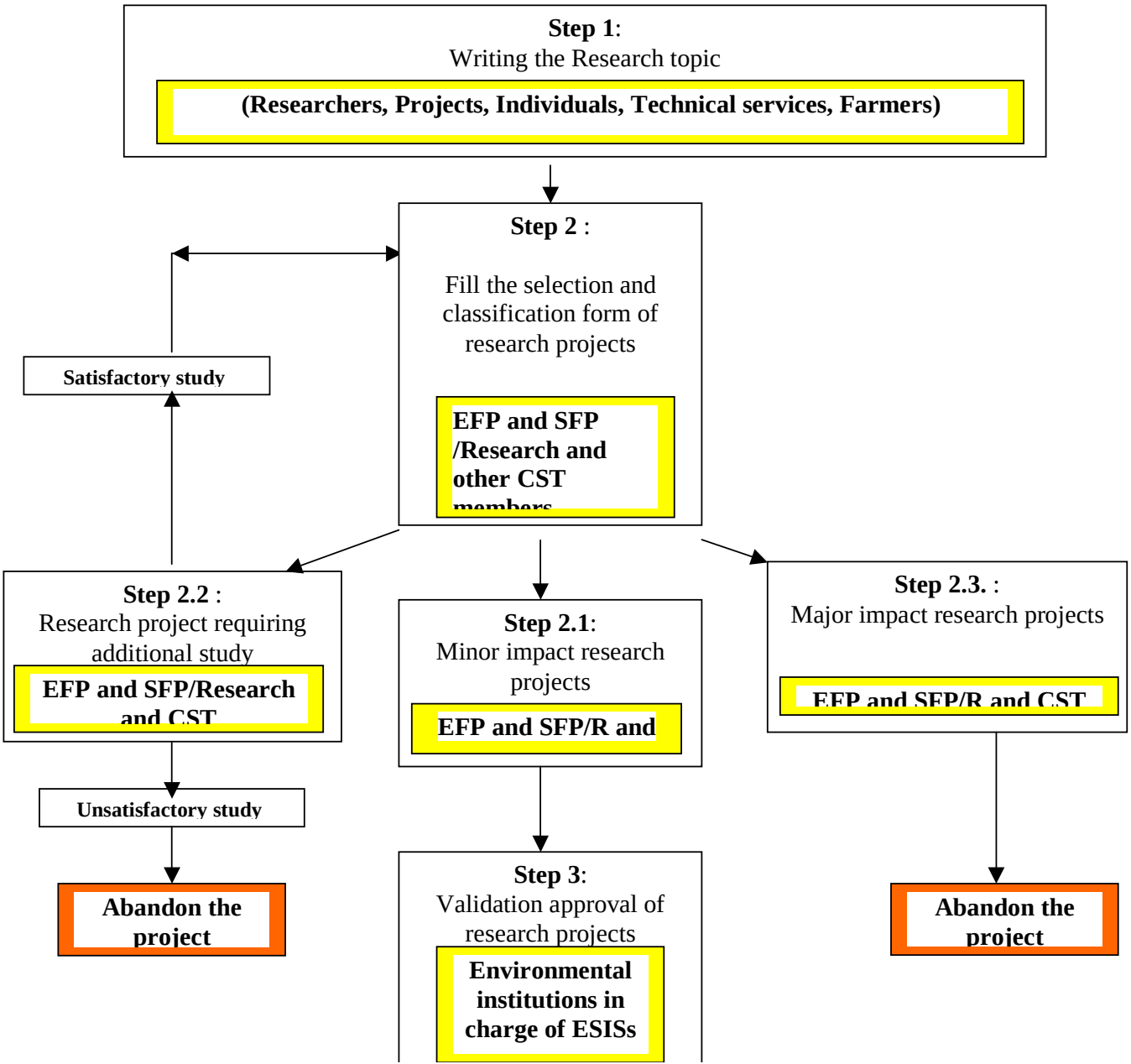
- ***Stage 4: Monitoring the environmental and social aspects of the research***
  The purpose of the environmental and social monitoring is to verify and appreciate the effectiveness, efficacy and efficiency of the implementation of environmental and social measures recommended in the research proposals.
  - Supervision and monitoring at the regional level will be done by the SE/CORAF/WECARD through two Focal Points: an Environmental Focal Point (EFP/CORAF/WECARD) and a Social Focal Point (SFP/CORAF/WECARD).
  - Internal National Monitoring of the implementation of the research topic will be done respectively by the EFP and the SFP/Research (EFP and SFP/INRAB in Benin ; EFP and SFP/IRAG in Guinea; EFP and SFP/CARI in Liberia; EFP and SFP/SLARI in Sierra Leone; and EFP and SFP/ITRA in Togo);
  - External National Monitoring will be done by the National Institutions responsible for the ESIS (ABE in Benin; BSD in Guinea ; EPA in Liberia; EPA in Sierra Leone; Environmental Department (DE) and ANGE in Togo);
  - Evaluation will be carried out by Environmental Consultants (national and/or international), mid-term and end of the project.

b. Summary of Stages in the selection of research projects and officials

Stages and Activities	Responsibilities
Stage 1 : Writing the Research Proposals	Applicants (Researchers; Research Institutions, etc.)
Stage 2: Filling the selection form and classification of social and environmental research topics	ESFP/Research and members CST capacities
• Stage 2.1: Limited research proposals	ESFP/Research
• Stage 2.2: Research project requiring further study is necessary (selection of consultants, approval of research, etc.)	ESFP/Research
• Stage 2.3: Extensive research proposals	ESFP/Research
Stage 3: Validation and approval of social and environmental classification of research topics	Environmental institutions responsible for the EIAS (ABE in Benin; BSD in Guinea; EPA in Liberia ; EPA in Sierra Leone; ANGE in Togo).

Stage 4: Environmental and social monitoring of research activities	• Supervision of monitoring: EFP and SFP/CORAF/WECARD • Internal monitoring: EFP and SFP/R • External monitoring: Environmental institutions responsible for the ESIS (ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE in Togo). • Evaluation: Consultants-Researchers (national and/or international), mid-term and end of project

c. Selection flowchart for research proposals



7.1.2. Selection for the dissemination of large scale agricultural production

This aspect of the « screening » essentially concerns the large scale projects that resulted from technological research, that need to be applied on the field (experimentation, dissemination/extension) and conducted by the ministerial departments in charge of agriculture.

a. Stages of the screening

Stage 1: environmental and social selection and classification of the project
Filing of the initial selection form (Appendix 2) and the social and environmental checklists, including proposal of appropriate mitigation measures (Appendix 4) will be done by the national Agricultural Institutions in charge of dissemination of information within which Environmental Focal Points (EFP) and Social Focal Points (SFP) will be appointed: EFP and SFP/MAEP in Benin ; EFP and SFP/MA in Guinea ; EFP and SFP/MOA in Liberia au; EFP and SFP/MAFFS in Sierra Leone ; EFP and SFP/ICAT in Togo, EFP and SFP MA in Togo). After filling, these ESFPs/Extension will start classification of the project.
To meet requirements of the World Bank, (especially the OP 4.01), it has been suggested that the WAAPP 1C that are likely to have either direct or indirect significant impact on the environment have been put into three categories:

- Category A : Project with major environmental and social risks some of which require further EIA;
- Category B: Project with a possible major environmental and social risk (or cumulative minor risks of sub-projects), which therefore require simple mitigation measures. To this end, EFPs and SFPs will propose a checklist of relevant mitigation measures;
- Catégorie C: Project without significant environmental impact; project will be implemented as it is.

It must be pointed out that the WAAPP 1C has been classed under category B. Under this report, results of the selection should lead to environmental category B or C.

- ***Stage 2: Validation of classification of project***
  Results of the classification of the projects will be forwarded to the National Institutions in charge of ESIA (ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE in Togo) for verification and approval of the project classification.

- ***Stage 3: Implementation of the environmental and social work***
  Following validation of the project classification, the ESFP/Extension will proceed to: (i) the application of simple mitigation measures decided upon under projects classed in category; or (iii) a separate Environmental and Social Impact study (ESIS) should be conducted.

- ***Stage 4: Consideration and approval of EISI reports***
  In case of a need to carry out additional environmental and social activity, (ESIS, etc.), the environmental study reports will be considered and approved by National Institutions in charge of ESIS (ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE in Togo).

- ***Stage 5: Public consultations and dissemination***
  ESIS national legislations provide that information and participation of the public participation shall be done during the conduct of the environmental impact studies, in collaboration with the competent institutions of the district involved. Public information consists particularly in organization of one or a series of meetings to present the project, gathering local authorities, the people, the relevant produce organizations, etc. These consultations will help identify the major problems and determine the modalities for including the various concerns in the ESIS terms of reference to be prepared. The results of the consultations will be included in the ESIS report and made accessible to the public.
  To meet World Bank's requirements of consultations and dissemination, CORAF/WECARD, in charge of regional coordination of the WAAPP shall: (i) write a letter of dissemination in which it shall inform the World Bank of the approval of the ESMF; (ii) the due dissemination of all the reports produced (ESMF and IPMP) to all partners and, possibly, to persons that may be affected. In this process of dissemination, CORAF/WECARD will be supported by targeted research institutions in the 5 countries. CORAF/WECARD shall also send an authorization of WAAPP to the World Bank for publication in Infoshop.

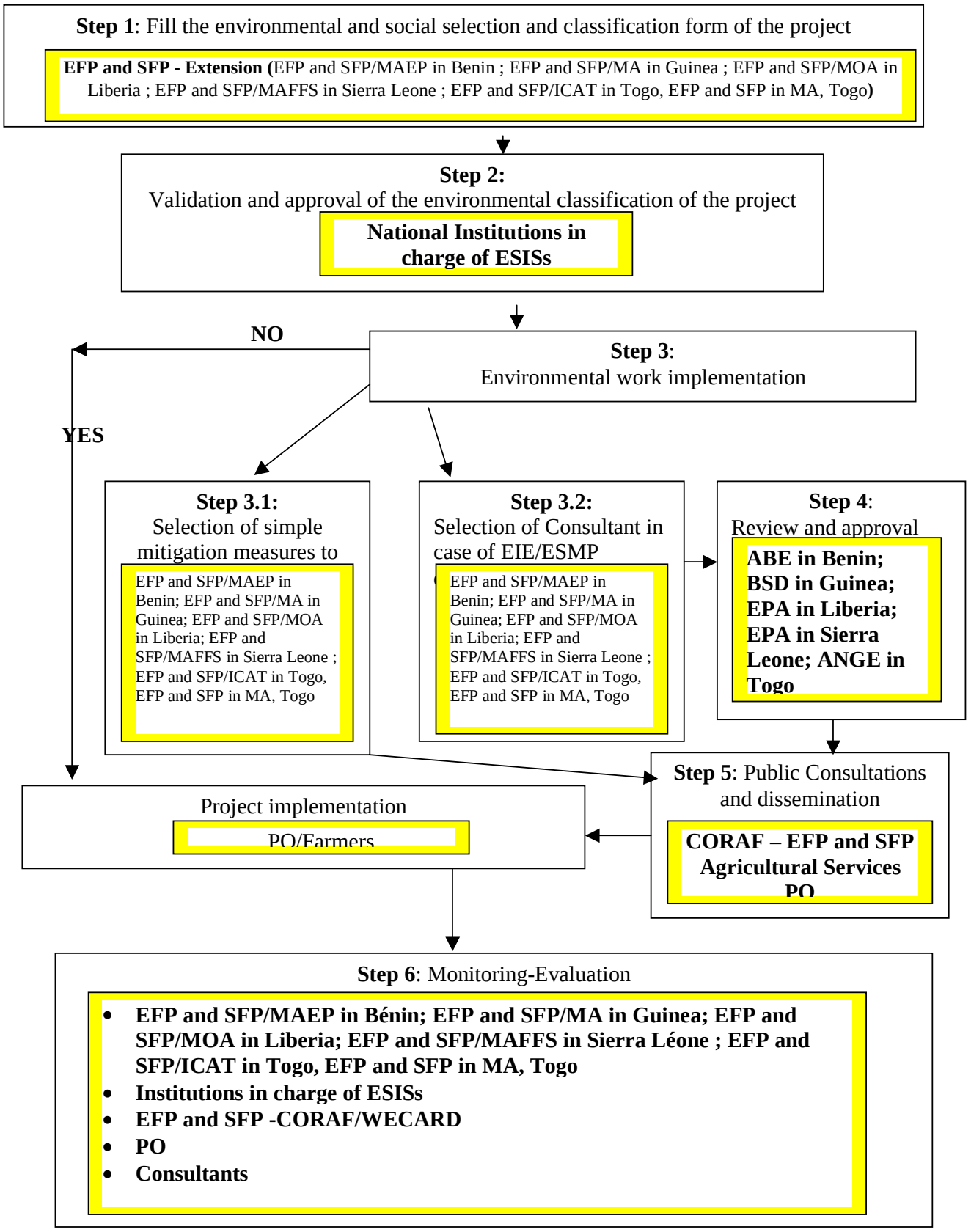
- ***Stage 6: environmental and social monitoring and evaluation of the implementation***
  Environmental and social monitoring helps verify and assess the effectiveness, efficacy and efficiency of the implementation of environmental measures recommended in the major agricultural projects.
  - Monitoring supervision at the regional level shall be done by SE/CORAF/WECARD through two social and environmental focal points: EFP/CORAF/WECARD and SFP/CORAF/WECARD;
  - National internal monitoring of the implementation of the major agriculture project shall be done by the EFP and SFP/Extension, respectively (EFP and SFP/MAEP in Benin; EFP and SFP/MA in Guinea; FPE and SFP/MOA in Liberia; EFP and SFP/MAFFS in Sierra Leone; EFP and SFP of ICAT and MA in Togo).
  - National External Monitoring shall be done by the national institutions in charge of ESIS (ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE and DE in Togo).
    Local monitoring will be carried out by the producer organizations and the other decentralized services and departments.
  - Evaluation: this shall be conducted by environmental consultants (national and/or international), mid-term and post-project

b. Summary of the stages of the selection of major agricultural projects

Stages	Responsibilities
1. Filling of the screening and environmental classification form	EFP and SFP/MAEP in Benin; EFP and SFP/MA in Guinea; EFP and SFP/MOA in Liberia; EFP and SFP/MAFFS in Sierra Leone; EFP and SFP/ICAT in Togo, EFP and SFP in MA in Togo
2. Validation of the selection and classification of the project	Institutions in charge of ESIS
3. Implementation of the environmental activity	
3.1. Application of simple mitigation measures	EFP and SFP/MAEP in Benin; EFP and SFP/MA in Guinea; EFP and SFP/MOA in Liberia; EFP and SFP/MAFFS in Sierra Leone ; EFP and SFP/ICAT in Togo, EFP and SFP in MA in Togo

3.2. Conduct of environmental impact studies (ESIS)	Accredited ESIS consultants and Research bureau, under the supervision of institutions in charge of ESIS and in collaboration with the ESFP and SFPs/Extension
4. Consideration and approval	Institutions in charge of the EIES
5. Dissemination	CORAF/WECARD, EFP and SFP/Extension
6. Monitoring	• EFP SFP / Extension • ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE and DE in Togo • EFP and SFP/CORAF/WECARD • Producer Organizations and Consultants

c. Major agricultural projects selection flow chart



7.1.3. Selection for the dissemination of large scale agricultural production

This part of the selection mainly concerns the numerous micro projects of the PO, which, considered individually, will not have any significant impact on the environment, and it will be a waste of time evaluating them one after the other on account of their small and limited nature in terms of areas of influence. The option chosen is that of aspiring to the selecting of a "critical mass" of micro-projects for analysis to appreciate the cumulative effects. The supporting principle (i) identification of micro-projects; (ii) the provision of a manual on best agricultural practices; (iii) monitoring and evaluation on cumulative negative impact based on the indicators.

a. The selection Stages

- ***Step 1: Identification and selection of micro-projects***
  For the micro-projects, (i) identification and selection must be done by the PO themselves (with "technical support of the PO" or "technical officers". As for the EFP and SFP (EFP and SFP/MAEP in Benin; EFP and SFP/MA in Guinea; EFP and SFP/MOA in Liberia; EFP and SFP/MAFFS in Sierra Leone; EFP and SFP/ICAT in Togo, EFP and SFP in MA in Togo**)**, they must oversee the process (particularly in differentiating between mega projects and micro-projects)

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- ***Step 2: Preparation of Handbooks***
  Under the coordination of EFP and SFP (EFP and SFP/MAEP in Benin; EFP and SFP/MA in Guinea; EFP et SFP/MOA au Liberia; EFP and SFP/MAFFS in Sierra Leone; EFP and SFP/ICAT in Togo, EFP and SFP in MA in Togo**)** and under the supervision of the Institutions responsible for the EIAS, an environmentally friendly guide to good agricultural practices will be made available to the PO and the agricultural extension officers.

- ***Step 3: Integration of best agricultural practices*** with respect to the environment ***during the implementation of micro-projects.***
  Under the assistance and coordination of the "technical support of the PO" or "extension agents", POs will be responsible for the integration of best environmental practices in the implementation of micro-projects.
- ***Step 4: Monitoring and evaluation of cumulative effects of micro-project activities***
  This phase comes under the responsibility of "technical support of the POs" or |extension agents" who must ensure close monitoring of cumulative impacts, but under the coordination and supervision of FPGE, who will work closely with their decentralized service agents and the POs. This assessment will determine to what extent the activities of agricultural productive projects will have cumulative impacts and propose comprehensive and specific mitigation methods. A system for verification could be done by national institutions in charge of the ESIA on a sample of projects to monitor the effective implementation of measures.

b. *Summary of Stages in the selection of micro-projects*

Steps	Responsibilities
Step 1: Identification and selection of micro-projects	OP, EFP et SFP/Extension services

Step 2: Development of agricultural practices guide on the environment	Under the coordination of ESFP/A and supervision of the institutions responsible for the EIAS
Step 3: Integration of best agricultural practices on the environment during the implementation of micro-projects	OP EFP et SFP/Extension , Decentralized services
Step 4: Monitoring and evaluation of cumulative effects of micro-project activities	• EFP and SFP/extension • Institutions responsible for the ESIS • PO

7.1.4. Selection for the construction of Centres of Excellence

- **The Selection Stages**

Regarding the preparation and construction of National Centres of Specialization (NCS), the selection process will include the following environmental and social Stages:

Stage 1: Preparation of sub-project (technical files on the implementation of infrastructure)
In each target country, the Project Coordination Unit (PCU) will coordinate the preparation of technical dossiers on National Centres of specialization (identification, recruitment process, design offices, etc). For this activity, the PCU will be assisted by the design officers or private Consultants. At country level, the project is coordinated by: The PCU Benin; Village Communities Support Program (VCSP) in Guinea; Rural and Private Sector Development Project (RPSDP) in Sierra Leone of PKU in Liberia and the MOA Directorate of Planning and Cooperation Agricultural/APRM in Togo.

Stage 2: Filling the form for selection and environmental and social classification
Once the technical documents on implementation have been prepared, consultancies assisting the PCU will undertake the environmental and social screening of the construction / rehabilitation activities of the NCS to determine whether an environmental and social work is required. For this, consulting firms will (i) fill out the environmental and social selection (Appendix 1) and environmental and social monitoring list (Appendix 2) (ii) to analyze the activities and (iii) classify the activities.

The categorization and approval of works shall be done by the PCU with the help of consultancy firms as follows: (i) If no conservation policy has been adopted and if the project is validated (on the other aspects of evaluation), then the preparation and implementation procedures adopted will continue; (ii) If the project starts a World Bank policy, the PCU, in collaboration with the consultancy firms will have to ensure that the procedures adopted are followed (preparation of ESMP, etc.). WAAPP shall make resources available for this purpose.

WAAPP activities that are likely to negatively impact the environment have been put in three categories:

- **Category A**: Projects which are likely to have adverse environmental impacts that are sensitive[2], diverse, or unprecedented.
- **Category B**: Projects which potential adverse environmental impacts on human populations or environmentally important areas are less adverse than those of Category A projects;
- **Category C**: Project without a significant impact on the environment.

Category A projects require significant assessment because the impacts and their solutions are not obvious requiring further environmental impacts assessment, while category B

[2] World Bank, OP 4.01, footnote 10 – A potential impact is considered sensitive if it may be irreversible (e.g. lead to loss of a major natural habitat) or raise issues covered by OP 4.04, OP/BP 4.10, OP/BP 4.11 or OP 4.12.

projects are those with impacts which have appeared in many projects and for which solutions have been found.

It must be emphasized that WAAPP has been classed under category B by the World Bank. Under this report, the result of the selection should result in environmental category B or C. The PCU can only commission the project feasibility documents for implementation of the project when all due diligence is done, both environmental and socially and noted and integrated in the documents.

Stage 3: Performance of the environmental and social activity
After analysis of the information contained in the result of the selection and having determined the good environmental category, and hence the scope of the environmental work required, the research bureaux assisting the PCU shall make a recommendation to say if: (a) an environmental and social activity will not be necessary; (b) application of a simple mitigation measure will suffice; or (c) a specific Social and Environmental Management Plan (ESMP) will have to be designed.

Stage 4: Consideration and approval of the ESIS reports
The environmental and social impact studies reports will be considered and validated at national level by the Environmental Services in charge of ESIS:

Stage 5: Public consultations and dissemination
National legislations on ESIS provide that information and public participation shall be done during conduct of the environmental impact studies, in collaboration with the competent authorities at both national and local levels. The results of the consultations will have to be incorporated into the ESIS report and made accessible to the public.

Stage 6: Inclusion of the environmental and social provisions in the tenders documents and
In case of environmental activity, the research stations supporting the PCU shall see to the inclusion of the recommendations and other environmental and social management measures in the tenders and work profile documents of thee companies.

Stage 7: Environmental and social monitoring
The validated classification forms as well as the ESMPs shall be forwarded, for purposes of information, to the CPU to ensure the coordination of monitoring by the research and control stations.

- Supervision of activities shall be handled by the PCU.
- Internal monitoring of the implementation of works on the NCS shall be handled by the research and control stations.
- External monitoring shall be carried out by the Environmental Services in charge of ESIS.
- The evaluation (mid-term and post-project), shall be carried out by both local and international consultants.
- **Responsibilities for the implementation of NCS Selection**

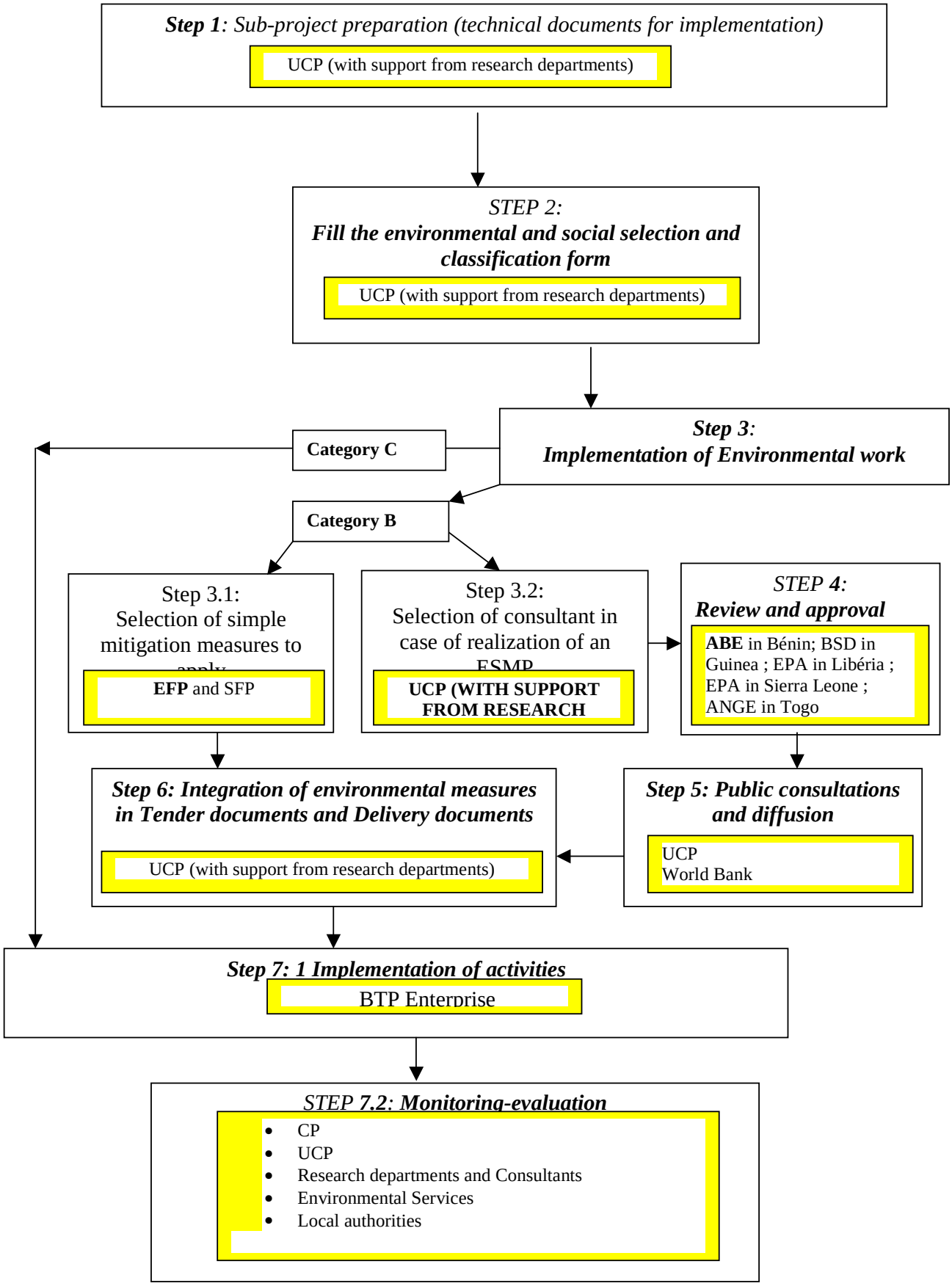
The table below provides a summary of stages and institutional responsibilities for the selection, preparation, evaluation, approval and implementation of sub-projects.

Table 2: Summary of stages of selection and responsibilities for the NCS

Stages	Responsibilities
1. Preparation of sub-projects (technical specifications for infrastructural works)	Project Coordination Unit (with support from research bureaux)

2. Filling of the environmental and social selection and classification form 2.1 Filling of the form 2.2 Classification of the project and Definition of the environmental work	Project Coordination Unit (with support from research bureaux)
3. Execution of environmental task	
3.1 Selection of the Consultant	Project Coordination Unit (with support from research bureaux)
3.2 Setting up of the ESMPs	Consultants on ESIS
4. Consideration and approval of the ESMPs	Environmental Services in charge of ESIS
5. Dissemination	• Ministry of Agriculture • PCU • National Research Institution • World Bank
6. Inclusion of environmental provisions in the Tenders and project execution documents	Research Bureaux supporting the PCU
7. Implementation and monitoring • 7.1. Implementation • 7.2. Monitoring	• Implementation: BTP Ltd. • Coordination and follow up: CP • National monitoring: PCU • Local monitoring: Research bureau and local government authorities • External monitoring: Environmental Services in charge of ESIS

- **NCS Selection Flowchart**



7.2. Recommendations for the environmental management of the WAAPP 1C

The environmental management of the WAAPP 1C must be for at least two reasons: (i) the needs expressed or identified during field mission in the country and (ii) the lack of or challenges faced during the WAAPP 1A evaluation mission in November 2009.

In this report, this authorization must be based on (i) a "vertical" (or national) approach which ensures the consolidation of environmental gains made by ongoing improved agricultural productivity and land management programmes (Emergency programme to support food security in Benin; land use and agricultural rehabilitation project in the Tove mission area of Togo, etc) and (ii) a "horizontal" (or sub-regional) approach which would guarantee coherence, coordination as well as a synergy with a major concern of compliance with national requirements in each country. As part of this exercise, institutional arrangements for coordination and monitoring of the implementation of environmental measures by ESMF of WAAPP 1A show a huge importance which must be clearly defined at the local, national and regional levels.

At this level, all the necessary justifications must be presented for institutional capacity building for CORAF/WECARD, especially in the coordination and environmental monitoring of the WAAPP 1C activities.

The consolidation of gains and lessons learnt from the agricultural sector (research and extension) will require the strengthening of the environmental and social management of the WAAPP 1C. to this end, the ESMF has proposed technical and capacity building measures most of which have been taken by the various national agricultural programmes, in addition to the method of screening projects and subprojects that could be supported by the WAAPP 1C. These measures include (i) a provision for the realization and implementation of possible environmental studies on category "B"» activities, (ii) training in environmental assessment by researchers, EFPs, SFPs and other exports in the agricultural and research sectors ; (iii) sensitization of farmers and farming communities about the environmental risks associated with certain practices and agricultural productivity improvement methods; (iv) preparation of manuals on best agricultural practices that are environmentally friendly; (v) support for the setting up of a database on "Research-Agriculture-Environment" at the national and regional levels; (vi) constant monitoring of the implementation of agricultural programmes (by the EFPs and SFPs of agricultural research departments, as well as environmental services, agricultural services, local communities and farmers associations; (vii) mid-term and final assessment of the WAAPP 1C.

Indeed, this will mean taking the following Stages based an institutional and technical plan as well as through empowerment, coordination and monitoring.

7.2.1. Institutional measures

- ***Organize a sub-regional workshop to update EFPs and SFPs*** for better appropriation of the ESMF and PGPP before the commencement of WAAPP 1C activities. This implementation allows for the creation of a strong link between the back-up documents and the commencement and implementation of project activities.

- ***Establish inter-institutional cooperation agreements*** between the Ministry of Environment in order to facilitate and encourage the active participation of EIES

institutions (ABE in Benin, BSD in Guinea, EPA in Liberia; EPA in Sierra Leone; ANGE and DE in Togo), , in the verification and validation of environmental work of other EFPs and SFPs, the supervision of additional EIES procedures and in environmental monitoring;

- ***Assist coordination units in the integration of tools and recommendation of back-up documents on the various project manuals (***procurement, execution and monitoring-evaluation manuals) ***and in budget preparation.*** This exercise is essential in that it will enable the coordination teams of countries at the extension phase of the WAAPP to receive support from environmental experts (preferably those who prepared the back-up documents) in the design and finalization of the various project manuals in such a way as to ensure that environmental and social issues are well catered for).

- ***Strengthening coordination between the national steering committees of the WAAPP 1C***
  This includes holding national steering committee meetings, in all countries, in order to make them more dynamic and responsive to environmental and social issues of the WAAPP 1C, especially by playing their role as the framework for concerted action, interaction, exchange and coordination of the back-up implementation documents of the environmental programmes (ESMF and PGPP). These meetings will enable the committees specify the charter that spells out the duties and responsibilities of the various members on the monitoring of environmental issues, but also strengthen the synergies of activities to prevent duplication.

- ***Organize feedback and sharing of the ESMF***
  The national steering committees of the WAAPP 1C must, as a matter of priority, encourage discussions on the social and environmental aspects of the WAAPP 1C, especially in their programmes of action. To this end, the committees will have to ensure better reporting and wider dissemination of the ESMF and share them among institutions of research, training and agricultural extension, as this will ensure a common understanding and extend to other proposed methods and applications and tools, and consistent understanding of responsibilities including institutional arrangement regarding implementation. Under this report, the process of acquiring ESMF must be consolidated by developing consultation with the centralized structures, with a clear definition of each party's role in the implementation and monitoring of the ESMF.

- ***Designate an Environment Focal point (EFP) and a social focal point (SFP) at the level of SE/ CORAF/WECARD***
  It is at this level where all the necessary justifications for CORAF/WECARD's institutional capacity building, especially in the area of coordination of environmental and social management as well as the social and environmental monitoring of WAAPP 1C activities. SE/CORAF/WECARD has (i) an Export who coordinates the Natural Resources Management programme and will ensure the « environmental function » within the institution or the environmental focal point (EFP/CORAF/WECARD). These experts however need capacity building in social and environmental evaluation and monitoring of projects.

  <u>Role of the Environmental Focal point of CORAF/WECARD</u>

The appointment of CORAF/WECARD's Environmental Focal Point has come as a response to the concerns raised about equipping the institution with mechanisms that ensure more effective environmental coordination and exchange at the regional level. The EFP/CORAF/WECARD will monitor some strategic regional indicators mentioned below.

- ***Appoint Environmental and Social Focal Points (EFP and SFP) in the various countries***

  This will mean that the appointment of EFPs and SFPs within National Agricultural research systems must be formalised in the various countries. For instance, EFP and SFP/R (EFP and SFP at INRAB in Benin, EFP and SFP at IRAG in Guinea; EFP and SFP at CARI in Liberia; EFP and SFP at SLARI in Sierra Leone; and EFP and SFP at ITRA in Togo) and technical agricultural services or EFP and SFP/V (EFP and SFP at APRM in Benin, EFP and SFP at A in Guinea, EFP and SFP at MOA in Liberia, EFP and SFP, EFP and SFP at MAFFS in Sierra Leone; EFP and SFP at ICAT and at MA for Togo) and especially empower them in the coordination and supervision of social and environment actions of research and agricultural extension programmes. In this regard, it will be important to enact a ministerial decree by the official appointment of the EFP and SFP for Agriculture (EFP and SFP/A)of the Ministry of Agriculture (EFP and SFP at the APRM in Benin; EFP and SFP at A in Guinea; EFP and SFP at MOA in Liberia; EFP and SFP at MAFFS in Sierra Leone ; EFP and SFP at ICAT and at MA for Togo), and define their roles under the WAAPP 1C. This means therefore, that it will take an official memorandum to officially appoint other EFPs and SFPs for the national research Centres or Funds for agricultural research (EFP and SFP at (EFP and SFP at INRAB in Benin; EFP and SFP at IRAG in Guinea; EFP and SFP at CARI in Liberia; EFP and SFP at SLARI in Sierra Leone; and EFP and SFP at ITRA in Togo), as agricultural advisory and rural development support services. These EFPs and SFPs will be taken through refresher courses during the workshop to launch the WAAPP 1C so that they can work as environmental and social experts during the implementation of activities under the WAAPP 1C.

  <u>Role of the EFPs and SFP/Research and EFPs and SFPs/Extension</u>

  The EFPs and SFPs (EFP and SFP at INRAB in Benin; EFP and SFP at IRAG in Guinea; EFP and SFP at CARI in Liberia; EFP and SFP at SLARI in Sierra Leone; and EFP and SFP at ITRA in Togo; EFP and SFP at APRM in Benin; EFP and SFP at A in Guinea; EFP and SFP at MOA in Liberia; EFP and SFP at MAFFS in Sierra Leone ; EFP and SFP at ICAT and MA for Togo) shall represent their respective institutions in coordinating: (i) the implementation of ESMF; (ii) monitoring of social and environmental activities of the WAAPP 1C and implementation of corrective measures if necessary. These experts will receive constant support and assistance from national environment services in the conduct of the following activities:

  - Filling of social and environmental selection forms (Appendix 1, 2, 3); choice of proposed mitigating measures on the environmental and social control list(Appendix 4);
  - Recruitment of qualified consultant to operate the EIE if necessary;
  - Carry out social and environmental monitoring the WAAPP activities; and
  - Coordinate training and social/environmental activities.

<u>Profile of the EFPs and SFP/Research and ESFP and SFP/Extension</u>

Clear terms of reference for the selection of environmental and social focal points must be drawn up and sent to the countries involved. The principles are as follows:

- There are 2 focal points (1 environmental focal point, 1 social focal point);
- Only persons who are competent, qualified and experienced in this area must be considered.
- These peoples must be appointed by decree and must be from research institutions if such institutions have the qualified human resource, but they can also come from ministries in charge of environment, social affairs etc. selected persons will work in accordance with the principle of partnership with all stakeholders.

The EFPs must have a profile based on an environmental issue (agronomy, water supply etc) while the SFP must be social science related (sociologist, socio-economists, economists, etc). The existing EFPs and SFPs must be confirmed and consolidated.

7.2.2. Technical reinforcement measures

Technical reinforcement measures involve (i) designing manuals for good and environmentally sound agricultural practices; (ii) the provision for carrying out and implementing a possible Environmental and Social Impact Assessment; (iii) harmonizing and establishing a "Research-Agriculture-Environment-Social" database; (iv) monitoring and evaluating the implementation of WAAPP 1C environmental and social measures.

- ***Preparation and dissemination of Manuals for Good Agricultural Practices in each country***
  WAAPP 1C will also support the rural development sector to develop procedures for good agricultural practices to manage the implementation of the activities (environmentally sound farming techniques, pesticide and fertilizer use, etc.); This will include gathering and summarizing existing good practices in every country. At regional level, CORAF/WECARD will help contribute to an overall compilation of all national good practices and their dissemination at country level.

- ***Provision for the execution and the implementation of a possible ESIA/ESMP***
  An ESIA could be required for some WAAPP 1C activities classified under category "B", to ensure their social and environmental sustainability. In case the environmental classification of the activities indicates that an ESIA is required, WAAPP 1C will have to make provision for hiring consultants to carry out this assessment. The assessment could involve measures incurring costs that need to be budgeted for now by WAAPP 1C so as to be implemented at the appropriate time. This will also require making budgetary provisions to cater for the implementation of such measures.

- ***Setting up a harmonised "Research-Agriculture-Environment-Social" database***
  WAAPP 1C will help set up an environmental and social database in the agricultural research and rural development sector on the whole in order to better apprehend the environmental and social challenges and constraints during the implementation of its agricultural activities. This database will help establish a repository for a better assessment of the impacts and the efforts made in managing rural development. The "Research-Agricultural-Environment-Social" database will be integrated into the aggregate database provided for under WAAPP 1C.

- ***Environmental and Social Monitoring and Evaluation of WAAPP 1C activities***
  The environmental and social monitoring programme will involve a permanent community monitoring (internal and external), an oversight, a mid-term and an annual

evaluation. Likewise, research structures, rural development Technical Services, Advisory Officers, FOs and local communities shall be involved in the community monitoring. Besides, the project shall make provision for a mid-term and a final evaluation.

7.2.3. Training of actors involved in WAAPP 1C

a. Training strategy

The aim is to continue and reinforce the training dynamics for all actors involved in the environmental and social management of projects (training of trainers, Research Scientists, officers of environment and agriculture ministries, Advisory Officers, Farmer Organisations, etc.) by achieving a critical mass of national environmental and social management trainers who will be able to increase the outcomes of field actors, and especially those of Farmer Organisations.

The training will focus on EFPs and SFPs (EFPs and SFPs at INRAB in Benin; EFPs and SFPs at IRAG in Guinea; EFPs and SFPs at CARI in CARI in Liberia, EFPs and SFPs at SLARI in Sierra Leone; and EFPs and SFPs at ITRA in Togo; EFPs and SFPs at MAEP in Benin; EFPs and SFPs at A in Guinea; EFPs and SFPs at MOA in Liberia; EFPs and SFPs at MAFFS in Sierra Leone; EFPs and SFPs at ICAT and MA in Togo) as well as officials of national and decentralised technical services, Advisory Officers and Farmer Organisations involved in the implementation of WAAPP 1C. These actors have the responsibility to ensure the integration of the environmental and social aspect of the implementation of sub-projects. As far as each of them is concerned, they will ensure environmental and social monitoring of the implementation of the projects. The training is aimed at building their competencies in environmental and social evaluation and in environmental and social monitoring to enable them to more effectively play their respective roles during the implementation of the projects.

This will involve organising (i) a sub-regional workshop bringing together EFPs and SFPs from various countries to upgrade the project's backup documents (ESMF and PPMP); (ii) national workshops in each of the countries in order to continue the dynamics of sharing and disseminating backup documents, which will also help national structures involved in the project to be immersed in the ESMF provisions, the environmental selection procedures and the responsibilities during the implementation. Issues to be shared will also be centred on: (i) environmental and social challenges linked with agricultural activities and environmental evaluation procedures; (ii) the hygiene and safety of WAAPP 1C activities and (iii) appropriate environmental regulations. The training will also help actors to be acquainted with the national regulations with regard to the environmental evaluation, the directives of the World Bank, the environmental and social evaluation and environmental and social monitoring procedures.

Qualifies trainers will be recruited by WAAPP 1C National Coordinating Units, who can also resort to the help of National Institutions responsible for the ESIA during the conduct of these trainings and if necessary, the support of national/international environmental and social evaluation consultants.

b. Training modules

Environmental and Social Impact Assessment

Learning objectives:

- Thorough knowledge of national environmental laws and regulations
- Thorough knowledge of procedures for organising and conducting an ESIA;
- Capability to develop the Terms of Reference for an environmental and social evaluation
- Good assessment of the ESIA development methodology;
- Objective assessment of the content of ESIA reports;
- Knowledge of the World Bank's environmental and social procedures;
- World Bank Safeguard Policies
- Environmental, Health and Safety Guidelines Using ESIA reports to conduct a baseline assessment and to assess the outcomes and the impacts of WAAPP 1C activities;
- Knowledge of the procedure for monitoring the implementation of the EIA ;
- Gender mainstreaming during rural development activities;
- General Social and Environmental Education;

Environmental and social monitoring training

Learning objectives:

- Check the introduction of environmental clauses into the contracts of the contractor responsible for the works and check compliance with such clauses;
- Ensure compliance with and the implementation of environmental laws and regulations;
- Recommend appropriate measures for impacts mitigation;
- Take stock of the overall monitoring of the recommendations of the impact assessment;
- Ensure the effectiveness of the implementation of the measures to create public awareness on environmental protection management;
- Ensure the effectiveness of gender mainstreaming.

Pesticide management training modules

Learning objectives:

- Information on risk; health and safety advice
- Basic knowledge about risk handling and managing procedures;
- Carrying of protection and safety equipments;
- Pesticide transportation risks;
- Handling, loading and offloading procedures;
- Storage of pesticide in farming areas;
- Packaging and used pesticide management;
- Pesticide management in case of accidental spillage;
- Protection equipments
- Outline of treatment and operation procedures
- Health and safety in connection with the operations;
- Emergency response in case of poisoning by plant protecting plants
- Technical procedures;
- Maintenance of equipments;
- Emission control;
- Process and residue monitoring

Natural Resources and Environmental Management (NREM)

Learning objectives:

- Thorough knowledge of NREM objectives for sustainable development;
- Increased knowledge of the principles, the techniques and the tools for sustainable conservation of natural resources;
- Developing indicators for the monitoring/evaluation of NREM activities.

7.2.4. Awareness and mobilisation programmes

The objective is to create awareness among Research Scientists and other actors and train them on these environmental issues in order to ensure performance pending the expected outcomes and the sustainability of the process. EFPs and SFPs (Research; Agriculture) will coordinate the implementation of campaigns to inform and sensitise all actors involved in the project (Decision makers, Research Scientists, Rural Development Technical Services, Farm Advisory Services, local communities and FOs beneficiaries of agricultural activities) on the nature of the activities to be carried out and the environmental and social challenges involved in their implementation. During the process, NGOs and other local environmental associations and FOs will be involved at the forefront. NGOs active in agricultural research with proven environmental expertise would be selected to provide such services.

Table 3 Information and awareness

Actors concerned	Themes	Modalities
• Decision makers • Research Scientists • Members of Farm Advisory Services • Association of Local Farmer Organisations (FOs, NGOs, etc.)	• Information and awareness campaign on environmental and social challenges • Awareness about good agricultural practices • Awareness about safety health and hygiene during the execution of agricultural activities	One annual campaign per year throughout the five (5) years of WAAPP 1C

7.3. Environmental and social monitoring programme

Monitoring and evaluation are complementary. Monitoring aims to correct, in “real time”, response and infrastructure operation methods through a continued supervision. As for evaluation, it aims to (i) check whether the objectives have been met and (ii) to draw lessons in terms of operations in order to amend future response strategies.

7.3.1. Background and objective of environmental and social monitoring-evaluation

Though some environmental and social phenomena linked with the generic impacts of WAAPP 1C project activities are known, it should be noted that there is still a kind of uncertainty looming over the preciseness of other impacts, notably diffuse and residual impacts, both at research level and during the experimentation and dissemination phase. Hence, there is the need to develop an environmental surveillance and monitoring programme.

During field research, environmental monitoring will help cross-check the accuracy of the evaluation of some impacts and the effectiveness of some planned corrective or mitigation

measures which are still raising uncertainty. The knowledge acquired from the environmental monitoring will help correct mitigation measures, and possibly, to revise some environmental protection standards. The environmental monitoring will concern the entire WAAPP 1C project and shall be applied to all phases of activities to be carried out or supported.

7.3.2. Outline for WAAPP 1C Environmental Monitoring Programme

Monitoring during the construction or rehabilitation phase of the National Specialisation Centres (NSC)

During the construction/rehabilitation of NSC Centres, regulations in force, especially environmental regulations shall be complied with. Research Rooms to be built shall follow a selection procedure and their construction shall be subject to a community monitoring in order to avoid pollution and nuisance generated by site activities (noise, site waste, accidents, water supply, building materials and other inputs, etc.).

Monitoring during the implementation phase of agricultural research activities

During agricultural research activities, regulations in force, especially environmental regulations shall be complied with. Research projects shall follow the screening procedure and their experimentation shall be carried out according to a quality management plan embodying compliance with the environmental and social constraints corresponding to the measures set forth in the Environmental and Social Management Framework Plan.

Monitoring during the dissemination phase of agricultural research- derived technologies

During agricultural technologies dissemination phase, monitoring will focus on essential components described in the outline above, notably the state of water resources, hydrometry and water quality; soil chemical fertility; pedology and soil degradation; soil physical property; soil behaviour and utilisation; animal and plant development, starting from biodiversity, ecology and natural environment protection; environmental planning typology; techniques and agricultural technical performance techniques development; grazing systems; livestock breeding and health; hygiene and health; (waterborne diseases, poisoning, pollution, nuisance, etc.).

7.3.3. Monitoring indicators and responsibilities

Indicators are parameters used to provide quantitative or qualitative information on WAAPP 1C environmental and social impacts and benefits. At the level of each country targeted by WAAPP 1C, the indicators and technical components below have been proposed to be followed by ESFPs operating in the research and rural development sector as well as Environmental Agencies, local communities and farmers. The table below gives an account of indicators and responsibilities of the monitoring and surveillance programme that will be implemented under WAAPP 1C. In order to evaluate the efficiency of WAAPP 1C activities, the following environmental and social monitoring indicators have been proposed:

Strategic indicators to be followed by EFPs and SFPs/CORAF/WECARD

Strategic indicators to be followed by *EFPs and SFPs/CORAF/WECARD* are as follows:

- Effectiveness of the nomination of national EFPs and SFPs in various countries
- Effectiveness of the selection for all projects

- Level of integration of environmental criteria into research and dissemination/adoption topics
- Number of actors trained in environmental evaluation of agricultural activities
- Existence of a Manual of Good Agricultural Practices
- Number of technologies that have been subject to ESIA with the Environmental and Social Management Plan (ESMP) that has been implemented
- "Research-Agriculture-Environment" database set up and harmonised.

These indicators will be regularly monitored during the roll out and progress of the sub-projects and will be incorporated into CORAF/WECARD monitoring system (WAAPP 1C Project Monitoring Manual).

At the level of every target country, the indicators below have been proposed to be followed as follows:

Monitoring indicators for NSC construction works:

- Effectiveness of environmental and social clauses contained in the job specifications ;
- Efficiency of on-site waste disposal systems;
- Number of employments created and restored by Building and Civil Engineering companies;
- Number of accidents caused by the works.

Note: These indicators will be monitored by the Control Offices mandated to assist the PCUs.

Monitoring indicators for agricultural research activities:

- Effectiveness of environmental integration into research topics;
- Effectiveness of environmental and social selection of research activities;
- Possible conduct of ESIA and implementation of ESMPs;
- Number of environmental sound techniques/technologies;
- Existence of a Manual for Good Agricultural Research Practices;
- Level of implementation of environmental and social mitigation measures
- Number of training/awareness sessions organised for Research Scientists;
- Effectiveness of environmental and social monitoring and reporting of research activities;

Note: These indicators will be followed by the ESFPs of agricultural research institutions

Monitoring indicators for agricultural extension activities:

- Effectiveness of environmental and social selection of agricultural activities;
- Possible conduct of ESIA and implementation of ESMPs for agricultural activities;
- Level of compliance with hygienic, health and safety measures;
- Level of implementation of environmental and social mitigation measures;
- Number of training sessions organised for Agriculture Officers;
- Number of awareness sessions organised for farmers;
- Existence of a Manual for Good Agricultural Extension Practices;
- Efficiency of the environmental and social monitoring and reporting of extension activities;

Note: These indicators will be followed by EFPs and SFPs of agricultural extension institutions;

Indicators to be followed by government institutions responsible for environmental and social issues:

- Validation of the environmental and social selection of WAAPP 1C activities;
- Review and approval of ESMPs
- External monitoring of the implementation of ESMPs

Public institutions in charge of environmental issues (ABE in Benin, BSD in Guinea, EPA in Liberia, EPA in Sierra Leone, ANGE and DE in Togo) are responsible for the external monitoring of the implementation of the ESMF by checking the validity of projects environmental classification during selection, development, validation and possible dissemination of ESIA if necessary, and the monitoring of the implementation of ESMPs derived from the ESIA.

These monitoring activities fall within the prerogatives of these institutions. However, even though they are willing to carry out the activities, these institutions still lack the means for monitoring. Also, WAAPP 1C shall support them as part of this monitoring.

Note:
The monitoring of environmental and social measures proposed below forms an essential part of the monitoring and evaluation system of the project.

Indicators to be followed by other public institutions during the extension phase
During the dissemination phase of agricultural technologies, monitoring will concern the main environmental components that could be affected by agricultural activities (water, soil, vegetation and fauna, living environment, health, etc.). At this level, the monitoring will be carried out by government structures responsible for managing these components (Forest Services, Hydraulic and Health Services, etc.) as part their prerogatives as stated in table 4 below.

Table 4 Environmental and Social Monitoring during the extension phase

Table 4 below serves a basis for correct and accurate selection and formulation of appropriate indicators to be followed by external structures according to project activities, expected results, countries' peculiarities and available resources.

Components	Monitoring element	Types of indicators and elements to be collected	Frequency	Responsible institution
Water	**State of water resources Hydrometry and water quality**	• Rate of presence of physical, chemical and bacteriological parameters in waters (pH, DBO, DCO heavy metals, germs, pesticides, nitrates, …) • Pollution level • Eutrophication level • Sedimentation level • Hydrological regime • Piezometric level	Monthly	Hydraulic services
Soil	**Physical and chemical fertility**	• Erosion/gullying • Pollution/degradation	Annual	Agricultural services

	Pedology and soil degradation	• % of developed areas • % of abandoned areas	Monthly	Agricultural services
	Physical property	• Texture ; Structure ; Porosity; water retention capacity	Annual	Agricultural services
	Soil behaviour and utilisation	• Sensitivity to wind and water erosion (affected areas) • Degradation rate (salinisation, alkalinisation, erosion …) • Crop type	Annual	Agricultural services
Vegetation Fauna	**Animal and plant development, starting from biodiversity, ecology and natural environment protection**	• Degradation rate • Reafforestation rate • Development of various types of vegetation (including aquatic vegetation) • Quantity of biomass produced • Soil coverage rate • % of the reforestation area set aside for deferred grazing • Deforestation rate • Number (% surface area) of endangered biotope • Number of wildlife species (rare, endemic, endangered, etc.)	Monthly	Forest services
Production Systems	**techniques and agricultural technical performance techniques development**	• Cultivated areas and production • Number of sustainable cultivation practices and production techniques • Agricultural products processing rate • Volume of input consumed (pesticides, herbicides, fertilizers) • Rate of adoption of integrated control methods • Rate of consumption of organic manure • Organic farming surface areas • Waste from processing activities management level (liquid, solid)	Monthly	Agricultural services
	Livestock breeding and health	• Livestock monitoring level • State of pastoral resources • Prevalence level of waterborne diseases	Half-yearly	Livestock Services
Human Environment	**Hygiene and health Pollution, Nuisance Safety**	• Level of compliance with hygienic measures • Waste management quality • Presence of carriers and appearance of water-related diseases • Efficiency of waterborne diseases control measures • Prevalence of STI/HIV/AIDS • Frequency of epidemiological monitoring • Level of compliance with the carrying of adequate protection equipments • Presence of disease carriers • Prevalence rate of water-related diseases (malaria, bilharziasis, diarrhoeas, schistosomiasis, etc.), • Number of poisoning cases due to the use of pesticides • Availability of safety instructions in case of accident	Monthly	Health Services

7.4. Institutional arrangements and ESMF implementation strategy

7.4.1. Institutional arrangements

Institutions mainly involved in WAAPP 1C activities are: CORAF/WECARD Executive Secretariat; Ministries responsible for rural development (Agriculture/Livestock); national agricultural productivity enhancement programmes; environmental agencies responsible for ESIA (ABE in Benin, BSD in Guinea, EPA in Liberia, EPA in Sierra Leone, ANGE and DE in Togo), national agricultural research institutions, universities and other research structures; Farmer Organisations; institutions providing extension in rural areas (agricultural and rural advisory systems); local communities. This paragraph describes the roles and responsibilities concerning the implementation of environmental measures set forth for WAAPP.

a. Regional level

- ***CORAF/WECARD/ ES***
  At regional level, WAAPP 1C coordination and regional supervision will be carried out by ***CORAF/WECARD/ ES.*** To this effect, ***CORAF/WECARD/ ES*** will formalise the nomination of its Expert in charge of the Natural Resources Management Programme as Environmental Focal Point (EFP and SFP/CORAF). CORAF/WECARD/ ES, through the project, shall build the capacity of the ESFPs of technical institutions involved in the implementation of the project.

b. National level

At national level, the supervision and the coordination will be carried out by Coordination Units, Authorised Research Institutions as well as National Agriculture Services which will also nominate Environmental and Social Focal Points (EFPs and S/RFP; EFP and S/EFP).

- ***National agricultural research institutions***
  In every country, an Environmental/Research Focal Point (E/RFP) and a Social/Research Focal Point (S/RFP) will be nominated among Research Scientists to ensure the coordination of social aspects of the components and to serve as interface with the Project Coordination Unit, WAAPP 1C National Steering Committee and CORAF/WECARD/ ES. WAAPP 1C will provide environmental training for these EFPs and S/RFP. These EFPs and SFPs will also ensure the integration of environmental aspects into research applications, participate in the research projects selection as well as in the information and the dissemination of ESMF at the level of research institutions (EFP and SFP at INRAB in Benin; EFP and SFP at IRAG in Guinea; EFP and SFP at CARI in Liberia; EFP and SFP at SLARI in Sierra Leone and EFP and SFP at ITRA in Togo.

- ***Ministries responsible for agriculture***
  In every country, an Environmental/Extension Focal Point (E/EFP) and a Social/Extension Focal Point (S/EFP) will be nominated within the institutions responsible for matters relating to agriculture (MAEP in Benin, MA in Guinea, MOA in Liberia, MAFFS in Sierra Leone, MA and ICAT in Togo) to ensure the coordination of social aspects during the dissemination of research-derived agricultural technologies. EFPs and S/EFP will determine appropriate environmental categories for the projects and choose mitigation measures in case of technology dissemination. They will participate in the information and ESMF dissemination and serve as interface with

WAAPP 1C Coordination Unit and CORAF/WECARD/ ES. WAAPP 1C will provide environmental training for these EFPs and S/EFP

- ***National institutions responsible for environmental and social assessment (***ABE in Benin; BSD in Guinea; EPA in Liberia; EPA in Sierra Leone; ANGE and DE in Togo***)***

  They will also revue and approve the environmental classification of the projects (selection) and approve impact assessments. They will carry out external monitoring of the implementation of WAAPP 1C environmental measures at national level.

Table 5 Summary of the institutional machinery and the responsibility charter

N°	Countries	Institutions	Responsibilities
Regional level			
1	CORAF/WECARD/ES	EFPs and SFPs	• Coordination and regional supervision of WAAPP 1C • Building the capacity of EFPs and SFPs
National level			
2	Benin	Control Offices for NSC construction works	• Checking the effectiveness of environmental and social clauses contained in the job specifications; • Checking the implementation of environmental and social clauses; • Checking on-site waste disposal systems; • Checking the creation and the restoration of employments by Building and Civil Engineering Companies; • Monitoring accidents caused by the works; • Supporting the PCU to select clients for the components of project;
		EFPs and SFPs /INRAB	• Coordinating social aspects of the components and serving as interface with the Project Management Unit; • Selection of research projects • Environmental and social monitoring
		EFPs and SFPs / MAEP	• Coordinating social aspects during the dissemination of agricultural technologies • Determining appropriate environmental categories for the projects and choosing mitigation measures in case of technology dissemination; • Environmental and social monitoring
		ABE	• Approving the environmental and social classification of the projects; • Approving impact assessments and carrying out an external monitoring;
3	Guinea	Control Offices for NSC construction works	• Checking the effectiveness of environmental and social clauses contained in the job specifications; • Checking the implementation of environmental and social clauses; • Checking on-site waste disposal systems; • Checking the creation and the restoration of employments by Building and Civil Engineering Companies; • Monitoring accidents caused by the works.
		EFPs and SFPs /IRAG	• Coordinating social aspects of the components and serve as interface with the Steering Committee; • Selecting research projects • Conducting environmental and social monitoring

		EFPs and SFPs / MA	• Coordinating social aspects during the dissemination of agricultural technologies • Determining appropriate environmental categories for the projects and choosing mitigation measures in case of technology dissemination • Conducting environmental and social monitoring
		BSD/DGE	• Approving the environmental and social classification of the projects • Approving impact assessments and carrying out and external monitoring
4	Liberia	Control Offices for NSC construction works	• Checking the effectiveness of environmental and social clauses contained in the job specifications; • Checking the implementation of environmental and social clauses ; • Checking on-site waste disposal systems; • Checking the creation and the restoration of employments by Building and Civil Engineering Companies; • Monitoring accidents caused by the works.
		EFPs and SFPs /CARI	• Coordinating social aspects of the components and serve as interface with the Steering Committee • Selection of research projects • Conducting environmental and social monitoring
		EFPs and SFPs /MOA	• Coordinating social aspects during the dissemination of agricultural technologies • Determining appropriate environmental categories for the projects and choosing mitigation measures in case of technology dissemination • Conducting environmental and social monitoring
		EPA	• Approving the environmental and social classification of the projects • Approving impact assessments and carrying out an external monitoring
5	Sierra Leone	Control Offices for NSC construction works	• Checking the effectiveness of the environmental and social clauses contained in the job specifications; • Checking the implementation of environmental and social clauses ; • Checking on-site waste disposal systems ; • Checking the creation and the restoration of employments by Building and Civil Engineering Companies; • Monitoring accidents caused by the works.
		EFPs and SFPs / SLARI	• Coordinating social aspects of the components and serving as interface with the Steering Committee • Selecting research projects • Conducting environmental and social monitoring
		EFPs and SFPs / MAFFS	• Coordinating social aspects during the dissemination of agricultural technologies • Determining appropriate environmental categories for the projects and choosing mitigation measures in case of technology dissemination • Conducting environmental and social monitoring
		EPA	• Approving the environmental and social classification of the projects • Approving impact assessments and carrying out an external monitoring

6	Togo	Control Offices for NSC construction works	• Checking the effectiveness of the environmental and social clauses contained in the job specifications; • Checking the implementation of environmental and social clauses ; • Checking on-site waste disposal systems ; • Checking the creation and the restoration of employments by Building and Civil Engineering Companies; • Monitoring accidents caused by the works.
		EFPs and SFPs /ICAT	• Coordinating social aspects during the dissemination of agricultural technologies • Determining appropriate environmental categories for the projects and choosing mitigation measures in case of technology dissemination • Conducting environmental and social monitoring
		ITRA	• Coordinating social aspects of the components and serving as interface with the Steering Committee • Selecting research projects • Conducting environmental and social monitoring
		ANGE and DE	• Approving the environmental and social classification of the projects • Approving impact assessments and carrying out an external monitoring

7.5. Timeline for the implementation of the measures

The timeline for the implementation and the monitoring of WAAPP 1C environmental and social activities is as follows:

Table 6 Timeline for the implementation of the measures

Measures	Proposed actions	Year 1	Year 2	Year 3	Year 4	Year 5
Institutional measures	Nomination of Environmental and Social Focal Points	▬				
	Sub-regional performance improvement workshop	▬				
	National ESMF sharing and dissemination workshops	▬				
Screening and mitigation measures	Project screening	▬	▬	▬	▬	
	See checklists of mitigation measures per sub-project	▬	▬	▬	▬	▬
Technical measures	Development and implementation of possible ESIA/ESMP for some WAAPP 1C activities		▬	▬	▬	
	Good Agricultural Practices Manual			▬	▬	
	"Research-Agriculture-Environment" database			▬	▬	
Training		▬	▬			

	Training of EFPs and SFPs in project environmental and social management						
Awareness	Sensitisation and mobilisation of actors (scientists, local communities and farmers)						
Monitoring measures	WAAPP 1C environmental and social monitoring; environmental and social surveillance	Community monitoring					
		Supervision					
	Evaluation	final					

7.6. Cost of environmental and social measures to be planned under WAAPP 1C

The mode of financing WAAPP 1C environmental and social measures includes:

- Organising a regional workshop for the exchange and the sharing of the ESMF
- Organising national workshops for the sharing and dissemination of the ESMF
- Designing a Manual for Good Agricultural Practices;
- Making provision for developing and implementing of possible ESIA/ESMP
- Harmonising and setting up an environmental and social database;
- Environmental and social performance improvement for EFPs and SFPs, and training of actors;
- Sensitisation and mobilisation of actors (Research Scientists, farmers);
- Coordination and supervision of EFPs and SFPs/CORAF/WECARD.

Table 7

Activities		Quantity	Cost per unit (FCFA)	Total cost (FCFA)
Cost of institutional, technical and monitoring measures				**315, 000, 000**
Organising a regional workshop for the exchange and sharing of ESMF		1	40,000,000	40,000,000
Organising national validation and dissemination workshops		5	5,000,000	25, 000, 000
Development and implementation of ESIA/ESMP (possibly)		30	2,500,000	75, 000, 000
Designing manuals for good agricultural practices		5	10,000,000	50, 000, 000
Setting up an environmental and social database		1	10,000,000	10, 000 ,000
Regional monitoring (CORAF/WECARD) of the implementation of the WAAPP 1C ESMF		-	-	10,000,000
Permanent (national) monitoring of the implementation of the WAAPP 1C ESMF		-	-	75,000,000
Mid-term and final evaluation of the implementation of the ESMF		2	15,000,000	30,000,000
Total 1				
Cost of training measures				**60,000,000**
• WAAPP 1C Environmental Focal Point • Technical Services • FOs	• Training in environmental and social management (selection and classification of activities; impact identification; choice of mitigation measures and indicators) • National environmental laws and procedures • Monitoring of environmental measures • Monitoring of hygiene and safety standards • World Bank backup policy	5 (1 session per country)	15, 000,000	75,000,000
Cost of awareness measures				**37,500,000**
• Decision makers • Scientists • Local Associations (FOs, NGOs, etc.)	• Information and sensitisation campaigns on the nature of the works, local actors' involvement, environmental and social challenges • Sensitisation on safety and hygiene during the works	25	1,500,000	37, 500,000
TOTAL				**412,500,000**
Total cost for environmental and social measures: 412,500,000 FCFA NOTE : All these costs shall be included in the cost of the WAAPP 1C				

Table 8 Cost allocation per country (measures)

Activities	Total cost (FCFA)	CORAF/ES	Benin	Guinea	Liberia	Sierra Leone	Tog
Cost of institutional, technical and monitoring measures	**315, 000, 000**	**90,000,000**	**45,000,000**	**45,000,000**	**45,000,000**	**45,000,000**	**45,000,(**
Organisation of a regional workshop for the exchange and sharing of ESMF	40,000,000	40,000,000	-	-	-	-	-
Organisation of national validation and dissemination workshops	25,000,000	-	5,000,000	5,000,000	5,000,000	5,000,000	5,000,0
Conduct and implementation of ESIA/ESMP (possibly)	75,000,000	-	15,000,000	15,000,000	15,000,000	15,000,000	15,000,
Designing manuals for good agricultural practices	50,000,000	-	10,000,000	10,000,000	10,000,000	10,000,000	10,000,
Setting up an environmental and social database	10,000,000	10,000,000	-	-	-	-	-
Regional monitoring (CORAF/WECARD) of the implementation of the WAAPP 1C ESMF	10,000,000	10,000,000	-	-	-	-	-
Permanent (national) monitoring of the implementation of the WAAPP 1C ESMF	75,000,000	-	15,000,000	15,000,000	15,000,000	15,000,000	15,000,
Mid-term and final evaluation of the implementation of the ESMF	30,000,000	30,000,000	-	-	-	-	-
Cost of training measures	**75,000,000**						
	75,000,000	-	**15,000,000**	**15,000,000**	**15,000,000**	**15,000,000**	**15,000,**
Cost of awareness measures	**37, 500,000**						
	37,500,000	-	**7, 500,000**	**7,500,000**	**7,500,000**	**7,500,000**	**7,500,0**
TOTAL	**412,500,000**	**90,000,000**	**67,500,000**	**67,500,000**	**67,500,000**	**67,500,000**	**67,500,**

APPENDICES

Appendix 1: Agricultural Research Project Environmental and Social Selection Form

Countries shall adopt the following selection form.

This selection form has been designed to help during the initial selection of projects requiring research. The form has been designed to provide National Research Institutions with information in order that the environmental and social impacts and related mitigation measures, if any, may be identified and/or the requirements for further environmental review may be determined. In case any question on the selection form is answered "Yes" or "No" apparently without any justification, the project application must adequately explain and demonstrate that the topic has been apprehended to avoid unacceptable adverse effects/impacts.

Research Project Environmental And Social Selection Form
• Name of the structure (or person) that has formulated the project • Position - Date - Signature

Part A: Brief description of the research project

Research project drafting plan

• General information on the project (2 pages)
• Objectives
• Background – Rationale
• Expected results
• Beneficiaries
• Research methodology and plan
• Articulation and coherence with national priorities
• ***Environmental and social evaluation of the project***
  o Summarize major positive and negative environmental and social impacts
  o Summarize planned environmental and social management measures (in the form of an additional research or as part of the research project), capacity needs, institutional responsibilities and related costs.
• Technical implementation plan
• Logical framework (including environmental and social indicators)
• Composition of the team
• Budget
• Budget explanatory note
• Compensation for various participants
• References

Part B: Brief evaluation of negative impacts

Would the research project:

- Affect protected areas (parks, reserves, reserved forests, etc.)? Yes ____No___
- Affect historical, archaeological or cultural heritage sites? Yes _____No___

- Require land acquisition or affect socio-economic assets? Yes __No__

Will the research project use toxic products or pesticides? Yes ____No__

- In case toxic products/contaminants are used, has the project made provision for protection and residue management measures? Yes ____No____
- In case toxic products/contaminants are used, has the project made provision for protection measures? Yes ____No____

Will the research project generate solid or liquid waste? Yes ____ No___

- If "Yes", does the project have a plan for collecting and eliminating such waste? Yes __No__

Part C: Criteria for evaluating research projects

Technical and environmental criteria	**Weight**	**Mark (over 10)**
Scientific and technical quality	2	
Relevance with regard to user demand and diagnosis	3	
Applicability and potential results adoption rate	2	
Level and quality of the integration of environmental aspects • Possibility of identifying and categorising the project adverse effects (during the research phase and implementation) • Possibility of avoiding, mitigating and/or correcting adverse effects (during the research phase and implementation) • Relevance and sustainability of mitigation or corrective measures	1	
Extent of results users' involvement	1	
Quality of the research team and of partners involved	1	

Part D: Project classification and environmental work

- Projects without significant impacts: ☐
- Projects simply requiring the integration of simple mitigation measures: ☐
- Research project requiring additional environmental and social work: ☐

Appendix 2: Agricultural Extension and NSC Construction Projects Environmental and Social Selection Form

Countries shall adopt the following selection form.

This selection form has been designed to help during the initial selection of projects requiring field implementation (extension/dissemination and NSC construction). The form has been designed to provide contractors (FOs) and executing agencies with information in order that the environmental and social impacts and related mitigation measures, if any, may be identified and/or the requirements for further environmental review may be determined.

Environmental and Social Selection Form		
1	Name of the place where the project will be implemented	
2	Name, position and details of the person responsible for filling this form	
Date:	**Signature:**	

PART A: Brief description of the proposed agricultural project

Provide information on (i) the proposed project (surface area, land needed, approximate size of the total area to be occupied); (ii) needed actions during the implementation of the activities and the operation of the project.

Part B: Brief description of the environmental situation and identification of environmental and social impacts

1. Natural environment

(a) Describe the genesis of the soil, the topography, the vegetation of the area/adjacent to the implementation zone of the agricultural project

_____

(b) Give an estimation of and indicate the vegetation that might be cleared

_____

(c) Are there environmentally sensitive areas or endangered species

2. Ecology of rivers and lakes

Is it likely that, due to the implementation and the conduct of the activities, the ecology of rivers and lakes could be adversely affected? Yes _____ No_____

3. Protected areas

The area around the project site is it located inside or adjacent to any protected areas demarcated by the government (national park, national reserve, world heritage site, etc.)? Yes _____ No_____

In case the implementation/commissioning of the activities take place outside a protected area (or around it), are they likely to adversely affect the ecology of the protected area (for example, interfere with the migration routes of mammals or birds)? Yes _____ No_____

4. Geology and soils

Are there areas of possible geological or soil instability (prone to erosion, landslide, and subsidence)? Yes _____ No_____

5. Landscape/aesthetic

It is likely that the works might adversely affect the aesthetical aspect of the local landscape? Yes _____ No_____

6. Historical, archaeological or cultural heritage site
Based on the available sources, the consultations with local authorities, local knowledge and/or observations, could the project alter historical, archaeological or cultural heritage sites, or does it need to carry out excavations nearby? Yes _____ No_____

7. Land compensation and/or acquisition
Will the project in question result in land acquisition, loss, denial or restriction of access to the land or other economic resources? Yes _____ No_____

8. Loss of harvest, fruit trees and domestic infrastructure
Will the project in question result in the permanent or temporary loss of harvest, fruit trees or domestic infrastructure? Yes ___ No_____

9. Noise pollution during the execution and the implementation of the project
Will the level of noise during the implementation of the project in question exceed the limit of acceptable noise? Yes ___ No_____

10. Solid or liquid waste
Will the activities in question generate solid or liquid waste? Yes ____ No___
If "Yes", does the project have a plan for their collection and disposal? Yes ____ No___

11. Public consultation
During the execution and the implementation of the project, were public consultation and participation sought? Yes ____ No ___ If "Yes", describe briefly the measures that have been taken to that effect.

Part C: Mitigation measures
For each question answered "Yes", ESFPs in consultation with local technical institutions, especially those responsible for environmental issues should briefly describe the measures taken for that purpose.

Part D: Project classification and environmental and social work

Project type: A ☐ B ☐ C ☐

Needed environmental work:

No environmental and social work ☐

Simple mitigation measures ☐

Environmental and Social Impact Assessment ☐

Appendix 3: Checklist of environmental and social activities

For each agriculture-related activity proposed, please fill in the corresponding checklist; Appendix 3 presents several mitigation measures; these may be amended as need.

WAAPP Activity	Questions that require an answer	YES	NO	If YES,
Technology Experiment Construction of a National Centre of Specialization (NCS)	• Will there be any loss of vegetation during the farming activity? • Are the appropriate services for the evacuation of the waste expected during the operations? • Will the trash generated during the implementation and the operations be cleaned and ecologically eliminated? • Will the equipment and security and rescue facilities against accidents be in place during the implementation and operation? • Is there a risk of pollution of underground or water surface water due to activities of the project? • Are there any sensitive ecological zones in the neighbourhood of the operations zone which could be impacted negatively? • Is there any possible impact on the health of the coastal populations and that of the implementation and operations staff by the works? • Is there odour that could emerge as a result of the disposal of waste from agricultural residues? • Are there human settlements, or important cultural, religious, or historic sites close to the farm?			If Yes, draw an example from the appropriate mitigation measures described in Annex 4

Appendix 4: Check-lists of measures for mitigating the impact agricultural activities

The mitigation measures in the checklist below are not exhaustive and are given just for purposes of information to serve as a source of inspiration.

General mitigation measures

Sub-project	**Negative impacts**	**Mitigation measures**
Increase in agricultural production	Decrease in crop yield after invasion by pests	Promotion of an integrated fight as well as research on the topic.
	Inappropriate use of chemical pesticides and water pollution in irrigated areas	- Periodic evaluation of contamination by pesticide residue in irrigation systems and training of farmer organisations on the judicious use of pesticides.
Expansion of cultivated land	Loss of pasture for animal breeding Degradation of lands and us of fragile lands	- Livestock breeding practices of permanent semi-permanent housing and development the agro-silvo-zootechnology approach - Reservation of land for forage crops. - Restoration of soil fertility and enviromen protection.
Support to the animal husbandry sector	- Unsafe sources of supply (risk of introducing new diseases) - Diseases caused by poor hygienic conditions	- Animal disease certification issued by certified veterinarian - Select a transit Centre for imported animal - Construct houses in accordance with cleanliness and hygiene standards
	Poor storage of veterinary medicines and livestock feed stocks.	- Provide materials for proper preservation c medicines for veterinary use and training. - Avoid prolonged storage of foods already mixed on the farm
	Insufficient knowledge of farmer based organisations of basic veterinary techniques	- Training of farmer organisations in veterin skills - Management of pharmaceutical side room
	- Bringing in hitherto unknown diseases - Animals that are not Ecologically adapted - Extraction of building material, - Excessive consumption of wood - Risk of contamination by poorly stored pharmaceutical products - Environmental pollution due to the processing of livestock products	- Ensure that imported animals are not infes with any diseases - Training and availability of canisters for th preservation of veterinary drugs and mater - Construction of waste pits
Professionalisation product quality	- Risk of marginalizing smallholder farmers in case of a development that is centred solely on market segmentation and product labelling. - High cost of meat for the consumer on the domestic market. - Market segmentation, collective product labelling - Collective labelling standards different from local preferences - modernisation of infrastructure and their maintenance costs	- support programme for smallholder farmer - manuals on quality standards - improve traditional infrastructure emphasising on hygiene; - Set up installations that are sustaina environmentally adaptable and require qualified personnel; - Draw up a promotion programme traditional stakeholders for markets with a consumption potential for labelled product

Pastoral Pilot Programme	- Undermines agricultural and rural link to decentralisation and legislations that regulate it - Frequent conflicts over the demarcation of plots of land - Pressure on pastoral ecosystems - Failure to adopt existing traditional managerial methods	- Support to other agricultural and activities - Information, sensitization, and participa programme for local elected representative - Dissemination of legislations gover aspects of pastoralism and defi boundaries of plots; - Pay attention to the restoration of the cover in the polarization sites of boreholes to reforestation; - Capitalise on local pastoral practices traditional knowledge;
zoosanitary Protection	- Overgrazed land - Recurrent cost to the zoo sanitary protection agency - Continuous training for veterinarians and other veterinary service agents - Facilitate loans for the setting up of private veterinary clinics - Cost of veterinary services not submitted to tenders; - Lack of a basis for animal production that would be economically viable and merit veterinary care; - Breakdown of the capacity of grazelands to bear the pressure - Worsening erosion - Degradation of vegetation around water sources - Excessive drawings from underground water Elimination of liquid and solid wastes if in fattening stables (fattening)	- Promote an inventory destocking of anima - creation of a funding mechanism basec promising sectors such as meat, poultry… - refresher programme according to n expressed and financed by a mechanism t determined ; - a programme to help all professional lives breeders to set up a business; - accurate evaluation of need for professic of all categories, providing for us distribution in animal production areas; - design a support programme to improve performance in animal production like the draft. This programme can be financed, tha to the support of the training institutions - increase water sources - Waste management plan (valorisation)…
Support to Farmer Organisations for food crops and market gardening (seed supply; support with agric inputs; Setting up of demonstration; Training)	- Risk of contamination from use of pesticides - destruction of sensitive habitats - soil erosion, disturbance of the hydrological cycle - loss of farmlands, pastures - upon the use of fertilizers - use of pesticides - (pollution of the underground water– water course – water surface) - contamination of animals through watering - poisoning in case of wrong use - poor management of packages - Destruction of non-targeted - Clearing of wooded areas	- multi-pronged pest control (Pest and pestic management plan) - Promotion of the use of organic waste - Restore the needed forest cover and appropriately; avoid slopes, erosion prone soils - informed choice of the site
Support to POs for crop production. (Judicious use of inputs: Pesticides and mineral fertilizers)	- Risk of contamination by pesticides during use - Risk of water pollution by finger erosion - Extraction of construction material	- Protective gear made available - Prefer less toxic products and biological control/ Integrated pest control - Training in integrated pest control

Good agricultural, environmental and social practices

Improving seed quality (seed production methods)

- Improve characteristics of improved seeds
- Organise the production and distribution of improved seeds
- Disseminate intensification methods in order to improve competitiveness of produced cereals
- Improve harvest and post-harvest operations

Improving production systems and the natural resource base:

- Control water erosion with legumes
- Improve fertility through hedgerow farming with legumes
- Use of cover crops
- Control of low fertility of farmlands lands by better integration of livestock
- Monitoring of soil fertility
- Research programme on the integrated management of soil nutrients;
- Research on sustainable and improved production systems
- Dissemination of erosion control methods

Sustainable development of vegetable production

- Control erosion and the rapid depletion of organic reserves in the soil by restoring soil fertility and sustainable land use
- Develop research on the methods that ensure optimal use of new, accessible and perennial sources of organic fertilisers.
- Reduce the effect of mechanised farming methods (choice of agricultural materials and adapted equipment for tillage in agro-ecological areas etc.)

Sustainable development of livestock and grazing systems

- Promote the production of forage and sensitize livestock breeders on animal feeding
- Train livestock breeders in the preservation of livestock feed
- Improve zoo-sanitary coverage
- Disseminate improved breeds
- Improve coverage of livestock activities (spreading of organic matter on the soil).
- Identify the importance of products from grazing areas in the national economy;
- Analyse the challenges facing the production and economic integration of grazing systems;
- Study the impact of production systems and ways of acquiring resources on the grazing ecosystem and their dynamics;
- Study the problems regarding access to resources within the context of decentralisation and recognition of grazing in land legislation.
- Analyse the procedural dynamics of using and improving grazing land ;

Improving the quality of food products

- Ensure the quality of food stuffs (hygienic conditions, packaging , transportation, storage and processing;
- Place emphasis on the implementation of the risk analysis and critical points control system (HACCP, *hazard analysis control critical point*)
-

Prospects of integrating biotechnology and biosafety into research activities.

- Use biotechnology tools to reduce challenges to agricultural development.
- Integrate biotechnology into the activities of national and regional research networks
- Develop a national and regional biosafety initiative

Research topics

Developing improved systems and techniques of crop production

Diversification and extension of fruit production

- Introduction of varieties of groundnut oil mill which can adapt to the climate of the area
- Development of agricultural input suited to the conditions of the crop

- Weed and parasite control
- Increased rearing of ruminants through housing and supplementation
- Development and improvement of techniques for processing agricultural products
- Development of production techniques and the optimisation of organic cum mineral fertilizer.
- Development of integrated control methods against various pests
- Domestication of forest fruit trees
- Study the distribution of major diseases and pests of fruit crops
- Preparation of epidemiological maps
- Development of techniques for the control of waterborne diseases

Development and improvement of animal production techniques

- Diagnosis of diseases and epidemiological surveillance
- Genetic improvement of livestock through open core breeding system
- Development of a breeding procedure for improving genetic resistance
- Studies on the improvement of reproductive performance /survival of animals
- Improve the production of cross-breed animals
- Study of feeding systems and suitable feeding techniques
- Development of methods for diagnosing the state of grazing fields
- Adaptation for test of milk conservation and processing techniques

Design and test techniques for the improvement of natural resource management

- Improvement of animal organic fertilizer
- Test techniques for crop and soil protection against wind and water erosion
- Characterization and development of forest potential
- Study techniques for regeneration of natural forests
- Study the impact of pesticides use on soil biology and the aquatic environment
- Study of fallows and alternative systems and their impact on soil fertility
- Development of measures against water erosion
- Study methods of recovery of saline soils (biological, chemical and physical)
- Silviculture and management of forest stands
- Influence of water conditions and tillage effects on amendment improvers

Improving of methods of processing and storage of products

- Find alternatives to the use of chemicals to preserve crops
- Improve methods of preserving personal seed stocks

Organization, operation and performance of networks

- Types of operating systems
- Study of the main flow patterns of production
- Analysis and monitoring of technical and economic constraints of production
- Stock taking and improvement of traditional ways of storage and conservation
- Study of cropping routes and techniques for improving skills in horticultural products
- Inventory and study opportunities to improve traditional methods of processing local fruits and vegetables

General mitigating measures for the construction of National Centre of Specialization

Activities	Sources	Negative impacts	Mitigating measures
Liberation of the influence	• Marking out of work • Mechanisation of work site preparation	• Soil erosion	• Reforestation stabilisation of the shoulder
		• Destabilising habits and customs • destabilising shoreline activities	• information and sensitisation • social support
		• uncontrolled rejection of solid waste and debris	• Disposal of solid waste and debris toward authorised sites.
		• Disruption of flow.	• Information and sensitisation • Temporary release of flow • Signalling, walkways, • Control of traffic by the police
		• Disruption in the network of dealers	• Coordination with the appropriate service provider • Informing people • Diligent rehabilitation of networks
Installation and use of base life	Occupation of forestry zones	• Deforestation and removal of vegetative cover	• Involvement of Forestry services • Compensatory afforestation • Cleaning after work
	Oil and waste water spillage Discharge of solid waste	• Contamination of water and soils	• Collection and recycle of waste oil • Collection and evacuation of solid waste • Installations of appropriate sanitary facilities
	Occupation of private or farm land	• Social conflicts • Loss of crops of farm lands	• Choice of sites bearing in mind ownership or local interests • Rehabilitation of site after use
	Inappropriate protection given to personnel	• Disturbances of wind, dust and gas. • Work injuries	• Coordinator of Health security Protective gear • First aid kit • Awareness creation in staff
	Poor signage sites	• Collusion between machinery and other users	• Signage and awareness
	Folding of construction site	• Social conflicts with the population	• Keeping things up to date • Seizure of installation
Recruitment of site workers	Availability of a foreign expertise	• Conflicts with local population	• Prioritised on-the-spot recruitment • Prioritise the HIMO approach
		• Poaching and exploitation of forests	• Awareness creation among people on the ground • Surveillance by forestry service personnel
		• Spread of STD's and AIDS	• Awareness creation among personnel and population) • Distribution of condoms (at the site)

Installation of an asphalt and a crushing plant	• Occupation of agricultural and forest zones • Emission of noise, gas and dust • Spillage of liquids and solids • Proximity to habitable zones	• Destruction of vegetative cover	• Careful selection of location • Involvement of the forestry service • Compensatory afforestation
		• Reduction of arable areas	• Careful and authorized selection of location • Rehabilitation of site after work
		• Air pollution • Respiratory infections	• Careful selection of location • Protection of personnel • Awareness creation among coastal population
		• Contamination of rivers and soils	• Device for protection and collection of oil (see Environmental clauses)
Opening and use of borrow areas and quarries	deforestation	• Destruction of plant cover • Erosion of exposed surface	• Authorized operation of quarry and carrying of soils
	Inappropriate signage	• Risk of accidents	• Signage and awareness creation
	Emissions of dust	• Respiratory infections	• Protection of personnel
	Occupation of private or agricultural sites	• Degradation of agricultural lands • Social conflicts	• Authorized operation of quarry and carrying of soils • Preliminary agreement of rightholders • Rehabilitation of site after construction
Transportation of materials	Emission of dust Bad behaviour of drivers	• Danger of polluting the atmosphere • Danger of accidents	• Protection of vehicles • Monitoring the transport of cargos • Creation of awareness among drivers

Environmental and Social Guidelines for Contractors

Measures	Proposed actions
General enforcement measures	• Carry out an a judicious and informed choice of the location • Conduct a communication and sensitization campaign before the work • Ensure compliance with hygiene and security measures for worksite facilities • Carry out marking out of work • Prioritize the use of local labour • Ensure compliance with security measures during work • Ensure the collection and disposal of waste from work • Carry out sensitization drives (hygiene, work safety etc.) • Involve the community in close monitoring of the implementation • In case of destruction of property or loss of job compensate affected people in case

Appendix 6 Good environmental and social work practices

General Good practices:

- Have the necessary permits in compliance with current rules and regulations
- Ensure compliance with hygiene and security measures for worksite facilities

- Establish worksite rules (what is permissible or not)
- Protect neighbouring properties
- Ensure the continuity of movement and access by coastal populations during the work
- Install containers for the collection of waste produced along worksites.
- Do not burn on site
- Ensure the collection and disposal of work generated waste
- Inform and sensitize the community before carrying out any activity that will damage private property.
- Conveniently dispose of oils and solid wastes
- Conduct an open and rationalized management of quarries in accordance with the laws (the mining code)
- Carry out rehabilitation of temporal quarries
- Make a compensatory planting of trees in case deforestation or felling of trees after the work
- Prevent clearing of sites and put in place measures for protecting rare or endangered species, and when necessary, replant the specific species
- Adopt a speed limit for vehicles and equipment on worksite
- Carry out signage work
- Ensure adherence to safety rules at work
- Educate site personnel on STI/HIV/AIDS
- Install signs posts and speed breaks on roads through villages
- Organize the storage of materials, packing and moving of machines with the view to avoiding all inconvenience
- Respect cultural sites
- Organize worksite activities taking into account nuisance such as (noise, dust) and the security of surrounding population
- Protect the soil during construction and carry out afforestation and stabilization of fragile terrains
- Ensure proper drainage when necessary
- Avoid the stagnation of water in construction pits, and quarries which are potential source of contamination of ground water and the development of insect vectors of diseases
- Avoid all discharge of sewage, intentional or accidental spillage of used oil and the spill of pollutants on soils, surface or ground water, sewers, drainage pits etc
- Reduce the production of dust to the barest minimum
- Prioritize the use of local labour

Good construction practices of NCE

- Optimize the choice of site to reduce to the barest minimum, the possible felling of trees.
- Restore relevant forest cover in an adequate and appropriate way
- Avoid slopes and erosion prone lands
- Provide diversion devices that will help maintain the flow of goods and people
- Water surfaces that spread dust
- Collect and recycle dead oil
- Plan drainage works and locate outflows in a way that will prevent flooding
- Respect rules governing opening and exploitation of quarries
- Create speed breaks and install speed limit signs
- Coordinate with dealer networks to reduce the discomfort

Measures to adopt in case of archeological discoveries

- During infrastructural works all fossils, coins, valuables or antiques, structures and other archaelogical and geological discoveries on the site are deemed as exclusive property of the state.
- In case of the discovery of these archaeological items, the Contractor has to adopt the following measures: (i) stop work and restrict access to the area in question; (ii) referral to the Ministry of culture on the next Stage to follow.

- The contractor must adopt reasonable measures to prevent his workers or any other person form removing or damaging his equipment; he also needs to inform the Supervisory firm about this discovery and implement the instructions according.

Ensuring good quality work, carrying out rigorous checks on work done, training of unskilled workers, choosing appropriate water and sanitation technology. It also means defining mechanisms for parents and indicating where there is no contractor and /or the damages caused by the works

APPENDIX 4: ENVIRONMENTAL AND SOCIAL CLAUSES TO INCLUDE IN TENDER DOCUMENTS

a. Preliminary provisions for the execution of works

Compliance with national laws and regulations:
The Works Contractors should: have knowledge of, respect and apply the laws and regulations in force in the country and relating to the environment, the disposal of solid and liquid waste, the standards relating to debris and noise, to working hours, etc.; take any appropriate measure in order to minimize impacts on the environment; take responsibility for any claim relating to the failure to respect the environment.

Permits and clearances before the works
Any realization of works should be subjected to a preliminary procedure of information and administrative clearances. Prior to starting the works, the Works Contractor should obtain all the necessary licenses for the execution of works stipulated in the contract: clearances issued by the local authorities, forestry department (in case of clearing, pruning, etc.), mining department (in case of quarry and exploitation and borrow sites) hydraulic services (in case of use of public water supply points), work inspection services, networks managers, etc. Prior to starting the works, the Contractor should liaise with the surrounding populations with whom it can make provisions to facilitate the execution.

Launching Meeting
Prior to starting the works, the Contractor and Project Manager (UCP) should meet with the authorities, the representatives of populations residing in the project zone and the relevant technical departments, to inform them about the nature of the works and their duration, the itineraries involves and the sites likely to be affected.

Site preparation and release
The Contractor will inform the populations concerned before destroying any farm, orchard, market gardens as required by the project. The release should follow a schedule defined in consultation with the populations affected and the Project Manager. Prior to the installation and beginning of works, the Contractor should ensure, if applicable, that the indemnities/compensations are actually paid to the beneficiaries by the Project Manager.

Location of utility providers' networks
Prior to starting the works, the Contractor should conduct a process to locate utilities providers networks (potable water, electricity, telephone, sewage, etc.) on a plan that will be formalized by an official report signed by all the parties (Contractor, Project Manager, Utility providers).

Release of public and private domains
The Contractor should know that the public utility site related to the operation is the site likely to be affected by the works. The works can start in the zones concerned by private companies only when the latter have been released following an acquisition procedure.

Environmental and social management Programme
The Contractor should establish and submit, to the approval of the Project Manager, a detailed environmental and social management programme of the site which includes: (i) a

floor occupation plan indicating the location of the site and the various zones of the site according to the project components and the planned establishments; (ii) a waste management plan for the site, indicating the types of waste, the type of collection considered, the storage site, the mode and place for disposal; (iii) the programme of information and sensitization of the population, specifying the targets, themes and selected consultation mode ; (iv) a management plan for accidents and health preservation specifying the risks of major accidents likely to endanger staff and/or public safety and health and the safety and/or health measures to apply in case of an emergency plan.

The Contractor should also establish and submit to the approval of the Project Manager, an environmental protection plan of the site, which includes all the protection measures of the site; security and management provisional plan of the site at the end of the works.

The environmental and social management plan will also include: the organizational chart of the staff assigned to the environmental management, indicating the person responsible for the Hygiene/Safety/Environmental aspect of the project; the description of negative impact reduction methods; the management and rehabilitation plan of the borrow sites and quarries; the water supply and management and sanitation plan; the list of agreements with current owners and users of private sites.

b. Site installation and preparation

Location standards
The Contractor should build temporary installations of the site in order to minimize, to the extent possible, the disturbance on the environment, preferably in areas already cleared or perturbed if these sites exist, or on sites that will be used during a subsequent phase for other purposes. The Contractor should strictly forbid the establishment of a camp inside a protected zone.

Posting the Rules of Procedure and sensitizing the staff
The Contractor should clearly post the Rules of procedure in the various structures of the camp, describing specifically: the compliance with local customs; the protection against STIs/HIV/AIID; rules of hygiene and safety measures. The Contractor should sensitize its staff particularly on respecting the customs of the populations in the region where the works are assigned, and on the risks of STIs and HIV/AIDS.

Employment of local labour
The Contractor is to recruit (apart from its technical staff) the maximum labour in the area where the works are performed. In the event of a lack of qualified labour, it is allowed to recruit labour outside the area.

Compliance with working hours
The Contractor should ensure that the working hours are in accordance with current national laws and regulations. Any exemption is subject to the approval of the Project Manager. To the extent possible (except in special cases granted by the Project Manager), the Contractor should avoid performing works during break time, on Sundays and on holydays.

Protection of site staff
The Contractor should provide the site staff with standard appropriate working gears, as well as all the protection and safety accessories specific to their activities (helmets, boots,

belts, masks, gloves, goggles, etc.). The Contractor should strictly ensure that protection equipment is worn at all times. A permanent inspection should be performed and, in the event of an infraction, coercive measures (warning, suspension, dismissal) should be applied to the staff involved.

Sanitation, Safety and Environment Officer

The Contractor should appoint a Sanitation/Safety/Environment Officer who will ensure that rules pertaining to sanitation, safety and environment protection are strictly adhered to by all and at all levels of execution, both for worker, the population and other individuals in contact with the site. He will locate the closest health centres in order to enable the staff to have access to first aid in case of accident. The Contractor should restrict public access to the site, protect it with markers and signs, indicate the various accesses and take all necessary measures for order and security in order to prevent accidents.

Appointment of duty staff

The Contractor should ensure the secure guard, surveillance and maintenance of its site, including outside hours of presence on the site. For the total duration of the works, the Contractor should have a duty staff, outside working hours, every day without exception (Saturday, Sunday and holydays) day and night, to address any incident and/or accident that may occur in relation with the works.

Measures against traffic disturbance

The Contractor should avoid obstructing public accesses, and should continually maintain the traffic and access by surrounding populations during the works. The Contractor will ensure that no pit or trench remains open at night without proper signs accepted by the Project Manager. The Contractor should ensure that the temporary diversions allow for safe traffic.

c. <u>End of work and rehabilitation</u>

General rules

At the release, the Contractor leaves the sites clean for their immediate assignment. He will be free from his commitments and responsibilities regarding their use only after formally having their good condition certified. The Contractor will perform all the necessary developments for the rehabilitation of the site and should remove all its equipment and materials. It cannot abandon them on the site or its surrounding.

Once the works are completed, the Contractor should (i) remove the temporary buildings, the equipment, the solid and liquid waste, the surplus material, the fences, etc.; (ii) rectify drainage faults and level all excavated areas; (iii) reforest previously deforested areas with appropriate species, in collaboration with local forestry services; (iv) protect the works that remained dangerous (wells, open trenches, unlevelled ground, projections, etc.); (vi) make the pavements, streets, gutters, ramps and other public works operational; (vi) decontaminate polluted soils (contaminated parts should be banked up with sand); (vii) clean and destroy septic tanks..

If it is in the interest of the Project Manager or the local authorities to retrieve the fixed installations for a future use, the Contractor should donate them without compensation during the withdrawal. The permanent installations that were damaged should be repaired by the Contractor and restored to a condition equivalent to their former condition prior to the beginning of the works. Access ways should be restored to their initial state. Wherever the soil has been compacted (working areas, traffic ways, etc.) the Contractor should

scarify the soil over a depth of 15 cm to facilitate plant regeneration. Concrete surfaces, paving and slabs should be removed and sites should be covered with soil and sent to authorised waste sites.
In case of failure of the Contractor to execute the restoration works, they will be performed by a company chosen by the Project Manager, in relation with the relevant services and at the expense of the defaulter.

After the removal all the equipment, a report certifying the restoration of the site should be prepared and attached to the report of reception of works. Failure to restore the site should warrant the refusal to receive the works. In this case, the percentage not yet released of the amount of the "site installation" line will be retained to serve as a guarantee of the withdrawal of the site.

Protection of unstable zones
During the pulling of works in unstable areas, the Contractor should take the following precautions to avoid worsening the instability of the soil: (i) avoid any heavy traffic or any overloading in the unstable zone; (ii) preserve to the extent possible, the plant cover or reconstitute it, using appropriate local species in case of erosion risks.

Temporary borrow quarries and sites development
The Contractor should restore quarries and borrow sites according to options to be defined in consultation with the Project Manager and local populations: (i) levelling and plant cover restoration (trees, shrubs, grass or crop); (ii) filling (sand or stones) and plant cover restoration; (iii) surface water management (basins, ponds) for local communities or animals; (iv) recreation site; ecotourism, among others.

Oil products and other contaminants management
The Contractor should clean the working or storage area where oil products and other contaminants have been handled and/or used.

Verification of the execution of environmental and social clauses
The verification of compliance and effectiveness of the implementation of environmental and social clauses by the Contractor is performed by the Project Manager whose team should include an environmentalist who is a full member of the verification team.

Notification
The Project Manager notifies in writing the Contractor of all the cases of default or non-execution of environmental and social measures. The Contractor should rectify any failure to comply with prescriptions duly notified to him by the Project Manager. The resumption of works or additional works resulting from the non-compliance with the clauses will be borne by the Contractor.

Sanction
In accordance with the contractual provisions, the non-compliance with environmental and social clauses, duly certified by the Project Manager, may be a reason for terminating the contract. The Contractor that has been terminated for non-application of environmental and social clauses may be subjected to sanctions to the extent of suspension of the right to bid for a fixed period by the Project Manager, with a rebate on the price and retention of the guarantee deduction.

Reception of works

The non-compliance with these clauses will expose the Contractor to the temporary or final refusal of reception of works, by the Reception Commission. The execution of each environmental and social measure may be partially received in the presence of the competent services.

Guarantee-related obligations
The obligations of the Contractor run up to the final reception of works which will be accepted only after full execution of works for the environmental improvement stipulated in the contract.

d. Specific Environmental and Social Clauses

Markings of works
The Contractor shall place, prior to the opening of the sites, and as needed, pre-markings and markings of the sites at a long distance (quarries or camps exit, route used by the machinery, etc.) in accordance with the current laws and regulations.

Measures for excavation works
The Contractor shall strictly limit the shaping, levelling, and filling of working sites in order to respect the natural topography and prevent erosion. After the shaping of the arable soil layer, the Contractor shall preserve the topsoil and use it for the restoration of slopes and other disrupted surfaces. The Contractor shall deposit non-reused rubble in storage areas if it is planned to use them later; otherwise he should carry them to previously authorized rubble sites.

Materials transportation and storage measures
During the execution of works, the Contractor shall (i) limit the speed of vehicles on the site by installing road signs and flags; (ii) regularly sprinkle water on traffic ways in the residential areas (in case of mud roads); (iii) plan diversions through existing paths and roads as much as possible.

In residential areas, the Contractor shall establish the timetable and itinerary of heavy vehicles that should circulate outside the sites in order to reduce nuisances (noise, dust, and traffic congestion) and submit it to the approval of the Project Manager.

In order to ensure orderly traffic and safety on the roads, the sand, cement and other fine materials should be hermetically stored during transportation to prevent dust from flying and pouring. Materials containing fine particles should be covered with a tightly fixed tarpaulin. The Contractor should take special protection measures (nets, tarpaulins) against risks of projection, emanation and falls of objects.

The Contractor may arrange for secondary areas for parking of machinery that are not allowed to park on public ways outside working hours and working sites. These areas may also include a space for welding, assembling, small-scale machining and small maintenance of machinery. These areas shall not store oil.

Any storage of whatever nature is strictly forbidden in the immediate environment, outside the sites and predefined areas.

Measures for the circulation of site machinery
Only strictly indispensable materials shall be allowed on the site. Outside the accesses, the designated ways and the working areas, it is forbidden to circulate with site machinery.

The Contractor should ensure speed limitation for all its vehicles circulating on public roads, with a limit of 60km/h in open country and of 40km/h in towns and villages. Drivers exceeding these limits should be subjected to disciplinary actions to the extent of dismissal. The fixing of speed bumps at the entrance of towns will be promoted.

The vehicles of the Contractor shall always comply with the prescription of the current traffic regulations, particularly regarding the weight of loaded vehicles.

The Contractor shall, during the dry season, depending on water availability, spray on a regular basis the paths used by its transportation vehicles to avoid dust, particularly in residential areas.

Protection of farming areas and works
The timetable of works should be established in such a way to limit the disruption of farming activities. Particularly, the main farming activity periods (seeding, harvest, drying…) should be known in order to adapt the timetable to these periods. The Contractor should identify the areas where paths for the animals, cattle and people are necessary. The participation of the population is critical in that respect.

Protection of wetlands, fauna and flora
It is forbidden to the Contractor to execute temporary developments (storage and parking areas, diversions or working paths, etc.) in wetlands, notably by avoiding the filling of existing temporary ponds. In the case of farms, the Contractor should adapt to the local vegetation and ensure that new species are not introduced without the consent of Forestry services. For all cleared areas located outside the site and required by the Contractor for its works, the topsoil extracted should be preserved.

Protection of sacred and archeological sites
The Contractor should take every necessary measure to respect religious and cultural sites (cemeteries, sacred sites, etc.) in the surroundings of the works and not tamper with them. To that effect, it should make sure of their typology and location before starting the works.

If during the works, vestiges of religious, historic or archeological interest are discovered, the Contractor should apply the following procedure: (i) stop the works in the area concerned; (ii) notify immediately the Project Manager who will make provisions to protect the site to avoid any destruction; a protection area should be identified and materialized on the site and no activity should be carried out there; (ii) forbid the removal or displacement of the objects and relics. The works shall be suspended within the protection area until the national agency in charge of historic and archeological sites has granted the permission to resume them.

Measures for felling trees and deforestation
In the event of deforestation, the trees felled should be chopped and stored in places agreed on with the Project Manager. The surrounding populations should be informed of the possibility they have to dispose of that wood at their convenience. Felled trees should not be abandoned at the spot, burned, or buried under excavation materials.

Water supply on the site
Seeking for and exploiting water supplies are the responsibility of the Contractor. The Contractor shall ensure that the water needs of the site do not jeopardize the water sources used by the local communities. It is recommended that the Contractor use public water supply as much as possible, if available. In the event that water is supplied through ground or surface waters (ponds, rivers), the Contractor should submit a clearance request to the local hydraulic service and comply with current regulations.

The surface water destined for human consumption (site personnel) should be sterilized by chlorination or any other process approved by the relevant environmental and sanitary services. If the water is not entirely compliant with the criteria of potable water, the Contractor should take alternative measures such as bottled water supply or install water tanks in appropriate quantity and quality. This water should be compliant with regulations on potable water. It is possible to use non-potable water for toilets, bathrooms and washbasins. In these cases, the Contractor should notify the employees and post clear signs bearing the warning “NON POTABLE WATER”

Liquid waste management
The offices and lodgings should be equipped with sanitary installations in sufficient number (latrine, septic tanks, washbasins and bathrooms). The Contractor should comply with current sanitary regulations. Sanitary installations are established in consultation with the Project Manager. The Contractor is forbidden to discharge liquid waste that could lead to stagnations and inconveniences for the neighbourhood, or to the pollution of surface or groundwater. The Contractor should put in place an appropriate autonomous sanitation system (airtight or septic tank, etc.). The Contractor should avoid discharging all sorts of waste water, mud, oil and pollutants in surface or groundwater, in gutters, drainage ditches or in the sea. Discharging points will be indicated to the Contractor by the Project Manager.

Solid waste management
The Contractor should put household garbage in waterproof garbage cans that should be emptied periodically. In case of evacuation by the site trucks, the dumpster should be airtight so as to prevent waste from flying. For sanitary purposes, and to avoid attracting vectors, a daily collection is recommended, especially during hot seasons. The Contractor shall dispose of, or recycle waste in an environmentally friendly manner. The Contractor should carry the waste, if possible, to the existing waste disposal sites.

Protection against noise pollution
The Contractor is expected to limit noises on the site that could severely inconvenience the riparian, either through an exaggeratedly prolonged duration, or through their continuation outside normal working hours. The maximum thresholds are: 55 to 60 decibels during the day and 40 decibels at night.

Prevention against STIs/HIV/AIDS
The Contractor should inform and sensitize its staff on the risks related to STIs/HIV/AIDS and should provide the staff with condoms against STIs/HIV/AIDS.

The Contractor should inform and sensitize its staff on safety and hygiene on the site. It should make sure to preserve the health of workers and surrounding populations, by taking

appropriate measures against other diseases related to the works and to their environment: respiratory diseases due notably to the high amount of dust and gas produced during the works; malaria, gastroenteritis and other diarrheic diseases due to the high proliferation of mosquitoes, to climate change, and to the quality of water and food consumed; endemic diseases in the area.

The Contractor should take the following preventive measures against diseases: (i) institute the wearing of masks, uniforms and other appropriate shoes; (ii) install systematically first aid boxes and provide the site staff with the basic drugs for emergency care, free of charge.

Temporary diversions and access roads

The use of local roads should be agreed on with local authorities beforehand. To avoid their premature degradation, the Contractor should maintain local roads in good working condition during the construction and restore them to their original state at the end of the works.

Footbridges and riparian accesses

The Contractor should constantly ensure access to riparian properties and ensure the use of driveways and foot ways, of showrooms, through temporary bridges or footbridges equipped with handrails, placed over trenches or other obstacles created by the works.

Public services and Help

The Contractor should imperatively maintain access to public service and emergency help everywhere. In the event of a street block, the Contractor should devise with the Project Manager, measures to maintain access by fire service trucks and ambulances.

Site Journal

The Contractor should keep a site journal in which it will record the claims, failures or incidents having a significant impact on the environment or an incident with the population. The site journal is specific to the site and the observations should be handwritten. The Contractor should inform the public in general and riparian populations in particular, of the existence of such a journal, indicating where it can be consulted.

Maintenance of site machinery and equipment

The Contractor should comply with maintenance standards for the sites machinery and vehicles and obtain fuel and lubricant at a place designated accordingly. On the site, a provision of absorbing and insulating materials (cushions, leaves, flanges and peat fibre…) as well as airtight well identified containers to receive oil residues and waste, should be made. The Contractor should execute, under constant surveillance, any handling of fuel, oil or other contaminant products, including the decanting, in order to avoid spillage. The Contractor should retrieve, process or recycle all oil residues, waste oils and garbage produced during the maintenance or repair of the machinery. It is forbidden to discharge them in the environment or on the site.

The Contractor should empty them in airtight drums and keep the waste oils to be given back to the supplier (recycling) or to local populations for other uses. The used spare parts should be sent to the public dumping site.

The areas designed for washing and maintenance of machinery should be concreted and provided with a device for recuperating oils and greases, with a slope oriented in such a way to prevent the outflow of pollutant liquids on non-paved soils. Concrete mixers and

equipment for the transportation and laying of concrete should be washed in the areas designed for that purpose.

Quarries and borrow sites
The Contractor should obtain the necessary permits for the opening and exploitation of borrow quarries and sites (temporary and permanent) by complying with the relevant national legislation. The Contractor should, to the extent possible, preferably use an existing site. All sites should be approved by the works supervisor and be compliant with current environmental standards.

Use of a permanent borrow quarry and/or site
At the end of the exploitation of the permanent site, the Contractor should (i) restore the previous natural flows through the levelling of unused stripping materials; (ii) eliminate the dilapidated look of the site by spreading and hiding the big boulders. At the end of the exploitation, a report on the inventory is prepared in liaison with the Project Manager and the relevant services.

Use of a temporary borrow quarry and/or site
Before starting the exploitation, the Contractor should bear in mind that the temporary borrow site and/or quarry will be restored at the end of the works. To that effect, it should conduct an environmental impact study of the site and submit a restoration plan to the Project Manager and to the national bodies in charge of mining and the environment. During the exploitation, the Contractor should: (i) store aside, the topsoil to be used to restore the site and preserve farms bordering the quarry or borrow site; (ii) level the stripping materials and the topsoil in order to facilitate water percolation, grassing and plantations if prescribed; (iii) restore previous natural flows; (iv) eliminate the dilapidated look of the site by spreading and hiding the big boulders; (v) dig guarding trenches to prevent the erosion of levelled lands; (vi) create runoff catchment trenches.

At the end of the exploitation, the Contractor should take all required measures for a new vegetation to grow after the cessation of the exploitation of a temporary quarry or borrow site. To that effect, the Contractor should: (i) prepare the soil; (ii) fill the excavation and cover it with topsoil; (iii) reforest or seed the site; (iv) keep the ramp, if the quarry is declared usable for the cattle or the riparian, or if the quarry could serve as a protection against erosion; (v) restore the environment around the site, including plantations, if prescribed. At the end of the restoration, a report is prepared in consultation with the Project Manager.

If the local population expresses the wish to keep the depressions and use them as water supply, the Contractor may, in consultation with the relevant authorities, equip the former exploited site accordingly.

Dust control
The Contractor shall choose the location of crushers and similar equipment according to the noise and dust they produce. The wearing of anti-dust goggles and masks is compulsory.

Appendix 5: Persons met

List of persons met – Benin

NAME	TITLE	ADDRESS
Virginie Assogba-Miguel	Conseiller Technique à la Recherche, à l'Agriculture et à l'Alimentation	MAEP
David Y Arodokoun	Assistant CTRAA	MAEP
Adanve Grégroire	Chef Division Alertes et Interventions Phytosanitaires	SPVCP
Maurice C. Noudofinin	Chef Service Protection des Végétaux et au Contrôle Phytosanitaire	SPVCP
Ramanou Atanda Fassassi	Directeur du Conseil Agricole et de la Formation Opérationnelle PI	MAEP/DICAF
Rachidatou Sikirou	Directeur Laboratoire de Défense des Cultures	INRAB
Akambi Massiou	Chef Service Suivi Evaluation	MAEP/DICAF
Henriette M. Gotoechan Hodonou	Chef Unité Planification Suivi Evaluation	INRAB
Ahandagbe A Etienne	Directeur Administration et Ressources Humaines	INRAB
Alex Gbêliho Zoffoun	Agent Direction scientifique Service d'Animation Scientifique	INRAB
Zanou Aivohozin	Directrice des Politiques, Stratégies et Normes environnementales	MEPN
Camille A Dagba	Directeur de l'Information et du Suivi Environnementale	ABE
Lokossou Léopod	Président PNOPPA	Bohicon
Tiburce Kouton	Secrétaire Permanent FUPRO	Bohicon
Toto Bernadin	Secrétaire Permanent PNOPPA-Bénin	Cotonou
Pedro Ernest	Chargé de programme Plate Forme des Acteurs de la Société Civil e du Bénin	Cotonou
Alidou Aïcha	Responsable Cellule Femme dans le Développement Agricole et Rurale	MAEP
M Omontecho	Agent au Service Formation	MAEP/DICAF

List of persons met – Guinea

NAME	TITLE	STRUCTURES
Dr. Famoi BEAVOGUI	Directeur général	IRAG
Dr Mamadi Kourouma	Chef de section Planification suivi et évaluation	
Dr Karika Magassouba	Chef de la division appui scientifique	
Mr SYLLA Sékou	Directeur Général Adjoint	Bureau de stratégie et de développement du ministère de l'agriculture
Namory Keïta	Directeur National Adjoint (Ingénieur Spécialiste de Faune)	Direction Nationale des Forêts et de la Faune
El Hadj Nouhou Cissé	3ième vice –président (Ingénieur)	Chambre Nationale d'agriculture
Joseph Boniface Mansaré	Directeur National Adjoint	

Mamadou Mouctar Sow	Directeur National	Direction Nationale des Productions et Industries Animales
Bernard Mansaré		Agence Nationale Promotion Rurale et Conseil Agricole
Ibrahima Bah	Chargé de Programmes	Confédération nationale des organisations paysannes de Guinée
Sékou Moussa KEÏTA	Directeur des Etudes	Centre d'Etude et de Recherche en Environnement
KABA ABDOULAYE AZIZ	Consultant Indépendant Mécanisation Agricole	Direction Nationale de l'Agriculture
Dr Thierno Hamidou Baldé	Chef Section défense de Cultures et des Stocks	Direction Nationale de la Protection des Végétaux et des Denrées Stockés
BALDE Abdourahamane K.B.	Directeur	
Mr Traoré Diarra Pablo	Ingénieur Phytopathologiste	
Mr. Adoul Karim Camara		
Mr. Ali Kouyaté	Chef de Division Semences et Intrants Agricole/Engrais	Direction Nationale de l'Agriculture
Mr. Namory Yombouno	Chef Section Contrôle et Reglementation / Semences Plants et Fertilisants	
Mr. Sakho Souleymane	Division Intensif et Mécanisation Agricole	
El Hadj Barry Sadu	Directeur National du Service de Ressource Foncière Rurale	
Diawara Karamba	Chargé d'Etudes de la DIMA	
Bernard Mansaré	Directeur Général Adjoint	Agence National Promotion Rurale et Conseil Agricole
Amidou Souaré	Volet Appui Conseil et la coordination des autres sous Composantes	
Mr. Bah ALIMOULAYE	Directeur National Adjoint de l'Environnement	Direction nationale de l'environnement
Mr. Touré Aboubacar	Chargé d'Etudes	Bureau de stratégie et de Developpement de l'environnement
Mr. Mouhamed Lamine Touré	Chef de Section du Suivi du PGES	Bureau de stratégie et de Developpement de l'environnement
Ibrahima Bah	Chargé des Programmes	Confédération Nationale des Organisations Paysannes de Guinée
Mme Aïssata Yatara	Conseillère Régionale, vice Psdt de la CNOP	
Phylipe Onomou	Président de la fédération des planteurs de Café de Guinée	
Dr.Mme Fatoumata Binta Diallo	Directrice Nationale Adjoint	Service National de l'hygiène Publique
Dr. Sangaré GB'ATO	chargé de l'hygiène de milieu	
Dr. Robert Camara	Directeur National	

List of persons met – Liberia

NAME	TITLE AND ORGANIZATION
Florence A. Chenoweth, PhD	Minister, Ministry Of Agriculture (MOA)
Dr. Moses M. Zinnah	Coordinator, Project Coordination Unit/MOA
Gregory Taplah,	Head/Crop Resource Division /MOA
Augustus B.G. Fahnbulleh	Director, national Quarantine & Environmental Services
A. Richelieu Mitchell, Sr	Acting Deputy Minister for Extension/MOA
Ben Karmorh	Manager, Monitoring & Assessment /EPA
Dr J.Q. SUBAH	Director, CARI
G. Momoh Tulay	Register General/Cooperative Development Agency
Harris B. Wennie	Program manager/ Cooperative Development Agency
Dr. Sizi Z. Subah	Agro-consultant/Greenstar Inc
Dr. Windfred N.O. Hammond	Resident representative/FAO

List of persons met – Sierra Leone

1. Dr. Alfred Dixion, Director General, Sierra Leone Agricultural Research Institute.
2. Mr. Patrick S. George, Liaisons Officer, Sierra Leone Agricultural Research Institute.
3. Mr. Syril S.J. Jusu, Ag. Executive Director, Sierra Leone Environment Protection Agency
4. Mr. Edwin Baimba, Ag.Director, Sierra Leone Environment Protection Agency.
5. Mr. Momodou Bah, Ag.Deputy Executive Director, incharge of Field Operations and Extensions and EIA's, Sierra Leone Environment Protection Agency.
6. Dr. Sisay, Honorable Minister of Agriculture and Food Security, Sierra Leone.
7. Dr. Sankoh, the Director General of Agriculture, Ministry of Agriculture and Food Security, Sierra Leone.
8. Ben A. Massaquoi, Director of Crops, Ministry of Agriculture and Food Security, Sierra Leone.
9. Mr. James D. Spencer, Crop Protection Service, Ministry of Agriculture and Food Security, Sierra Leone
10. Chief Jusuf S. Sankoh, National Administrative Secretary, National Association of Farmers Sierra Leone (NAFSL)
11. Hassan Mansary, Organizing Secretary, (NAFSL)
12. Andrew R.C. Conteh, National Secretary General, (NAFSL)
13. Momodou N.Massaquoi, Research, Monitoring and Evaluation Officer (NAFSL)
14. Chief Ya Alimamy Manso Kamara, Coordinator Amrafa Women's Farmers Cooperative, NAFSL.
15. Dr. James BRAHIMA, IITA, Sierra Leone

List of persons met – Togo

NAME	FUNCTION & STRUCTURES
Dr. Comlan Atsu AGBOLI	Directeur Général ITRA
Kodjo LABARE	Directeur Technique ITRA
DR. Adou Rahim Assimou	ITRA
Dr. KPEMOA	Chercheur/ITRA
Martin Ayéfouni ALE GONH-GOH	Directeur Général/ICAT
Ambroise FANTCHEDE	Directeur des Opérations/ICAT

Mme EWOVOR AKUWAWI	Directrice des Etudes et Conseils/ICAT
AROUKOUN Akla Esso	Directeur Général Agriculture
GOGOVOR Yawo Séfé	Directeur DPV/MAEP
NADJO N'Ladon	Expert en Toxicologie de l'Environnement/DENV/MERF
LEMOU TOYI	Zootechnicien/Direction Elevage
Dr. ABBEY Georges	Directeur Adjoint Ecole Supérieur Agronomie
Dr. TCHALA WIDI	Chef Département Production Végétale/ESA
Arthur ZOAN	Coordination Togolaise des Organisations Paysannes et de Producteurs
OBOUSSOUMI Komlavi Eloi	Technicien Supérieur de Santé/PNLP

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