

**Western Africa, Western Africa - Sahel Irrigation Initiative Support Project –
P154482**

**ESMF - Executive Summaries for the six countries: Burkina Faso, Chad, Mali,
Mauritania, Niger, Senegal**

BURKINA FASO

Summary

1. Project overall objective, components and main activities

The Regional Support Project for Irrigation Initiative in the Sahel (PARIIS) is part of the dynamics of the High Level Forum on Irrigation held in Dakar on October 31, 2013 and which brought together the Heads of State and Governments of six Sahelian countries, with the main regional integration organizations (CILSS, ECOWAS, WAEMU), the World Bank, FAO and several international, inter-African, bi and multilateral organizations and institutions. It constitutes the essential cornerstone to achieve the qualitative and quantitative objectives of the Dakar Declaration and to establish the conditions for durability and sustainability of the investments made in the irrigated agriculture sector and to increase exploited areas.

At the national level, PARIIS is part of the strategic reflections undertaken by the Government of Burkina Faso and its partners, reflected in national policies and strategies, namely the Accelerated Growth and Sustainable Development Strategy (SCADD), the Rural Development Strategy (SDR) and the Sustainable Development of Irrigation Policy.

The development objective of the PARIIS project is to strengthen stakeholders' capacities to develop and manage irrigation and increase irrigated areas by following a regional approach based on the solutions in six countries of the Sahel.

PARIIS targets the following key measurable outcomes:

- Access to land and water on irrigated perimeters is improved;
- The planning system and the mode of realization of investments are concerted and based on analyses of reliable data and targeted studies;
- The tasks, functions and responsibilities of the various actors in the development and management of irrigation are clarified;
- Bankable investments (all types) borne by the project obtain financing;
- Solutions for the revitalization and long-term management of existing irrigated systems (all types) are available and implemented in selected areas;
- Development solutions for new small and medium-size irrigated systems are available and implemented in selected areas;
- Quality services to producers and field operators are available and accessible in selected areas;
- Information and knowledge on irrigation are shared among stakeholders;
- Project management and steering are effective.

To achieve these results, project activities are organized into three components: (i) institutional capacities for investment planning and management by stakeholders are strengthened; (ii) irrigated/developed areas are extended and the quality of interventions in the sector are improved; And (iii) actors have the information/knowledge for the management and development of investments in the irrigated sector.

The PARIIS-BF project will be implemented in four (4) regions of the country: North, Boucle du Mouhoun, Central-West and Center. The project intervention strategy envisages the start of activities in two (2) regions for the first two years (Boucle du Mouhoun and Nord) with a gradual extension to the other regions for the following years.

With regard to the activities to be carried out, the types of planned irrigation schemes are:

- Type 1: Lowland;
- Type 2: Small private individual irrigation;
- Type 3: Village irrigated perimeters;
- Type 4: Large public developments.

The project will involve more than 10,210 direct beneficiaries, including 2,482 women, ie 24.30% through the rehabilitation of 100 ha of existing irrigated perimeters and the realization of 920 ha of new irrigated perimeters and lowlands plus about 3,000 ha of complementary irrigation from small retention basins. It will also contribute to the improvement of associated services (consulting, financial services, warehousing, etc.) and access infrastructures. The actors involved in the development and management of the irrigated sector will also benefit from a better institutional environment and capacity building programs. The PARIIS Burkina Faso has an estimated total cost of about FCFA 18 billion.

2. Major environmental and social issues in the potential areas for sub-projects implementation

The major environmental and social issues in the potential areas for sub-projects implementation include:

- Contribution to the implementation of the Government of Burkina Faso's sustainable development policy for irrigated agriculture and food security;
- Direct economic spin-offs for the populations of the project's intervention regions (jobs, incomes, opening-up, etc.);
- Expropriation of portions of agricultural land and temporary loss of sources of income;
- The risks of land conflicts related to the increase of the population around the reservoirs;
- Destruction of vegetation cover.

3. Legal and Institutional Framework of Environmental and Social Assessments

The legal and institutional framework for environmental and social assessments takes into account that of Burkina Faso and the Operational Policies of the World Bank which are triggered by this ESMF (OP4.01, OP4.12, OP4.37, OP4.09, and OP4.11).

On the basis of the environmental and social provisions in force at national level and at the level of the World Bank, the project is classified in category A of activities subject to environmental assessment (OP 4.01, Decree No. 2015/1187/PRES/TRANS/PM/MERH/MATD/MS/MS/

MARHASA/MRA/MICA/MHU/MIDT/MCT, providing conditions and procedures for conducting and validating the ESIA, and the Environmental and Social Impact Statement).

To meet the policy objectives triggered, the following documents were prepared: (i) the Environmental and Social Management Framework (ESMF), (ii) the Resettlement Policy Framework (RPF), and (iii) the Pests and Pesticides Management Plan (PPMP). In addition, in order to meet the requirements of OP 4.37, the Government has drawn up terms of reference to carry out a study on the safety of the Toecé dam and periodic safety inspections.

4. Environmental and social impacts/risks by type of sub-projects or micro-projects

The main environmental and social impacts/risks by type of subprojects are shown in the following table:

N°	Sub-projects	Key positive environmental and social impacts/ risks	Key adverse environmental and social impacts/ risks
1	<ul style="list-style-type: none"> - Institutional Strengthening - Capacity Development 	<ul style="list-style-type: none"> - Better producer organization - Developing the technical capacities of producers - Improvement of health and hygiene in rural areas - Better gender mainstreaming 	-
2	<ul style="list-style-type: none"> - Implementation of irrigated production facilities - Equipment in high-performance technology packages 	<ul style="list-style-type: none"> - Improving irrigated agricultural productivity and food security - Occupation of producers - Income generation - Development of community activities - Improved water availability 	<ul style="list-style-type: none"> - Degradation and depletion of vegetation cover - Pollution of water and soil and nuisances due to the uncontrolled use of chemicals - Disturbances to aquatic, terrestrial and avian fauna
3	Access routes to production areas (opening-up)	<ul style="list-style-type: none"> - Ease of access to basic social services - Ease of access to markets 	<ul style="list-style-type: none"> - Disruption of economic activities - Degradation of some habitats - Destruction of portions of crop fields - Propagation of STIs/HIV AIDS - Insect vector proliferation (malaria and bilharziasis) - Destruction of vegetation cover and disturbance of ecosystems.
4	Construction of Storage warehouses	<ul style="list-style-type: none"> - Improving the security/conservation of agricultural products 	Intoxication or serious accidents in material handlers
5	Project management Monitoring and evaluation	<ul style="list-style-type: none"> - Improved efficiency in project management 	

5. Environmental and social management measures for the implementation of sub-projects

Environmental and social management measures are proposed by sub-component of the project and by sub-projects (or micro-projects). Details are set out in the appendix to this ESMF.

For Component A "Institutional capacities for investment planning and management by stakeholders are strengthened", the sub-projects for which mitigation measures have been defined are:

- Institutional strengthening;
- Capacity development.

For Component B "Irrigated/ developed areas are expanded and the quality of interventions in the sector are improved", the sub-projects for which mitigation measures have been defined are:

- Construction of storage warehouses;
- Equipment in high-performance technology packages;
- Implementation of irrigated production facilities;
- Use of agricultural inputs (fertilizers and chemicals, etc.);
- Access roads to production areas (opening-up).

Regarding Component C "The actors have the information/knowledge for the management and development of investments in the irrigated sector", the sub-projects for which mitigation measures have been defined are:

- Project management
- Monitoring and evaluation.

6. Procedure for the environmental and social management of eligible sub-projects

The procedure for the environmental and social management of eligible sub-projects comprises three (3) main phases with roles for different actors:

Phase 1: Scoping, conducting the study and public consultation:

- Environmental and Social Screening / Sub-Project Category Proposal (PCU);
- Determination of the project category (BUNEE);
- Elaboration of terms of reference (PCU);
- Validation of terms of reference (BUNEE);
- Field Investigations/Stakeholder Consultation / Drafting of the ESIA / EIS report (Consultant);
- Public Inquiry (Ministry in charge of the Environment).

Phase 2: Review of the report and issue of the reasoned opinion:

- Analysis of the ESIA report and the public inquiry report/Analysis of the EIS report (BUNEE/COTEVE);
- Preparation of the draft sub-project environmental compliance statement (BUNEE);

- Sub-project Environmental Compliance Decision Statement (Minister of the Environment).

Phase 3: Environmental Monitoring

- Supervision missions (PMU, World Bank, BUNEE, Beneficiaries);
- Follow-up of project implementation conditions (PMU, World Bank, BUNEE, Beneficiaries);
- Monitoring and verification of compliance with the environmental and social management plan (PMU, World Bank, BUNEE, and Beneficiaries).

7. Main indicators of the ESMF implementation

A set of indicators has been defined for monitoring the implementation of the ESMF. The main indicators are:

- Number of ESIA / ESIS carried out;
- Number of monitoring missions carried out;
- Number of training sessions organized on environmental and social safeguarding;
- Number of IEC awareness sessions organized on the environmental and social issues of the project and on good practices;
- Availability of maintenance manuals for irrigation equipment;
- Availability of an environmental and social procedures manual.

8. Organizational framework for the implementation of measures

The organizational framework for the implementation of ESMF measures includes:

- The Steering Committee of the project;
- National Committee for the Coordination and Monitoring of the Formulation Process of the Regional Program for Irrigation Development in the Sahel / Dakar Initiative (CNCS-SIIP);
- The Project Coordination Unit (PCU) and/or the Delegated Contracting Authority/ DCA;
- The BUNEE;
- Local Authorities (Town Hall, Regions);
- Decentralized technical services (Agriculture, Livestock, Environment, etc.);
- Associations of agricultural producers and beneficiary users of agricultural water;
- Village Development Councils (CVD);
- Private Service providers and operators.

The following table outlines roles and responsibilities in the implementation of the ESMF.

Matrix of roles and responsibilities for the implementation of the ESMF

No	Stages / Activities	Responsible	Support / Collaboration	Provider
1.	Identification of the location / sites and main technical characteristics of the sub-project (E&S filter)	Regional focal points (RFP)	<ul style="list-style-type: none"> • Decentralized services • CVD • Beneficiaries 	-

No	Stages / Activities	Responsible	Support / Collaboration	Provider
2.	Environmental selection (Screening-filling of forms) and determination of the specific kind of backup tool	Environmental and Social Safeguard Specialist (SSES) of the PCU	<ul style="list-style-type: none"> • Beneficiaries • Mayors • SSES/PCU • 	-
3.	Approval of categorization by the ESIA entity and the Bank	Project Coordinator	<ul style="list-style-type: none"> • SSES/PU 	<ul style="list-style-type: none"> • National Entity responsible for ESIA (EN-EIE) • World Bank
4.1.	Preparation of the specific Category A sub-project E & S backup instrument			
	Preparation, approval and publication of the TOR	SSES/UP	<ul style="list-style-type: none"> • EN-EIE 	<ul style="list-style-type: none"> • The World Bank
	Conduct of the study including public consultation		<ul style="list-style-type: none"> • Procurement Specialist (SPM); • EN-EIE ; • Mayors 	<ul style="list-style-type: none"> • Consultant •
	Validation of the document and obtaining the environmental certificate		<ul style="list-style-type: none"> • SPM, Mayors 	<ul style="list-style-type: none"> • EN-EIE, • The World Bank
	Publication of the document		<ul style="list-style-type: none"> • Coordinator 	<ul style="list-style-type: none"> • Media ; • The World Bank
4.2.	Preparation of the specific B & C sub-project E&S backup instrument			
	Preparation and approval of the TOR	Environmental and Social Safeguard Specialist (SSES) of the PCU		The World Bank
	Conduct of the study including public consultation		<ul style="list-style-type: none"> • Procurement Specialist (SPM) • BUNEE ; • Mayors 	<ul style="list-style-type: none"> • Consultant
	Validation of the document and obtaining the environmental certificate		<ul style="list-style-type: none"> • SPM, • Mayors 	<ul style="list-style-type: none"> • BUNEE, • The World Bank
	Publication of the document		<ul style="list-style-type: none"> • Coordinator 	<ul style="list-style-type: none"> • Media; • The World Bank
5.	Integration in the tender dossier (DAO) of the subproject, of all the measures of the phase work able to be contracted with the company	Technical manager (RT) of the activity	<ul style="list-style-type: none"> • SSES • SPM 	
6.	Execution/ implementation of measures not contracted with the construction company	SSES MOD	<ul style="list-style-type: none"> • SPM • RT • Financial Officer • Mayors • xxx 	<ul style="list-style-type: none"> • Consultant • NGOs • Others
7.	Internal monitoring of the implementation of E & S measures	SSES	<ul style="list-style-type: none"> • Specialist in Monitoring-Evaluation (S-SE) • Specialist in Monitoring and Evaluation (S-SE) • FO • Mayors • Decentralized services 	Control office
	Dissemination of internal monitoring report	Coordinator	SSES	
	External monitoring of the	EN-EIE	SSES	

No	Stages / Activities	Responsible	Support / Collaboration	Provider
	implementation of E & S measures			
8.	Environmental and social monitoring	SSES/PCU and/or DCA (MOD)	<ul style="list-style-type: none"> • Others decentralized SSES • Regional focal points (RFPS) • S-ME • CVD 	<ul style="list-style-type: none"> • laboratories/ specialized centers • NGOs
9.	Strengthening the capacities of stakeholders in E & S implementation	SSES/PCU	<ul style="list-style-type: none"> • Other SSES • SPM • Beneficiaries 	<ul style="list-style-type: none"> • Consultants • Qualified structures public
11.	Audit of implementation of E & S measures	SSES/PCU	<ul style="list-style-type: none"> • Other SSES • SPM • S-ME • EN-EIE • Mayors 	<ul style="list-style-type: none"> • Consultants

9. Estimated overall budget for the implementation of the ESMF

The estimated budget for the implementation of the ESMF amounts to six hundred and twenty-five million (625,000,000) FCFA francs.

N°	Project Activity	Potential environmental and social impacts	Mitigation measures	Responsibility		Schedule	Cost estimates (FCFA)
				Implementation of mitigation measures	Monitoring of implementation measures		
1	Studies to be carried out (01 EIA et 60 EIS)	01 EIAs for some sub-projects of the PARIIS (development Dourou)	Recruitment of consultants to carry out EIAs and EISs (including validation)	UCP-PARIIS et MOD Consultants	SSES-PARIIS WB	If necessary	350 000 000
2	Capacity Building	Misconception of the EIA and the stakes of the environmental management of work sites	Organize training sessions and workshops on EIA / EIS	SSES-PARIIS, BUNEE	PFR DREEVCC	Regional and communal workshops 1st year	35 000 000
			Carry out public awareness campaigns	SSES-PARIIS NGOs	PFR DREEVCC	Annual campaigns (1st year)	20 000 000
3	Water quality monitoring	Misuse of chemicals	Ownership of good practices	SSES-PARIIS	PFR BUNEE DREEVCC WB	2nd, 3rd and 4th years	35 000.000
4	Soil quality monitoring	Misuse of chemicals	Ownership of good practices	Producers	SSES-PARIIS PFR BUNEE Laboratories Local actors Water Agencies	2nd, 3rd and 4th year	40 000.000
5	Ecological monitoring (fauna and flora)	Misuse of chemicals	Ownership of good practices	Producers	SSES-PARIIS PFR BUNEE Laboratories BUNASOLS	3rd year	30 000 000

N°	Project Activity	Potential environmental and social impacts	Mitigation measures	Responsibility		Schedule	Cost estimates (FCFA)
				Implementation of mitigation measures	Monitoring of implementation measures		
6	Reforestation of compensation (30 groves + alignment)	Destruction of vegetable cover	Availability of seedlings and necessary land	Producers	SSES-PARIIS PFR BUNEE DGFF	2nd, 3rd and 4th year	90 000 000
7	Supervision Monitoring and evaluation	Non application of measures	Ensure compliance with ESMF measures (BUNEE Convention)	Contractors	SSES-PARIIS PFR BUNEE DREECC WB	Mid-term End of year	25 000 000
							625 000 000

10. Public Consultations carried out

As part of the preparation of the ESMF, consultations were held from July 01 to 05, 2016 with the local populations in the intervention areas of PARIIS-BF and in the technical services responsible for supervising producers (Agriculture, livestock, environment, etc.).

As regards the local populations, consultations took place in the village of Dourou (commune of Kirsi / Northern Region), then in the Boucle du Mouhoun Region in Lémini (commune of Bourasso) and Tiankuy (commune of Dédougou). The main concerns include:

- Strong expectation of local populations in the distribution of plots managed for irrigated production;
- Weakness of producers' capacities (technical routes, dosage of fertilizers and pesticides, techniques for making bunds, etc.);
- Concern about the treatment of socio-cultural issues (tombs and sacred sites);
- Need for community infrastructure at resettlement sites where appropriate, including boreholes;
- Concerns regarding land-to-land compensation for PAPs that would lose agricultural land.

As regards technical services responsible for supervising producers, the following concerns were raised:

- Inadequate information and involvement in project activities and the implementation of ESMPs;
- Weak capacities of agents of the deconcentrated services of the State in terms of environmental and social safeguard;
- Inadequate consideration of bank protection issues in projects.

11. Conclusion

The political, institutional and legal context of the environmental sector and of PARIIS intervention areas is marked by the existence of strategic planning documents as well as legislative and regulatory texts. However, at the institutional level, despite significant progress, inadequacies are noted in terms of capacities and competencies for the implementation of the ESMP measures.

To better optimize the implementation of the PARIIS-BF Framework for Environmental and Social Management (ESMP), mitigation measures, environmental standards, a monitoring program and detailed recommendations for institutional arrangements and an estimated budget were defined.

This ESMF is complemented by the Resettlement Policy Framework (RPF) and the Pest Management Plan (PPMP).

CHAD

EXECUTIVE SUMMARY

Context:

Six countries in the Sahel, including Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad, are engaged in the preparation of the Regional Support for the Sahel Irrigation Initiative Project (SIIP) supported by the World Bank, following the High Level Conference on Irrigation in the Sahel held in Dakar on 31th October 2013.

SIIP aims to "build capacity of stakeholders and increase the irrigated areas for the performance of irrigated systems in the six countries". It presents itself as a prelude to a wide-ranging commitment by the six countries of the CILSS and the International Community for the development of irrigated agriculture, with an ambitious objective of doubling the area under irrigation within a reasonable horizon of 5 in 10 years.

The Project must comply with national environmental regulations and with the World Bank's Environmental and Social Safeguard Policies. This Environmental and Social Management Framework (ESMF) was established as part of this program for Chad. It aims to establish guidelines aimed at ensuring that the selection, evaluation and approval of sub-projects and their implementation conform to both socio-environmental national policies, laws and regulations as World Bank environmental safeguard policy.

- **Project description**

SIIP has a six-year duration and is structured into three components: **(i) Component A: Modernization of the institutional framework and planning**, will contribute directly to institutional strengthening (irrigation agencies, water user associations, local committees, etc.) and to improve the capacities in planning by developing institutional frameworks, tools and procedures. ; **(ii) Component B: Financing of investment solutions in irrigation**, will directly contribute to increasing irrigated areas by investing in the rehabilitation of degraded irrigated perimeters and the development of new developments in a results-based approach. ; **(iii) Component C: Knowledge management and coordination**, will contribute to the development objective through knowledge capitalization, strengthening of strong monitoring and evaluation systems and effective coordination of project activities at national and regional levels.

The project envisages the revitalization and long-term management of existing irrigated systems on the one hand, and the development of new irrigated systems of small and medium size on the other. These activities could potentially generate social and environmental impacts. Although the sub-projects and land requirements are not yet known and identified at the current stage of project formulation, it is important to define the general measures envisaged for mitigation of impacts, monitoring and the institutional framework for management of environmental risks. At the regional level, an estimated 21,390 ha will benefit some 60,760 agricultural households in the six beneficiary countries; Most of which use Type 1, 2 and 3 agricultural systems. Approximately 6,300 ha will be of Type 1, 4,000 ha of type 2 and 1,280 ha of type 3. **Major and critical environmental and social risks in the potential areas of intervention of the project**

The environmental and social aspects of the project depend on the areas (polders or plains) and the nature of the production (rice growing or market gardening) envisaged for the development. Indeed, the current environmental problems are: erosion in the eastern and central areas of Chad (Guéra, Batha, Salamat), scarcity of rains in the eastern zone, uncontrolled bush fires caused by agriculture slash and hunting in the East, Central, South and West areas. The social problems are centered on agropastoral conflicts and the poaching of wild animals in all the zones of the country, the incursion of the farmers in the national parks mainly in the South and West zones of the country. In the plains (Salamat), the issue of irrigation schemes

would be mainly social and could be linked to agro-pastoral conflicts, particularly in the dry season, for off-season crops, where sheep farmers go down to the lowlands of the search for water and grazing for livestock. However, in the rainy season, no cases of agro-pastoral conflict on irrigation schemes can be recorded because rainfed crops occur when farmers have already left the plains. In the area of Logone and Chari, the issue of hydro-agricultural development concerns the risk of destruction of fishing activity, one of the main economic activities of the zone, due to the risk of draining rivers exploited. In the polders, the issue of hydro-agricultural development concerns the risk of destruction of aquatic fauna including hippopotamuses.

- **The legal and institutional framework for the country's environmental and social assessments and the Environmental and Social Operational Policies of the World**

The legal framework for environmental management in Chad is based on Law No. 14 / PR / 98 of 17 August 1998 defining the general principles of environmental protection, with its decrees. The main institution in charge of environmental and natural resource management is the Ministry of Environment and Fisheries (MEP), which includes the Direction of Environmental Assessment, Control and Pollution Control (DEELCPN). The DEELCPN covers two components, one on environmental assessments and the other on pollution (waste, etc.) and nuisance (noise, etc.). The DEELCPN will be strongly involved in monitoring of the implementation of all environmental aspects of project in the framework of its missions. On the field, the Ministry is represented at the level of each region by a Regional Delegation. These Regional Delegations will be involved in the close monitoring of the implementation of socio-environmental aspects in each intervention region of the project.

The Project is classified as Category A (Full Assessment - Full Assessment) as its impact on the environment is likely to be significant. The environmental and social safeguard policies triggered by SIIP are as follows: OP 4.01 (Environmental Assessment), OP 4.04 (Natural Habitats), OP 4.09 (Pest Management), OP 7.50 (International Watercourse Projects), OP 4.37 (Dam Safety), OP 4.11 (Physical Cultural Resources) and OP 4.12 (Involuntary Resettlement of Populations). In addition, OP 4.07 on integrated water resources management is also triggered. Specific measures and actions are proposed in this ESMF and its related documents (CPR, PMP) to meet these requirements.

- **Potential type of impacts / risks of the proposed subprojects**

(a) Impacts related to the choice of perimeters to be developed: (i) *Potential negative environmental impact:* Risk of increased degradation of natural resources located on the targeted perimeters if the sites are not chosen taking into account the availability thresholds of these resources. The risk of destruction of structure and texture of soils, as well as vegetation, could come from compaction by tractors. It could have a concentration of livestock and even wild animals around the water points developed with risks of destruction of the surrounding vegetation and soil erosion caused by animal trampling and extension of agricultural areas. The consequences are the difficult regeneration of the affected soils and the prolongation of the fallow period; (ii) *Potential negative social impacts:* Risk of conflicts related to the development of the perimeters would be important if the sites are not chosen in a consensual way with the beneficiaries and the host communities.

(b) Impacts related to the completion of the work: (i) *Potential negative environmental impacts:* The work may result in a limited amount of work. The time of noise nuisance or dust emissions. At construction sites, access roads, earthworks and flattenings will result in the temporary removal of vegetation cover, compaction of soil and earth movements, etc. Companies will use borrow sites and quarries to obtain building materials; (ii) *Potential negative social impacts:* During the work, the installation of a foreign workforce recruited elsewhere by the company could create unfavorable relations with the communities and

risks of spread of certain diseases including STIs and AIDS. (iii) *Potential positive social impacts:* Infrastructure construction and / or rehabilitation companies will offer unskilled temporary jobs to local populations, thus improving their incomes.

(c) Impacts on water resources: (i) *Potential positive environmental impacts:* The development of irrigated perimeters constitutes a factor for the improvement of the water table in terms of water availability because they contribute to the recharge of the water table thanks to infiltration. Physically, these storm water storage structures will prevent gullies on slopes or areas of sharp dunes. Regulating runoff on trenches will promote infiltration and will prevent erosion and widening of trenches. Structural hydraulic arrangements may be necessary to secure drainage and flood protection and related infrastructure to facilitate market access (roads, storage, service buildings); (ii) *Potential negative environmental impacts:* Intensive exploitation of irrigated perimeters could lead to localized pollution of surface and ground water due to the intensive use of plant protection products and fertilizers. The risk of drying out of the surrounding watercourses and water points could be high if the samples are not checked and carried out reasonably; Which could affect fish stocks with consequences on fishing activity, particularly in the Logone and Chari area, flora and fauna, especially hippopotamuses in the polders, and rice production. (iii) *Potential positive social impacts:* Water availability will allow for off-season cultivation and thus increase agricultural production. (iv) *Potential negative social impacts:* Storage of water in irrigated perimeters over a longer period of the year may result in the development of mosquito larvae and other parasites that are harmful to human health.

- **Environmental and social management measures**

- Steering Committee: will be responsible for the: (i) Approval of the annual work plans and budgets of the safeguard measures prepared by the CU; (ii) Supervision of the overall socio-environmental performance of the project and strategic direction; (iii) Make the necessary adjustments to the project on the basis of the results of the monitoring and evaluation of the safeguard measures; (iv) Organization of an annual meeting with donor representatives at least once a year to ensure the proper coordination of rural development activities.

The Steering Committee's mission will be to provide a guiding framework for project activities; As such, it will be responsible for:

- Informing partners on the environmental approach implemented within the framework of the project;
 - Consultation on the articulation of the project with the national environmental policy
 - The information on compliance with the predispositions mentioned in environmental clauses
 - The proposals for all decisions, measures or reforms to achieve the environmental objectives
 - The review and approval of plans of operations, budget and technical and financial implementation report on environmental matters
- Project Coordination Unit (PCU): It will have overall responsibility for the implementation of this ESMF and the environmental and social safeguards and instruments relating to the project. It shall ensure that the certificates and permits required by the relevant national regulations are obtained before any action is taken. It reports to the Steering Committee on all due diligence and ensures that the Bank and other stakeholders receive all E & S monitoring reports. To this end, it has an environmental and social unit composed of two qualified specialists (01 specialist in environmental protection and 01 specialist in social safeguarding), whose specific tasks are summarized in Table 1 Matrix of roles and responsibilities

- Agency / Directorate of Environment / Environmental Assessment (Agence/Direction de l'Environnement / Evaluation environnementale DEELCPN): The DEELCPN will be involved in the definition and monitoring of the project's environmental and social policy as members of the steering committee. It will ensure that these aspects are taken into account in the selection of sub-projects and in the implementation of the measures identified. The DEELCPN will be responsible for validating the EIA and NIE reports of the sub-projects. The role of the DEELCPN will be to bring the various stakeholders of the project to adopt a responsible behavior with respect to the environment with a view to ensuring its protection
- Local authority (mayor, the local representative of the central authority (sous-préfet), etc.): Local authority consists of local elected representatives, sous-préfets, traditional chiefs and representatives of civil society. The managers of the departmental technical services, in particular the departmental ESMP monitoring committees and the communal managers, will be called upon to support the local communities in the implementation of the project activities. To this end, a major effort must be made to develop their capacities to ensure that environmental issues are taken into account in the development and implementation of ESMF
- Beneficiary associations: The promoter of each sub-project will be responsible for filling the environmental and social form to ensure that these aspects are taken into account as soon as the sub-project is formulated. In the case of an EIA or a NIE, it will participate in the implementation of the safeguarding measures of its sub-project during its implementation.
- **Roles and responsibilities for the implementation of E & S management measures**
 - Project Coordinator: The Project Coordinator will decide on the major strategic directions for the implementation of the project and the related implementation modalities. It will be responsible for assessing the impact of the project on the basis of the results of the monitoring and evaluation activities. It will approve the annual work plans and budgets and ensure that they are consistent with the project's development objective. Under the supervision of the steering committee, the project coordinator coordinates the project's Operational Unit. To this he
 - plans, organizes and directs all the activities necessary to achieve all the objectives of the project;
 - ensure that eligible activities contribute to the achievement of the project's objectives, while respecting the resources allocated;
 - ensures that the targets, budgets and deadlines established for the project are respected, and provides the expected reports and assessments;
 - develops, completes and finalizes all the documents to be delivered within the framework of the project, respecting the deadlines;
 - Communicate with beneficiary producer associations, including companies providing services;
 - Organizes the coordination meetings of the project, animates them and draws up the minutes;
 - Establishes links for concerted work and information sharing;
 - Mobilizes the key stakeholders mentioned in the project proposal to participate in the project;
 - Prepares the coordination document;
 - Develop an evaluation plan for the project;

- Organizes and coordinates consultations and meetings;
- Prepares information and other written materials in a timely manner to ensure the implementation of project
- Environment Safeguards Specialist: At the regional level, Focal Points will be designated by the DEELCPN and will be responsible for monitoring the implementation by the promoters of the mitigation measures recommended in the EIAs and NIEs of the sub-projects. They will assist the sub-project promoters in filling the environmental and social selection form, in the choice of mitigation measures.

Under the authority of the Coordinator, the Environmental Safeguard Specialist shall:

- ensure that environmental safeguard documents (CGES, CPRP, ESMP, etc.) are properly disseminated to the actors involved in the implementation of the project from the outset;
- carry out the environmental screening of the activities included in the project prior to their start-up and classify them into activities that: (i) are subject to environmental impact assessment, (ii) not subject to an environmental impact assessment but Recommendations for environmental measures or a simplified ESMP sheet;
- draw up simplified ESMP worksheets for subprojects and ensure that measures are included in work execution plans;
- ensure that the estimated Quantitative Quotation Tables of the Bidding Documents include the lines for the relevant environmental activities / products and / or indicate, where appropriate, clauses and provisions for the effective consideration of environmental measures in Tender documents and sub-project contracts;
- coordinate environmental activities between the different implementation centers and project implementation partners;
- helping to identify, where appropriate, (TDR drafting, selection, follow-up) the consultants for the preparation of the environmental impact studies of the sub-projects;
- assist in obtaining due diligence of environmental compliance notices from the Minister of the Environment or the competent authority (environmental permit and environmental discharge) for sub-projects;
- advising on the teaching materials and the technical conduct of any training workshops on environmental issues;
- advocate operational measures to strengthen the environmental expertise of the Project Coordination;
- help integrate the implementation of environmental activities into the overall implementation schedules for the sub-projects and activities concerned;
- assess the overall implementation of published environmental safeguard documents;
- analyze and give a reasoned opinion on the TORs and activity reports of the partners implementing the environmental measures of the project (companies, control offices, etc.),
- ensure the implementation and follow-up of the partners' recommendations (steering committee, etc.) on environmental issues,

- prepare quarterly reports on environmental monitoring (level of implementation, constraints, suggestions for solutions); These reports will feed into the "Implementation of Environmental.
- Social Safeguards Specialist: Under the authority of the Coordinator, the social protection specialist will coordinate the local monitoring of social aspects. Apart from monitoring the implementation of the social aspects of this ESMF (accompanying health and social issues such as awareness raising on HIV / AIDS, malaria control, management of social conflicts, etc.) , This expert will be responsible for producing a manual on good social practices. He will have to
 - do negotiations to facilitate out-of-court settlements,
 - ensure that RAP is properly implemented,
 - adequately communicate social safeguard documents (PAR, etc.) to the actors involved in the implementation of the project from the start,
 - prepare quarterly reports on social monitoring (level of implementation, constraints, suggestions for solutions); These reports will feed into the section "Implementation of social safeguard measures" of the overall progress report of the Project.
- Technical manager of the eligible activity: The main task of the technical manager is to coordinate all the eligible technical activity. This means he will
 - supervise and lead a team of technical consultants;
 - manage relations with partners and companies;
 - guarantee the supervision and technical maintenance of the eligible activity;
 - advising, informing and coordinating the production and technical development of the eligible activity;
 - ensure the technical coordination of the implementation of the eligible activity while respecting quality, hygiene, safety and environmental constraints;
 - put in place procedures to improve the efficiency of the work of the eligible activity;
- Procurement Specialist: Under the authority of the Project Coordinator, the Procurement Officer will provide expert advice to the Project Coordinator and the subproject executing agencies on all matters relating to procurement. Procurement and execution of contracts. Specifically and without limitation, the Procurement Specialist will assume the following responsibilities:
 - Prepare procurement plans for individual projects;
 - Ensure, with the beneficiary technical services, the preparation and finalization of the terms of reference (TOR) for the selection of consultants and technical specifications for the procurement of goods and works;
 - develop bidding documents, requests for proposals, quotes requests;
 - develop and proceed with the launching of: (i) Notice of Expression of Interest (AMI), (ii) prequalification notice and (iii) call for tender notice in accordance with donor procedures;
 - prepare, organize and participate in bids opening and bid evaluation sessions;
 - draw up the tender opening minutes and tender evaluation reports and obtain, if required, the notice of no objection from the lessor;

- ensure the preparation and finalization of contracts, contracts, agreements after obtaining the notice of no objection of the lessor if required, and ensure their signature
 - ensure publication of the results of calls for tenders in the required media and deadlines and ensure that bidders not retained in the procurement process receive the necessary information;
 - ensure compliance with donor procurement procedures and national procedures;
 - contribute to the preparation of the financial monitoring reports and the progress reports on the award of contracts;
 - ensure the filing and archiving of procurement files which will include for each contract all documents relating to this contract including documents relating to payments, with a view to allowing any retrospective review of the donors;
 - ensure the handling of complaints received in connection with the award of contracts;
 - developing mechanisms for monitoring contract performance and management statistics that will enable donors to measure the level of performance of the procurement team;
 - ensure the updating of the Enterprise Data Base;
 - carry out any tasks or tasks related to procurement assigned by the Project Coordinator
- Finance Manager: It coordinates and oversees the accounting, treasury, fund management, and proposes a short, medium and long term financial policy. It is under the responsibility of the Project Coordinator. It finalizes the budgets of the sub-projects and adapts them to the perimeter of the activity. It constantly informs the Coordination on financial health and also handles external financial information to donors. He oversees management control, treasury and accounting. It collaborates constantly with all services and in the case of a negotiation, it can represent or assist the Coordinator documents and analyzes in support.
 - Monitoring and evaluation specialist: The M & E specialist will be responsible for ensuring the effective and efficient implementation of project monitoring and evaluation, capitalization and learning activities. For this purpose, he
 - ensures the day-to-day management of the M & E system;
 - participates in the supervision of the implementation of the environmental measures defined for the implementation of the sub-projects by the specialist in environmental and social safeguarding and evaluates their performance in concert with its employees;
 - identifies difficulties encountered in the preparation, execution of sub-projects and participates in the implementation of corrective measures;
 - participates in the assessment of needs and capacity building of staff and implementing partners;
 - report periodically to the Project Coordinator on the progress of the activities carried out by the different actors involved in the implementation of the subprojects;
 - ensure the regularity of the technical reports of field staff and sub-project implementation partners;
 - exploits the reports submitted by the partners and the field staff and participates in the feedbacks in collaboration with the specialist in environmental and social safeguard;

- participates in the preparation of technical coordination meetings;
 - participates in the monitoring and evaluation of programmatic performance and that of the technical staff under its supervision;
 - with the collaboration of the environmental and social safeguard specialist, it consolidates the monthly, quarterly, semi-annual and annual reports of field staff and implementing partners, analyzes gaps and ensures that corrective measures are implemented;
 - participates in the preparation of budgets and performance reports (technical and financial), the periodic analysis of variances and the correction of changes if necessary;
 - supervises and accompanies collaborators and implementing partners in the execution of short, medium and long-term activities;
 - supports the organization of field missions of supervision, monitoring and control of the actors involved in the implementation of the subprojects;
- Construction companies: They respond to calls for tenders to intervene at the operational level. They may be responsible for the execution of activities selected under the project and subprojects. They are also either responsible for the supervision of the works to be carried out or responsible for carrying out the environmental studies (EIA and NE) prior to the implementation of these activities. After contracting by the procurement specialist, the contractors will implement the measures contained in the environmental and social management plans (ESMPs) of the works for which they are responsible on the basis of the subproject ESMP. They must have an environmental specialist responsible for the implementation of the ESMP.
 - Controller of works / construction companies: Under the supervision of the Project Coordinator, the Controller will be on-site full time to monitor and control the execution of the work. It controls legal, technical and all aspects of environmental conservation standards and measures. It is required to bring its expertise and to report irregularities in the course of the work, making the interface between the different companies of the project and the beneficiaries. It prepares and submits to the Coordinator the Progress Reports of all works.

Table 1: Matrix of Roles and Responsibilities (with respect to the Institutional Arrangement for the Implementation of the ESMF)

No	Steps/Activities	Responsibility	Support/collaboration	Service provider
1.	Identification of the location / site and main technical characteristics of the sub-project (Do the E & S screening)	Operational Unit	<ul style="list-style-type: none"> • Beneficiaries, • Technical manager of eligible activities, • Environmental and Social Safeguards Specialists of the PCU 	<ul style="list-style-type: none"> • Construction companies • Construction companies
2.	Environmental Screening (filling of forms), and determination of the type of safeguard instrument to use (ESIA, RAP, IPP, Audit E &	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> • Beneficiaries; • Local authorities Environmental and Social Safeguards Specialists of the 	Consulting firm

	S, AS, etc.)		PCU	
3.	Approval of the safeguard category classification by the entity responsible for the Environmental Impact Study the Bank	Project Coordinator	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> National Entity responsible for the Environmental Impact Study World Bank
4.1.	Preparation of the safeguard instruments E&S of category A subj-project			
	Preparation, approval and publication of the ToRs	Environmental and Social Safeguards Specialists of the PCU	EN-EIE	World Bank
	Conduct of the study including public consultation		Procurement Specialist ; National Entity responsible for the Environmental Impact Study ; Mayor ;	Consultant
	Approval of the document and obtaining the environmental certificate		PS, Local authority	<ul style="list-style-type: none"> National Entity responsible for the Environmental Impact Study , World Bank
	Publication of the document		Project Coordinator	<ul style="list-style-type: none"> Media ; World Bank
4.2.	Preparation of the safeguard instruments E&S of categories B or C subj-projects			
	Preparation, approval and publication of the ToRs	Environmental and Social Safeguards Specialists of the PCU		World Bank
	Conduct of the study including public consultation		Procurement Specialist ; National Entity responsible for the Environmental Impact Study ; Local authority	Consultant
	Approval of the document and obtaining the environmental certificate		Procurement Specialist ; National Entity responsible for the Environmental Impact Study ; Local authority	<ul style="list-style-type: none"> National Entity responsible for the Environmental Impact Study , World Bank
	Publication of the document		Project Coordinator	<ul style="list-style-type: none"> Media ; World Bank
5.	Integration in the call for proposals of the subproject, all the safeguard measures applicable to the phases of the works to be contracted with the construction company; (li) approval of the	Technical manager of eligible activities	<ul style="list-style-type: none"> Environmental and Social Safeguards Specialists of the PCU Procurement Specialist	

	ESMP undertaken			
6.	implementation of safeguard measures not contracted with the construction company	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> • Procurement Specialist • Technical Manager • Finance Manager Local authority	<ul style="list-style-type: none"> • Consultant • NGO • Others
7.	Internal monitoring of the implementation of E & S measures	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> • M&E Specialist • Finance Manager Local authority	Control Office
	Dissemination of internal monitoring report	Project Coordinator	Environmental and Social Safeguards Specialists of the PCU	
	External monitoring of the implementation of E & S measures	National Entity responsible for the Environmental Impact Study	Environmental and Social Safeguards Specialists of the PCU	
8.	Environmental and social safeguards monitoring	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> • Others • Environmental and Social Safeguards Specialists S-SE	<ul style="list-style-type: none"> • Laboratories /Specialized centers • NGO
9.	Strengthening the capacities of stakeholders in E & S implementation	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> • Others • Environmental and Social Safeguards Specialists of the PCU Procurement Specialist	<ul style="list-style-type: none"> • Consultants • Competent public structures
11.	Audit of implementation of E & S measures	Environmental and Social Safeguards Specialists of the PCU	<ul style="list-style-type: none"> • Others • Environmental and Social Safeguards Specialists of the PCU • Procurement Specialist • S-SE National Entity responsible for the Environmental Impact Study Local authority	<ul style="list-style-type: none"> • Consultants • Environmental

The roles and responsibilities as described above will be incorporated into the Project Implementation Manual (PIM).

- **Key indicators for the implementation of the ESMF**

The main indicators for the implementation of the ESMF are: Presence of an environmental and social Specialist in the project implementation unit, number of EIAs and NIEs carried out, number of internal monitoring missions, number of supervision missions of the World Bank, Number of information, awareness-raising and training sessions organized.

- **Organizational framework for the efficient implementation of measures**

Implementation of the socio-environmental activities will be carried out by the recipient producer organizations and the service providers of the project. The internal monitoring of the implementation of socio-environmental activities will be carried out by the Project implementation unit through an Environmental and Social Specialist recruited on a call for applications for this purpose. External monitoring will be carried out by the relevant ministries under the coordination of the DEEPLCN of the Ministry in charge of the environment. Two environmental audits will be carried out, one at the middle of the third year and one at the mid of the sixth year of implementation of the project. These audits will be carried out by external consultants recruited for this purpose. The two Washington-based World Bank experts, one environmental and one social, will oversee the implementation of project safeguards.

- **Estimated overall budget for the implementation of all environmental and social safeguards**

The overall budget for implementation of the ESMF incorporates the costs of capacity building, information, awareness and monitoring. This budget is estimated at 652,050,000 CFA francs, ie 1,185,545 US dollars.

Category	Expenditure	Unit	Quantity	Unit Price (FCFA)	Total cost (FCFA)
Provision for environmental and social assessments	EIE	Type of irrigation	3	50 000 000	150 000 000
	NIE	Type of irrigation	3	25 000 000	75 000 000
Training and capacity building	Capacity building for sub-project promoters and providers of proposed investment projects	Annual	6	30 000 000	180 000 000
	Strengthening the capacity of the RES and the PCU project managers, including those responsible for the associated technical services (DEAFPR, ONDR, DEELCPN)	Annual	6	5 000 000	30 000 000
Awareness raising	Preparation of awareness-raising materials (pamphlets, plaques, etc.)	Flat rate	1	50 000 000	50 000 000
Monitoring	Internal monitoring	Annual	6	PM	PM car déjà pris en compte dans le coût de fonctionnement du projet
	External monitoring by DEELCPN	Annual	6	6 000 000	36 000 000
Evaluation	Évaluation à mi-parcours	Flat rate	1	50 000 000	50 000 000
	Évaluation finale	Flat rate	1	50 000 000	50 000 000
TOTAL COST					621 000 000

<i>Contingency</i>	5%	<i>31 050 000</i>
TOTAL BUDGET FOR IMPLEMENTATION OF THE ESMF		652 050 000

- **Consultations**

The development of this framework followed a participatory process which required consultation of stakeholders from 22 to 28 August 2016 both in the central administrations in N'Djamena and on the field in Douguia and with the beneficiaries in the locality of Ambedane . The stakeholder groups encountered included central governments, producer support associations, NGOs and producer groups. The aim of this consultation was to obtain the views of the various stakeholders on the project, including their expectations, fears, potential environmental and social impacts of the project, possible mitigation measures for the project, mechanisms for involvement of producers in the implementation of the project. Discussions and inquiries have taken place with the resource persons of the administrations concerned and producer groups; which made it possible to collect the information necessary for the consolidation of this document. A minute was written at the end of each interview and a summary of the exchanges carried out was made at the end of the public consultations.

- **Additional documents to ESMF**

This Environmental and Social Management Framework (ESMF) is accompanied by three additional documents, namely the Pesticide Management Plan and the Resettlement Policy Framework. Environmental assessments, including environmental and social impact assessments and environmental impact statements, will be developed during the implementation of activities, depending on the scope of the sub-projects concerned.

The major recommendations of CGES are: (i) to identify and assess the environmental and socio-economic impacts generated at mid-term and at the end of the intervention; (ii) organize communications on the environmental and social aspects of the project; (iii) supporting the beneficiaries in terms of training, advisory support and awareness raising.

Consideration of the recommendations contained in this document will reduce the potential negative impacts and environmental issues that could arise from the implementation of the project. The participatory approach with local populations and producers and all those involved in the irrigated agriculture chain throughout the process would be the key to the success of the project in achieving its objectives. In the same way, awareness-raising, communication and information campaigns according to available means must be planned during the whole period of the intervention, in order to increase acceptance by the beneficiaries of the standards of respect for the environment and its sustainable management.

MALI

EXECUTIVE SUMMARY

PROJECT CONTEXT AND OBJECTIVES

The high level forum on irrigation held in Dakar on October 31, 2013 brought together three categories of participants as follows:

- Heads of State and Governments from six Sahelian countries (Burkina Faso, Mali, Mauritania, Niger, Senegal and Tchad);
- Major regional integration organizations (CILSS, ECOWAS, WAEMU); and
- Several international, inter-African, bilateral and multilateral organizations, e.g., World Bank, FAO, etc.

This forum led to a declaration called the “DAKAR DECLARATION” that was adopted by all 6 Sahelian countries. The objective of the DECLARATION was to significantly boost investment in hydraulic agriculture, so as to increase developed and exploited hectares from 400,000 to 1,000,000 by 2020.

Following the Dakar Conference, the six Sahelian countries, along with their technical and financial partners, and irrigated agriculture stakeholders, put in place a CILSS led Task Force. This Task Force was assigned the directive to backstop a regional program, involving six Sahelian countries, in the implementation of the quantitative and qualitative objectives set forth in Dakar. Subsequently, the Task Force produced a strategic framework document specifying three outputs:

- Guidelines to follow;
- A Global Action Program (GAP), including all the activities required to achieve the Dakar stated objectives; and
- A regional project document to assist the six Sahelian Governments in the implementation of the GAP.

This regional project entitled “Regional Support Project for the Sahel Irrigation Initiative Program” received 173 million US dollars from the World Bank Group to design, organize and implement project activities.

The Mali Sahel Regional Irrigation Initiative Support Project (SRIISP/PARIIS) easily fits into the guidelines of the current Growth and Poverty Reduction Strategy Paper (GPRSP/CSCR) for the 2012-2017 period. This is the essential medium term reference document for Mali’s development policy, as well as the principal reference document for all of Mali’s Technical and Financial Partners (TFP).

Additionally, SRIISP/PARIIS-Mali is consistent with the long term vision of the National Small Scale Irrigation Program (NSSIP/PNIP). The NSSIP/PNIP is based on the political will of the Government to sustainably develop the important potential of hydro-agricultural infrastructure throughout Mali. Consequently the Government will be able to respond to numerous requests from grassroots stakeholders for irrigation assistance.

The development objective of SRIISP/PARIIS is to improve the capacity of stakeholders to develop and manage irrigation and to increase irrigated acreage. This objective will be undertaken according to a regional approach based on specified “solutions” agreed upon by the six Sahelian countries (Burkina Faso, Mali, Mauritania, Niger, Senegal and Tchad). Additionally, this objective will be operationalized through three components:

- A. Modernization of the institutional and planning framework;
- B. Funding of irrigation solutions; and
- C. Knowledge management and coordination.

Component “A”, involving the modernization of the institutional and planning framework”, seeks to strengthen the overall institutional capabilities (irrigation agencies, water users associations, local committees, etc.). Further, component “A” plans to strengthen stakeholders’ planning capabilities. This will be done through the development of institutional frameworks, tools and procedures. Lastly, component “A” will also enhance organizational capabilities and reinforce investment potential. Thus, this component will contribute overall to improved irrigation management.

Component “B”, which involves funding irrigation solutions, will directly contribute to increased irrigated areas. Using a results approach, this effort will be implemented through investment in the rehabilitation of degraded irrigated zones and the development of new lands. Further, component “B” will reinforce services linked to value chains in irrigated agriculture. It will also prepare the next generation of irrigation projects by (a) reinforcing appropriate financing mechanisms and by (b) accumulating a pipeline of ready-to-go projects.

Component “C” involves knowledge management and coordination. This component will contribute to the (a) Project Development Objective through the capitalization of knowledge, (b) monitoring and evaluation systems reinforcement, and (c) efficient project activity coordination at both the national and regional levels.

Mali’s SRIISP/PARIIS intervention zones are the following:

- Components “A” and “C” activities are nationwide in scope;
- Component “B” activities are organized in Priority Intervention Zones (PIZ/ZIP) as follows:
- Priority Intervention Zone 1. This covers four administrative Subregions in the Koulikoro and Ségou Regions that are located between the Bani and Niger Rivers. Specifically, this area involves the

southern zone of Koulikoro Subregion, Dioila Subregion, the southern zone of Ségou Subregion, and Barouéli Subregion.

- Priority Intervention Zone 2. This covers the Ségou “Office du Niger “and Office Riz zones.

The SRIISP/PARIIS estimated provisional budget is approximately 19, 5 “milliards de FCFA”.

Brief description of the issues, environmental risks and major social criticisms of the potential zones for sub-project establishment.

In the project intervention zones, the major environmental and social issues and risks concern primarily the following:

- The problem of harmoniously reconciling issues between the agricultural and animal production systems (prevention and management of conflicts among different users of natural water resources);
- The adaptation to climatic change (struggle against desertification, sustainable land management, etc. ;
- The control of water for irrigated agriculture development;
- The integrated management of water resources (rational management of water in the Office du Niger zone and consideration of the shared nature of the Niger River which flows through several countries);
- The control of population movement in the SRIISP/PARIIS-Mali intervention zone; and
- Gender sensitivity in a decentralization context.

Legal and Institutional Framework for Environmental and Social Evaluations

Mali has specific legislation for environmental evaluations. In fact, Law no. 01-020 dated 30 May, 2001 regarding pollution and nuisances, in Article 3, states that activities likely to harm or disturb the environment and the quality of life require prior approval from the Minister of the Environmental Ministry. This approval is based on an environmental impact study report.

Specifically, the June 26, 2008 Decree No. 08-346 regarding the environmental and social impact study was modified by Decree No. 09-318 dated 26 June, 2009. In this modified Decree, Article 5 specifies that “projects, public or private, involving improvements, construction or other activities in the industrial, energy, agriculture, mining, artisanal, commercial or transport sectors, of which the achievements are likely to harm the environment, are required to complete an Environmental and Social Impact Assessment (ESIA) or an Environmental and Social Impact Notice (ESIN)”.

At the institutional level, the Ministry of the Environment, Sanitation, Pollution and Sustainable Development, through the National Direction for Sanitation, Pollution and Nuisances Control, is responsible for the Environmental and Social Impact Assessment, as well as all environmental monitoring activities, as

set forth by legislation. Additionally, at the institutional level, the Agriculture and also the Water / Energy Ministries, working through the National Direction for Rural Engineering and the National Direction for Hydraulics, are respectively responsible for irrigation and water resource management.

World Bank Safeguard Compliance Policies

In accordance with its principles, its geographical coverage and its potential impacts, SRIISP/PARISS is classified as category “A” and must comply with operational and safeguard policies, as follows:

- PO 4.01 Environmental evaluation;
- PO 4.04 Natural habitats;
- PO 4.09 Pest management;
- PO 4.11 Physical cultural resources;
- PO 4.12 Involuntary resettlement of people; and
- PO 17.5 Information dissemination.

The Environmental and Social Management Framework (ESMF) provides mechanisms and tools for the project to ensure compliance with specified requirements during the life of the project. The design and overall management of the project are in compliance with the requirements of PO 7.50 regarding water resource management.

Potential Positive Environmental and Social Impacts

The positive impacts are as follows:

- Promotion of good governance of the irrigation subsector;
- Promotion of sustainable agriculture;
- Achievement of food and nutrition security in the project intervention zone;
- Creation of new opportunities for income growth (including sensitive groups e.g., women and youth) ;
- Reduction of rural exodus;
- Promotion and dissemination of good practices and skills, as well as agricultural technologies including (crop/livestock/fisheries integration, etc.);
- SRIISP/PARIIS stakeholders’ capacity building; and
- Soil restoration for reforestation and other activities related to water erosion control and desertification.

Potential Negative Environmental and Social Impacts

The potential negative impacts are as follows:

- Clearing of land for development;

- Soil degradation due to erosion and waterlogging (salinization and alkalinization);
- Increase in diseases linked to water and STIs and HIV/AIDS;
- Social conflicts, especially between farmers and herders;
- Water resource use competition;
- Health risks linked to pesticide use;
- Road accident risks; and
- Pollution and nuisances (dust, noise, waste, and other).

Environmental and Social Management Measures

The implementation of the environmental and social evaluation should begin by a preliminary screening of subproject activities (development and rehabilitation of lowlands, Village Irrigated Perimeters and accompanying infrastructure construction). This screening will be carried out in compliance with the environmental and social requirements of the World Bank and Malian legislation.

The environmental and social management process is comprised of the following steps:

- Step 1. Subproject classification and determination of the environmental type;
- Step 2. Classification approval;
- Step 3. Examination and approval reports for the Environmental and Social Impact Study or for the Environmental and Social Impact Notice;
- Step 4. Public consultations and dissemination;
- Step 5. Integration of environmental and social provisions in the tender documents;
- Step 6. Implementation of the environmental and social measures; and
- Step 7. Environmental and social supervision, (daily) activity surveillance and periodic monitoring

During the implementation of the SRIISP/PARIIS subprojects, monitoring will include the management effectiveness of the environmental and social measures as listed in SRIISP/PARIIS Environmental and Social Management Framework. The following indicators will be monitored during implementation:

- Number of subprojects selected for Environmental and Social Impact Study, followed by the implementation of Environmental and Social Management Framework;
- Number of subprojects which were subject to an Environmental and Social Impact Study and which were implemented according to an Environmental and Social Management Plan;
- Number of hectares reforested after clearing;
- Number of producers sensitized to hygiene, security and STIs/HIV/SIDA; and
- Number of people affected by SRIIP/PARIIS activities.

Subproject Environmental and Social Management Procedures

The process describes the different steps to follow as soon as the site for each subproject or activity is known. Thus, environmental and social implications can be identified, as well as appropriate measures to be implemented, including institutional responsibilities.

The purpose of this process is to ensure that the environmental screening is effective, that the mitigation measures are adequately identified and incorporated in the planning for implementation of eligible activities, and that the monitoring and reporting of implementation measures is effective.

Capacity Building for Principal Stakeholders Implicated in the Implementation of the Environmental and Social Management Framework (ESMF)

Capacity building includes the following activities:

- Training in environmental and social management and also work related health and security;
- Information and outreach for local authorities and populations in the SRIISP/PARIIS zone concerning the environmental and social issues of the project identified in Environmental and Social Management Framework; and
- Training in water and land resource management.

Institutional Arrangement and Roles and Responsibilities for the Implementation of the Environmental and Social Management Framework Plan

The institutional mechanism for the environmental and social monitoring will be ensured by:

- The supervision of activities will be ensured by the SRIISP/PARIIS Project Coordination Unit. This Unit's environmental and social safeguard specialist will work with the environmental and social safeguard supervisors of private organizations and economic operators;
- The oversight of the implementation of the project's environmental actions will be ensured by the (a) environmental and social safeguard Specialist and the (b) environmental and social safeguard supervisors of private organizations;
- The external monitoring for the compliance of the Environmental and Social Management Plan is the responsibility of the Mali Government's National Direction for Sanitation and the Control of Pollution and Nuisances through a partnership protocol between itself and the SIIRSP/PARIIS. This partnership will include the designation of a SRIISP/PARIIS focal point leader within Mali's National Direction for Sanitation and the Control of pollution and Nuisances. For external monitoring results achievement this Government/partnership unit will be able to obtain support from several rural development sector's Technical Divisions (National Direction for Rural Engineering, National Direction for Agriculture, and National Direction for Water and Forestry).
- The audit for the implementation of the Environmental and Social Management Plan, as stipulated by Malian legislation, as well as the final evaluation, will be carried out by independent consultants at the end of the project.
- Project steering committee. Its mission will be to orient and supervise project implementation. Specifically, it will examine Work Plans and Annual Budgets proposed by the Project Coordination Unit, as well as progress reports on project implementation activities. It will also complete periodic reports. The Steering Committee will ensure the coherence between Project activities and similar ones financed by the Malian Government and other development partners;

- Territorial Authority. It will be in charge of awareness raising of subproject site populations, and also social mobilization activities involved in the implementation of the SRIISP/PARIIS-Mali's Environmental and Social Management Framework;
- Producer beneficiaries associations. They will be in charge of information dissemination and awareness raising of local populations on environmental and social issues as concerns SRIISP/PARIIS-Mali activities for subprojects in their action zones.

Estimated Costs for Environmental and Social Management Framework Implementation

The cost for implementing projected measures is estimated to be three hundred fifty million (350 000 000) FCFA (approximately 700 000 \$US). This sum will be incorporated into the SRIISP /PARIIS budget.

Stakeholder Consultation

The current Environmental and Social Management Framework was presented and discussed in public meetings in the Koulikoro and Ségou Regions and also in the Koulikoro, Dioila, Barouéli and Ségou Subregions. The main objective of these public meetings was to identify and collect various viewpoints, (issues, needs, concerns, expectations, etc.) of particular stakeholders regarding the Project.

These public meetings took place during July-August, 2016. Participating in these meetings were the following people who potentially could be involved in the project's implementation:

- Government representatives (Governor, Prefect and Sub-prefect);
- Members of technical services (rural engineering, sanitation, agriculture, water and forests, fisheries, animal production, and others);
- Locally elected officials (regional, subregional and municipality advisors);
- Local producers (rural youth, rural women, animal producers and others); and
- Professional operator organizations (Permanent Assembly of Agriculture Chambers, Coordination of NGOs and women's associations (CAFO), Rural Youth Association, Rural Women Association, Animal Production Association).

MAURITANIA

EXECUTIVE SUMMARY

Context of the Project and the Environmental and Social Management Framework (ESMF)

The Government of Mauritania with support from the World Bank is preparing the Regional Sahel Irrigation Initiative Support Project (PARIIS). A joint preparation mission of the Bank and the Mauritanian government of PARIIS was organized from 16 to 20 May 2016 following the identification mission conducted in six countries in October and November 2015 and the completion of the regional Task Force's work for the Sahel Irrigation Initiative. The Strategic Framework for Agricultural Water in the Sahel prepared by the Task Force was presented as side event at the World Bank's and IMF's spring meetings in Washington. It lays the foundation for an accelerated expansion of irrigated agriculture and improvement of the sector's performance. The identification mission permitted to clarify the actions to be carried out under the regional project funded by the World Bank up to US \$ 173 million in support to the Sahel Irrigation Initiative.

The Project Development Objective is to build the capacities of stakeholders to develop and manage irrigation and increase the irrigated areas by following a regional approach based on solutions identified in the six Sahel countries.

PARIIS/Mauritania plans to invest in three main components:

- ***Component A-Modernizing the institutional and planning framework;***
Three groups of activities will be carried out. These activities relate to (i) the analysis of the planning and investment process accompanied by the review of public expenditure related to irrigation; (ii) support the consultation process between institutional actors and actors in the field; (iii) support the plan aiming at strengthening the planning and investment process;
- ***Component B-Financing irrigation solutions;***
These activities are specific to small private and community irrigation. In this context, attention will be given to the capitalization of experiences, the search for synergy and complementarity with the other technical and financial actors present in the project area;
- ***Component C-Knowledge management and regional coordination.***
- Two main activities will be implemented out: (i) capacity building, and (ii) knowledge management. These two actions will help meet the needs in terms of capacity building both at the level of trainers and at the level of producers.

Under Component (A), the following activities will be implemented: (i) analysis of the planning process and implementation of investments together with the review of public expenditure related to irrigation; (ii) support

for better consultations between the institutional actors and field actors; (iii) support to the planning process and to the strengthening plan of the investment execution. The second Component (B), will deal with specific private and community small irrigation activities. In this context, attention will be given to the capitalization of experiences, looking for synergy and complementarity with other technical and financial actors now involved in the project intervention zone. Under Component C, two main activities will be implemented: (i) capacity building, and (ii) knowledge management. These activities will address the needs for capacity building for both trainers and producers.

Cadre politique et juridique de la gestion environnementale et sociale

The implementation of these components will necessarily lead to impacts both positive and negative at the economic, social and environmental levels. It is in this context that this ESMF is developed as a planning instrument to avoid, mitigate or correct the potential negative impacts, as well as maximize the positive impacts, in compliance with relevant national legislation while meeting the requirements of the applicable World Bank safeguard policies.

In order to lay the foundations of environmental protection and ensure a sustainable development, Mauritania has adopted and of natural resources. The Environmental Code, promulgated at the level of Law n ° 2000-045, constitutes in this sense, the general framework of reference in this matter. Its main objective is to reconcile ecological imperatives with the requirements of the economic and social development of the country, particularly through the imposition of environmental requirements necessary to protect the various components of the natural environment. According to Mauritanian regulations, any development project having an impact on the natural and human environment is subject to an Environmental Assessment. The legal instruments for this exercise are set out in the Environmental Impact Assessment Decrees, Decrees 2004-094 and 2007-105.

The project implementation must meet the requirements of the World Bank's environmental and social safeguard policies. To do this, and in agreement with the World Bank, the project was classified as Category A in the World Bank's classification, equivalent to Category A in the Mauritanian legislation on environmental assessment. It is however not planned to fund development activities that would be classified in Category A, except that the technical studies and feasibility studies for large-scale irrigation schemes (generally classified as Category A) to be prepared without funding the works, require considering the environmental and social aspects at the same level as the works. Clear instructions for the regional assessment of environmental and social impacts and notification needs will be included in the terms of reference for the preparation of these assessments, including where applicable, the terms of notification of the riparian countries.

Given that the details (locations and size of physical investments) of the program will not be known before the filing of the request to the Board of the World Bank, it was agreed to prepare the management frameworks that define the mechanisms and procedures for identifying and managing the risks and impacts of the program

when the aforementioned details become available during the implementation (after approval by the Board of the World Bank). These are: (i) an environmental and social management framework (ESMF), this document completed by; (ii) a resettlement policy framework; and (iii) a pest management plan (PMP).

This ESMF has been developed in this context, and will make it possible to support the evaluation of technical, environmental and institutional arrangements during the project implementation. The ESMF will help enforce the monitoring and evaluation measures to be taken into account, the mechanism for involvement, consultation and communication required for the implementation of the project's environmental and social management framework.

The operational policies of the World Bank, initiated in the framework of the project include:

- Environmental Assessment (OP 4.01): this ESMF and subsequent ESIA's provide the relevant provisions. Given the nature of the project, the requirements of the Operational Policy 4.07 on water resources management are also included in this document, and finalize the requirements of the Operational Policy 4.01;
- Pest Management (OP 4.09) : a pest management plan (PMP) is prepared separately as an additional document;
- Involuntary resettlement of people (OP 4.12): a Resettlement Policy Framework (RPF) is prepared separately as an additional document ;
- Natural Habitats (OP 4.04): the relevant provisions are included in this ESMF;
- OP 4.36 on forests: the relevant provisions are included in this ESMF;
- Physical cultural heritage (OP 4.11): this ESMF includes provisions therein;
- Safety of Dams (OP 4.37): The policy is triggered in the event of carrying out activities involving the construction of new dams, but also those dependent on the good performance of an existing dam or a dam under construction. The Guidelines and Procedures to apply in such cases are included in this ESMF;
- Projects on international waterways (OP 7.50): the policy is triggered but always in compliance with this policy, an exception to the notification was requested.

As a rural development project involving the substantial use of water resources, PARIIS also triggers World Bank Operational Policy 4.07 on Integrated Water Resources Management.

The Environmental and Social Management Framework (ESMF) of the project is in compliance with the safeguard policies of the World Bank Group and the environmental legislation currently in force in the country.

Environmental and social situation of the project zone

The project covers four wilayas (regions) in the Senegal River valley and also in other areas with hydro agricultural potential, in addition to wetlands, such as Mahmouda and Tamourt Enaaj. With its agro-pastoral vocation, the intervention zone is vulnerable to climate hazards, because the livelihoods are heavily dependent on rainfall. The four regions of the valley are subject to loss of biodiversity (fauna and flora), to bird attacks which negatively affect crops, to recurrent droughts, sand dune encroachment, deforestation (carbonization, domestic needs, shifting agriculture, etc.), and other problems like good control, effectiveness and efficiency of irrigation water management. Drainage water discharge results in serious pollution of the river, hence causing

new waterborne diseases other than malaria, and also a drastic reduction of fishery resources in the river. Furthermore, conflicts between farmers and livestock breeders are recurring, because of the large number of cattle and the breeding system. The relocation policies revealed a lack of consultation with communities upstream. At the economic and financial levels, irrigated farming poses challenges of profitability and adaptation to climate change. Specifically, the region of Guidimaka is distinguished by its topography; it is crossed by several rivers causing very high water erosion and a lot of washouts. The region is also characterized by the development of flood recession and shallow crops.

Screening process of subprojects

Under the Mauritanian law, any development project having an impact on the natural and human environment is subject to an Environmental Assessment. The legal instruments for this exercise are contained in Law No. 2000-045 establishing the Code of the Environment spelled out by decrees on Environmental Impact Assessment, and decrees 2004-094 and 2007-105. This selection procedure is carried out upon request and presentation of the project by the project promoter for screening by the DCE, after a preliminary classification by the promoter of the project in type A, B or C. An environmental and social screening of the project activities will be commissioned in collaboration with the Environment Control Directorate (DCE) and all the actors involved. To this end, the main steps are: preparation of technical files of sub-projects, filling the environmental and social screening form, validation by DCE, scoping of ToRs, launching of assessments (EIA, NIE, PGES) and validation by DEC and the World Bank.

Strengthening the capacity of actors involved in the implementation of the ESMF:

To build the capacities of actors, information, awareness raising and training workshops will be organized. Identified modules will focus on the knowledge of environmental and social safeguards, impact and implementation assessment, but also on the use, storage and transport of chemicals (pests and pesticides). Building the capacities of institutional actors in the areas of environmental legislation on impact studies is necessary. The beneficiaries shall be better informed about the environmental and social safeguard instruments of the World Bank.

Institutional mechanism

The project institutional mechanism bases on a participatory and inclusive approach of all stakeholders: the Ministry of Environment and Sustainable Development, the Ministry of Agriculture (through the directorates of plant protection, agricultural development, SONADER, strategies and cooperation), the Ministry of Health, the Ministry of Commerce (through SONIMEX), the Ministry of Home Affairs (through emergency preparedness), the Ministry of Hydraulics and Sanitation, decentralized administrative authorities, technical services at the local level, the Project Coordination Unit, socio-professional organizations, NGOs, CBOs and local associations.

Summary table of the roles and responsibilities of the institutional actors:

Institution	Role and responsibilities
Ministry of Environment and Sustainable Development	Responsible for the environmental policy and its implementation in the country. DCE will be responsible for scoping the environmental assessments, approval of documents and monitoring and evaluation
Ministry of Agriculture and its decentralized services	Responsible for the development of policies/strategies in agriculture and monitoring their good execution: implementation of PARIIS, developments, production, plant treatment, farmers' coaching, enforcement of the project's environmental and social safeguard measures.
Ministry of Health	Responsible for all issues relating to human health in the country and in the heart of all preventive or curative actions raised by the adverse effects of the Project on health. Issues related to waterborne diseases (schistosomiasis, malaria, etc) will be addressed by the Ministry of Health
Ministry of Home Affairs	Will manage all issues relating to relocation and safety of people and property in the event of conflicts created by the project
Ministry of Commerce	Responsible for the importations and exportations of food stuffs and chemicals. Shall be involved in exportations of food stuffs by the Project, if needed
Ministry of Hydraulics and Sanitation	Responsible for hydraulic issues linked to boreholes and water distribution systems
Project Coordination Unit	Ensure the daily management of the project: implementation, monitoring and evaluation
Organisations Socioprofessional organizations, CBOs and local Associations	Ensure advocacy of farmers' interests and bulk procurement of inputs. Can also play a role in monitoring of environmental and social management plans
NGOs	Can inform, sensitize and train farmers in the framework of the Project implementation. Can also contribute in financing at local level, and support in monitoring the PGES.

Costs and monitoring and evaluation measures

The execution of the technical and environmental measures and surveillance, monitoring, evaluation and capacity building activities will require funds. The table below shows the measures and related costs for the implementation of the activities.

Measures planned	Description of activities and estimate costs	Cost in \$
Provision to conduct environmental assessment studies of the sub projects (EIES/NIES/PGES etc.)	Realization of hydroagricultural infrastructures Establishment of plot irrigation systems Establishment of water drainage systems Production tracks Plan an average of 3500 \$/NIE and 5000 \$/EIE	100 000
Development of awareness raising, information and communication campaigns	PARIIS through the PCU will conduct awareness raising campaigns, information meetings in each region of the river valley and wetlands concerned (agricultural basins) with the NGOs and CBOs to inform the local elected representatives, the local populations on the objectives and challenges of PARIIS, the environmental and social aspects related to the projects and the activities. The number of information, awareness raising and communication campaigns will depend on the objectives set and the scope of the intervention We can determine an average cost of 15,000 \$ per campaign	75 000
Environmental surveillance/monitoring	Coordination of environmental monitoring is carried out by the Environmental Control Department. Surveillance is carried out by work control offices and surveillance offices, SONADER, local governments, NGOs, regional delegates in charge of agriculture and environment. Monitoring will be done by RMES/PARIIS, DCE, SONADER, DAR.	35 000
Evaluation	Hiring of consultants for a midterm evaluation and a final evaluation of the project Estimate cost: 15,000 US\$ per evaluation.	50 000
Institutional support	Capacity building of partners (DCE, SONADER, DAR, Local governments, NGOs) Logistic support	40 000
Health/safety/ hygiene	Compliance with hygiene and safety measures of workplace installations	Pris en

	<p>Ensure waste collection and disposal after the works</p> <p>Put in place back-up measures (sanitation, management and maintenance program)</p> <p>Appropriate signals during the works</p> <p>See to compliance with safety rules during the works</p>	charge par les prestataires de services
Total		295 000

Public consultations

A public consultation involving all stakeholders (SONADER, Agriculture, Environment, Livestock breeding, Hydraulics, MASEF Regional Service, local NGOs, cooperatives, unions of cooperatives, communities, local elected representatives and administrative authorities) was organized in Trarza, and more precisely in Rosso, Aker and Gani. In the villages of Gani and Aker, the focus group was met.

The discussions concerned the major components of the Project and the environmental and social concerns which could be created by the project. The point of view of Wali Mouçaïd (Deputy Governor), permitted to get the authority's opinion on the project and, particularly on land issues.

The most highlighted points in the public consultation process include:

- Obsolescent developments in most irrigation areas;
- Small areas currently sown in some places which cannot provide sufficient food to the household;
- Issue of technical support in the use of chemicals (fertilizers, pesticides, etc.) and compliance with crop itinerary techniques (cropping techniques) by the farmers;
- Issues of pollution related to drainage in the Senegal river;
- Proliferation of water-borne diseases (malaria, schistosomiasis, amoebiasis, etc.);
- Some villages are landlocked because of lack of consultation in the development of plots;
- Permanent tensions between farmers and livestock breeders;
- Limitation of access to and use of natural resources following non-consulted developments;
- Proliferation of invasive aquatic weeds (*Typha australis*, *Salvinia molesta*, *Piscia ostroides*) and heavy infestation of new plants unknown on the river banks;
- Contamination of domestic animals through livestock watering with polluted water and fertilizers.

The provisions and measures provided for in this ESMF are complemented by the Resettlement Policy Framework (RPF) and the Pest Management Plan (PMP) presented separately, with a view to the sustainable environmental and social management of the project such as: 'Require relevant national environmental legislation and World Bank safeguard policies.

NIGER

Executive summary

Background:

In October 2013 at the Dakar Forum, the six CILSS member states (Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad) alongside the Commissions of ECOWAS, UEMOA, FAO and attended by several organizations international launched a call to action for the development of irrigation in the Sahel through a so-called declaration of Dakar.

The purpose of this statement is to significantly increase investments in irrigation to spend 400 000 ha today to one million hectares by 2020.

To ensure the implementation of this declaration, the six signatory countries have put in place, with their technical and financial partners and actors of irrigated agriculture, a task force led by the CILSS, responsible for examining a regional project to support these countries in achieving quantitative and qualitative targets set in Dakar.

This regional project entitled "Draft Regional Support Initiative for irrigation in the Sahel (PARIIS)" got the group of the World Bank an allowance of US \$ 173 million to design, prepare and implement project activities.

It is in this context that the Government of the Republic of Niger is busy preparing the Country Component of the project which will take place in four regions namely Agadez, Tahoua, Dosso and Tillabery which present a workable irrigation potential.

The PARIIS Niger, through the implementation of some of its components, will bring sensitive to moderate changes in environmental and social terms that must be treated in accordance with the environmental regulations of the Niger and the Environmental and Social Safeguard Policies of the World Bank.

Specific details of the various interventions are not fully known at this stage of project preparation, it was decided that a framework Populations Resettlement Policy (CPO), an Environmental and Social Management Framework (ESMF) and a Map of pests and pesticide management (CPMP) are prepared. The CPO and PGPP were prepared in separate documents.

This document is the Environmental and Social Management Framework (ESMF) of PARIIS.

Objective and Methodology for Framework (ESMF)

The objective of the CGES is to provide the structures for the implementation of PARIIS, a set of tools and a description of the environmental and social screening or selection process that will allow them to carry out environmental and social assessments Project activities from the planning stage.

The mission was carried out under the supervision of the Project Preparation Technical Committee with the support of the Regional Coordination of CILSS. The methodology used in this study was focused mainly on the issue of inclusion of environmental and social aspects in the projects development agricultural irrigation component sector. Institutional meetings were also conducted at central and decentralized level with key players in the implementation of PARIIS. (See Notes to the People met).

Project description

The development objective (PDO) is to "improve capacity planning, investment and management of stakeholders and increase the irrigated area for the performance of irrigation systems in 6 countries of the Sahel."

The PARIIS is structured in 3 components are: Component A: Modernizing the institutional framework and planning; Component B: Financing of irrigation solutions and Component C: Capacity building, knowledge management and coordination.

This is mainly at the component B that are found mainly in investment activities that have negative environmental and socioeconomic impacts.

The project is being prepared. The composition and organization of the institutional guidance, implementation and monitoring will be defined taking into account the responsibilities of the different national actors in charge of irrigation and environmental management as well as the sub-regional organizational framework (CILSS) but with a vision of management by objective and results-oriented for achievement of project development objectives at the national and sub regional levels.

Main environmental and social risks and stakes in the project area

The main country's irrigation areas include the River Niger valley (Tillabery, Niamey and Dosso areas), the Bosso and Maouri dallols (Dosso and Tillaberi areas), the Ader-Doutchi-Maggia (Tahoua and Dosso areas), the GoulbisKaba of Maradi (Maradi area), the Koramas of Zinder (Zinder area) the KomadougouYobe, the lake system of Chad Lake and the oasis basins (Diffa area) and Irhazer in Agadez area.

During this phase, the Project will operate in four regions of Niger namely Agadez, Tahoua, Dosso and Tillaberi, for a total population estimated at 8,576,180 inhabitants, of which 4,264,127 of men (49.7%) and 4,321,053 of women (50, 3%) and will cover, most particularly, four of the major irrigation areas of the country namely: 1) the River Niger valley; 2) the Dallols; 3) the Ader-Doutchi-Maggia; and the Irhazer.

The main environmental risks and stakes in these areas are summarized as follows:

- The River Niger valley (Niamey, Dosso and Tillaberi areas)

The River Niger area is facing a silting risk accelerated by the progressive groundcover degradation in the watersheds of its various tributaries. This phenomenon is worsened by progressive deforestation and desertification. The river silting affects aquatic life and the socio-economic activities (fishing), and increases the flooding risk in urban areas, rural agglomerations located in the major river bed and riparian farmlands resulting thereby in annual production losses.

Also, the River Niger area remains the most exposed to risks of urban and industrial pollution. The majority of urban, industrial and rain sewage, from Niamey city is collected through drains and discharged without pretreatment in the River Niger, which constitutes the receptacle of all this pollution. For this purpose, the use of the groundwater constitutes a health risk for a majority of people in urban and rural agglomerations. There is also the proliferation issue of invading water plants (particularly by *Typha australis*, *Mimosa pigra*, *Eichornia crassipes* (water hyacinth)).

A major part of the pollutants released in the environment (agricultural wastes) arrives in the River Niger either directly or through runoff. The irrigated cropping is grown mostly from the

River Niger water that feeds the sheet during the water rise period. This income generating activity uses chemical fertilizers and pesticides. The obsolete pesticides and pesticide packaging create a significant risk for surface water and public health.

Relatively to these environmental risks, the major stakes are:

- The development of irrigated cropping without harming the environment;
- The appropriate management of sewage of industrial and domestic origin so that they do not arrive directly into the river Niger without undergoing treatment;
- The control of the river silting;
- The control of the invading plants.

-The Dallols (Dosso area)

In the dallols, the groundwater is merged with the alluvial aquifers, which exposes it to deterioration risk caused by diffuse pollution. The lower and middle layers are primarily recharged through the groundwater. The latter is itself fed through direct infiltration of the rainwater and especially the runoff in the endoreic areas favorable to the water accumulation in the ponds, where it undergoes significant seasonal and interannual fluctuations. This situation exposes these aquifers to the risks of quality degradation in relation with the economic activities in the area. The groundwater of the CT, is therefore vulnerable to changes in rainfall and runoff as well as in pollution from human activities.

Also, this area is exposed to other environmental risks which include:

- The land degradation due to wind and water erosion;
- The deforestation of forest resources (excessive cutting of green wood);
- The drastic reduction of the area of these agro-ecological zones due to climate change effects (droughts, silting due to winds that sweep the fertile soil layers);
- The grabbing of water points by others;
- The "mining" exploitation of the lands;
- The development of marginal lands;
- The development of the agricultural front resulting from the rapid population growth;
- The uncontrolled urbanization that does not take care of the existing pastoral structures;
- The proliferation of plant species non palatable by animals;
- The wild fires;
- The overgrazing around the water points;
- The collection of bush straw from the enclaves and pastoral areas;

As a result of the above, the major stakes are:

- The construction of structures that ensure the sustainable environmental management (thresholds, small dams, bunds, etc.);
- The promotion of biological and mechanical protection of the banks (tree plantation, erosion control works, dikes);
- The rehabilitation and construction of irrigation installations and rehabilitation or construction of social infrastructures in the areas affected by the floods;

- The Ader-Doutchi-Maggia (Dosso and Tahoua areas) and Irhazer (Agadez area)

The environmental risks and stakes in this area include:

- The gradual degradation of forest and wildlife resources;
- The colonization of the grazing areas by *Prosopis juliflora*;
- The occupation of forest formations by market gardens;
- The climate change ;
- The silting of ponds and oasis and the occupation of the Bilma oasis by invading water plants;
- The durability of the natural resources exploitation;
- The fragility of the production systems to hazards (floods, droughts);
- The land pressure (especially in Air area);
- The chemical and nuclear environmental pollution;
- The traditional gold mining;
- The wild fires;

From the main environmental stakes, the following can be mentioned:

- The further development of the Irhazer Valley;
- The development of Tamesna plain;
- The realization of water mobilization works and for groundwater recharge (dams, thresholds, Water and Soil Conservation/CES / Soil Defense and Restoration/DRS, biological protection of valleys etc.);
- The durability of the natural resources exploitation.

Policy, Administrative and Legal environmental frameworks

As part of the Nigerian environmental policy in environmental management has greatly expanded in the 1990s, and was reinforced by the development of sectoral policies and policy strategies some of which were presented in this CGES. Environmental Management in Niger includes a plurality of actors around a legal and institutional corpus provided enough scale, international, regional and national.

The safeguard policies of the World Bank are among the Operational Policies. They are intended to help Bank staff to promote socially and environmentally sustainable development approaches, and to ensure that operations do not harm to people or the environment. They include the Environmental Assessment Policy (EE) and policies within the scope of the EA: cultural property, disputed areas, forestry, indigenous peoples, waterways of international interest, involuntary resettlement, natural habitats, fight pest control and dam safety (WB, 2011).

Based on the preliminary definition of the components and activities of the Regional Support Project for the Sahel Irrigation Initiative (PARIISPARIIS), the Project would be a Category A (Full Assessment) project, which means that its environmental impact is likely to be significant. The requirements of the Operational Policy 4.07 on water resources management are also taken into account in this document.

The safeguards policies triggered by the project are the following: 4.01 - Environmental Assessment
Yes

4.04 - Natural Habitats :	Yes
4.09 - Pest Management	Yes
4.11 - Cultural Heritage	Yes
4.12 - Involuntary Resettlement	Yes
4.10 - Non Indigenous Peoples	No
4.36 - Forests	No
4.37 - Safety of Dams	Yes
7.50 - Projects on International Waterways	Yes
7.60 - Projects in Disputed Areas	No
17.5 - Dissemination of Information	Yes

Procedures for analysis and Project Selection

The process of selecting sub-projects and / or activities subject to financing PARIIS incorporates a socket approach into account environmental and social concerns. It is consistent with the national procedure for environmental and social assessment which remains consistent with the Bank's safeguard policies. The approach is sustainable activities implemented by the PARIIS through the integration of environmental and social aspects.

Public consultations

Public consultation means any approach to take notice of the population in order to inform a decision. In general, the public consultation rather refers to formal processes supervised by a defined procedure and often subject to regulatory or legal obligation. Indeed, the World Bank made of the information and public consultation requirement through its Operational Policy 4.01 right from the project design stage. Similarly Nigerian regulations on environmental assessment requires any project promoter to set up an advertising mechanism to bring to the attention of stakeholders information and take into account their views, concerns and expectations vis- à-vis project in order to be integrated in the design thereof. This is in order to comply with these requirements that public consultations and meetings with stakeholders were conducted from 7 to 13 July 2016 with various categories of stakeholders in the regions of Tahoua, Dosso, Tillabery and Niamey.

The meetings objectives were to:

- Inform the stakeholders involved in the project;
- Responding to concerns about the project, its components and impacts;
- Assess the general reception that the medium could book the project;
- Collect additional information and take into account the concerns, expectations and suggestions of stakeholders;
- Assess the need for capacity building of the actors in environmental management

The interviewees expect the project:

- Improving the quality of life of the beneficiaries;
- Job creation;
- Increasing agricultural production;

- Focus on large-scale irrigation;
- Allow the acquisition of information on the irrigated areas;
- Coaching in the management of impacts;
- Move towards modern agriculture.

They also expressed concerns and recommendations that have been reported in the Environmental and Social Management Framework (ESMF).

Potential Environmental and Social Impacts of PARIIS

The irrigation development implies the realization of a number of facilities that generate many positive environmental impacts both in phase of work in operational phase.

In its entirety, the project will be a good opportunity for economic and social development of Niger in particular and CILSS member countries in general by creating opportunities for the development of irrigation. The implementation of PARIIS, will among other things, stimulate private investment in the agricultural sector in targeted areas.

Environmentally, the project implementation will: better water management and land and improved management of irrigation potential in Niger and in intervention areas; good water management through suitable and adequate facilities (respectful of standards and the charter of the irrigated area) and with irrigation and drainage systems; preservation of natural areas and wetlands currently uncontrolled and under heavy threats

Socially, the positive impacts of the project activities, mainly focusing on: improving agricultural production techniques and systems (horticultural and rice fields); reduction of post harvest losses; improving incomes and marketing conditions; better utilization of production through processing; expanding the range of products; capacity building of different actors on rice and horticultural sectors (producers, traders, transporters, traders).

At the level of the population, the impact will be on: the contribution to food security; protein intake, the fight against poverty; the creation of new and enhancement of agricultural employment (reduction of unemployment and the exodus of young people through the creation of local employment opportunities); the improvement of living conditions. The project will also allow the opening up of its areas through the creation of access roads that would make it accessible production zones. It will also, among others, improve access to electricity areas that will eliminate multiple heat pump units currently in use and the risk of pollution of water and soil associated with their use, and will also contribute to improving the living environment of people in the area.

In general, potential negative environmental impacts associated with irrigation projects are summarized as follows:

- salinization and soil alkalization;
- salinization of alluvial;
- falling water levels.

In addition to these recurring impacts, activities related to the implementation of PARIIS can produce negative impacts on other environmental components. They will be related to the following: the risk of soil erosion (soil instability) due to agricultural developments, loss of vegetation and biodiversity and degradation of natural habitats during development works and other irrigated perimeters sites for small and medium irrigation (deforestation to prepare agricultural plots), the risks of pollution and degradation of the groundwater and streams related to the use of pesticides and fertilizers, risks related to the use

Genetically Modified Organisms (GMOs), environmental and social impacts associated with the construction of agricultural processing facilities, impacts of agricultural tracks, impacts of electrical installations, etc. Socially there could be increased tensions between farmers on land issues or between pastoralists and farmers related to wandering livestock.

Environmental and Social Management Plan

The selection process of sub-projects and / or activities subject to PARIIS funding integrates an approach to addressing environmental and social concerns. It is consistent with the national environmental and social assessment procedure, which remains consistent with the Bank's safeguard policies. The approach adopted focuses on the sustainability of the activities implemented by PARIIS, taking into account the environmental and social aspects.

To comply with environmental and social requirements of the World Bank and the Nigerian legislation, the screening of PARIIS activities should include the following phases:

- **First phase:** Identification of the location / site, and the main technical characteristics of the subproject;
- **Second phase:** environmental selection (Screening-filling of forms), and determining of the specific safeguard tool type;
- **Third phase:** Approval of categorization by the entity in charge of the EIA and the Bank;
- **Fourth phase:** Preparing the E & S specific backup tool per sub-project category;
- **Fifth phase:** Integration of all the measures of the contractible work phases with the company in the bidding documents (DAO) of the subproject;
- **Sixth phase:** Execution / Implementation of measures non- contracted by the construction company;
- **Seventh phase:** internal and external surveillance of the E & S implementation measures and dissemination of internal surveillance report;
- **Eighth phase:** Environmental and Social Monitoring;
- **Ninth phase:** Capacity building of stakeholders in the E & S implementation;
- **Tenth phase:** Audit of the E & S implementation measures.

Monitoring and Environmental and Social Surveillance Program

Despite the knowledge of certain environmental and social phenomena related to generic impacts PARIIS, the fact remains that it will always remain some uncertainty in the accuracy of other impacts, particularly regarding the impacts diffuse and residual impacts. For this reason, it is necessary to develop an environmental monitoring and monitoring program will be implemented under the PARIIS.

During the PARIIS activities include monitoring the effectiveness of the implementation of environmental and social management measures adopted in the Environmental and Social Management Framework (ESMF). The environmental and social components that will need to be followed are:

- The surrounding areas of natural habitats (risk of encroachment / incursion, etc.);

- Vegetation (classified forests, land and village plantations, etc.);
- The quality of surface and ground water (pollution by pesticides, etc.);
- The Niger and other water bodies River (disruption during development work);
- Wetlands and spawning areas and wildlife (aquatic and forestry);
- Conflicts between farmers and herders;
- Soil erosion during development;
- Soil degradation (salinization, alkalization, etc.);
- The health of populations and producers (waterborne diseases, HIV / AIDS, accidents, etc.).

The following indicators are proposed to be followed by the environmental and social cell of the PARIIS Coordination unit:

- Number of projects subject to environmental and social selection;
- Number of project that is the subject of an ESIA with ESMP implemented;
- Types of facilities for environmental protection;
- Number of hectares reforested after development sites of deforestation;
- Number of trees planted or carried landscaped areas;
- Level of implementation of environmental and social mitigation measures;
- Number of organized training sessions;
- Number of organized awareness sessions;
- Number of producers sensitized on hygiene, safety and STI / HIV / AIDS;
- Level of involvement of communities and local stakeholders in monitoring the work;
- Level of consensus (approval) on the choice of development sites;
- Level of consideration of gender in the selection of investors;
- Number of jobs created in the project areas;
- Respects level of hygiene and safety measures;
- Types of waste management measures and waste water;
- Number of people affected by the PARIIS activities;
- Nature and level of compensation;
- Number and type of complaints.

Institutional Arrangements and Implementation Environmental and Social Management Framework (ESMF)

For the Project, the “environmental and social” function should be ensured as both for the implementation and the monitoring. The ESMF will determine the implementation and the monitoring levels. The proposed institutional arrangements concerning the implementation and monitoring roles and responsibilities are as follows:

- ***The Project Steering Committee*** This committee, chaired by the Ministry of Agriculture, will decide on major strategic directions for the project implementation and the implementing rules therein;
- ***The Project Management Unit (PMU-PARIIS)***: considering the environmental, social and land stakes of the project, the PMU-PARIIS, will set up an Environmental and Social Cell (ESC) and recruit an Environmental and Social Expert to guarantee the

effectiveness of the inclusion of these aspects. The ESC will ensure the environmental and social monitoring, conduct the realization of eventual ESIA, ensure environmental and social training of agricultural investors and other technical bodies involved; etc.;

- The ***Experts in Environmental and Social Safeguards of the PMU (ESE / GRN and ESS / G)***: They will coordinate the preparation and monitoring of local implementation in relation to the municipalities and technical services concerned. These experts should work closely with the BEEEEI;
- **The Environmental Evaluation and Impact Assessment Office (BEEEEI)**: The BEEEEI will also proceed for the examination and approval of the environmental classification of projects as well as the approval of the impact assessments and the ESMP. It will participate in the external monitoring, particularly regarding pollution and nuisances and the improvement of the welfare. It will ensure the "external monitoring» of the ESMF activities implementation. In fact, this monitoring will be an inspection based on internal monitoring reports made by the ESC CPU /PARIIS. The PARIIS project will provide institutional support to BEEEEI in this monitoring (logistics, capacitation). The BEEEEI will submit its report to the UC- PARIIS for provision to be made, with a copy to the Project Steering Committee,
- **Technical recipient district areas**: the district areas, recipients of the public works will initiate community projects and also will participate in the monitoring, information and sensitization of the population and the establishment of mechanisms for prevention and conflict management.
- **The technical services in charge of the implementation**: the technical services in charge of the implementation (DGA DGGR, DGEF, ONAHA, etc.) have to appoint Focal Points which will support the Municipalities and Producers, and participate in the work monitoring and implementation.
- **Private providers: Works Enterprises and Control Mission (MoC)**. The Project activities, including environmental and social measures will be implemented by private providers within whom they should have a Health, Safety and Environment Manager. The close surveillance of the works will be done by Control Missions recruited by the PMU for this purpose,
- **Producers Organizations and NGOs**: They must have and apply procedures and good environmental and social practices in the construction and management of irrigation works that they will benefit. The Environmental NGOs will also participate in informing, training and sensitizing the agricultural producers and the populations on the environmental and social aspects related to the sub-projects implementation, but also in the implementation monitoring and environmental surveillance.

Calendar and Implementation Costs

An indicative calendar for the implementation of the Environmental and Social Management Framework (ESMF) over five (5) years was proposed.

The cost of the Environmental and Social Management Framework (ESMF) implementation is estimated at Six hundred and five millions of CFA (**605 000 000**). These costs will be included in the overall costs of PARIIS.

Activity	Total Cost (F.CFA)

Activity	Total Cost (F.CFA)
Provision pour la réalisation d'EIES et de ou	150 000 000
Elaboration d'un manuel de bonnes pratiques agricoles	15 000 000
Situation de référence et mise en place d'une base des données	25 000 000
Restauration du couvert végétal et protection des habitats naturels perturbés du fait de la réalisation des AHA	50 000 000
Socio-economic rehabilitation measures	75 000 000
Surveillance, inspections, monitoring and evaluation, audit implementation, safeguard measures	160 000 000
Training-Information-sensitizing	130 000 000
Total	605000 000

Public consultations

Nigerien environmental assessment regulations, as well as World Bank safeguards policies, require that any project proponent establish a consultation mechanism in order to bring the information to the attention of the stakeholders and take their views, concerns and expectations with respect to the project so that they can be integrated in the design of the project. It is in that respect that public consultations and meetings with stakeholders were conducted from 7th to 13th July 2016 with various categories of stakeholders in Tahoua, Dosso, Tillabery and Niamey areas.

The meetings objectives were to:

- inform the stakeholders involved in the project;
- answer to concerns about the project, its components and impacts;
- assess the general welcome that the public could bring to the project;
- collect additional information and take into account the concerns, expectations and suggestions of the stakeholders;
- assess the need for capacity building of the actors in the environmental management

The persons met expect from the project:

- the improvement of the recipients life quality;
- the job opportunities;
- the iincrease of the agricultural production;
- the emphasis on large-scale irrigation;
- allow acquiring information on the irrigated areas;
- training on impacts management;
- moving to modern agriculture.

They also expressed concerns and recommendations that have been reported in the Environmental and Social Management Framework (ESMF).

SENEGAL

EXECUTIVE SUMMARY

Context

Although countries of the Sahelian region are home to a number of watercourses and aquifers, they cannot exploit properly the potential of their water resources. Water sources are for the most underutilized. The scientific data and the necessary infrastructure to take advantage of these water resources and manage them sustainably are not available in these countries. In addition, only 20% of the irrigation potential is currently operating in the countries of the Sahel and a large number of existing irrigation systems need to be repaired.

Despite its potential contribution to the agricultural and rural economy of the countries of the region, irrigation currently covers only 2% of cultivated areas in the Sahel and that less than 20% of the potential is exploited. It is with this observation that at the end of the high-level forum on irrigation in the Sahel, which was held in Dakar in October 2013, at the invitation of the Government of Senegal, of the inter-State Committee to combat drought in the Sahel (CILSS), the World Bank and in the presence of representatives of international organizations, to regional organizations, research, civil society organizations of producers, the private sector and the technical and financial partners; the six Sahel countries Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad have committed to implement a set of strategies and diversified investment programs to exploit the development potential offered by a range of possible irrigation management systems, such as: (1) improving the mobilization of rainwater for agricultural purposes; (2) the individual irrigation of agricultural products of high added value; (3) the small and average irrigation managed by village communities for food needs of households and local markets; (4) the modernization and expansion of existing large public irrigation schemes, including rice; and (5) commercial (national markets or export) irrigation, based on private - public partnerships (PPP) and put in growth poles.

It is within this framework that a regional programme of support for the initiative for irrigation in the Sahel (PR2IS) has been formulated to achieve the objectives. For this purpose, the pilot phase of the programme has received from the World Bank Group a funding of 173 million US dollars for the implementation of the three components below:

- Component A: modernize the institutional and planning framework:
- Component B: finance solutions for irrigation:
- Component C: capacity-building, knowledge management and coordination.

The objective of the project development is to strengthen the ability of stakeholders to develop and manage the irrigation and increase irrigated areas by following a regional approach based on solutions in six countries of the Sahel.

PARIIS Senegal has an overall cost estimated at about 15 billion FCFA. The recipients of the project will include farmers who will benefit directly from the selected financed investments within the framework of the project, and indirectly from the increased capacity of public and

private stakeholders to provide improved irrigation services. The other recipients are the supervising ministries and their decentralized services, training and research institutions and their students, public and private operators involved in the development and management of irrigation, firms of consultants and companies of construction, investors in Agro-industry, irrigation equipment suppliers and retailers, and producers' organizations.

Given the composition of the planned irrigation systems, about 35% of the direct recipients of the irrigated facilities should be women. The project will aim to push this ratio to 45% in paying special attention to gender balance in all activities of the project.

The system of implementation of the SIIP at the regional and national levels will not support the creation of new institutions, but will instead focus on strengthening existing national institutions to improve their capacity for implementation. This approach gives better results in terms of institutional strengthening.

CILSS will be the agency of global implementing of the program and will be mainly responsible for regional coordination, under the supervision of the existing regional Steering Committee of the projects and programs of CILSS (CRP).

In Senegal, geo-targeting and strategy helped to identify three major priority-Intervention Zones (PIZ). The choices have been made in a consensual manner with various actors on the basis of a number of criteria. We can mention the PIZ A (Valley of the Senegal River (strongly rice with rice PIV (irrigated areas)) which affects the two Administrative Regions that are St. Louis and Matam.) PIZ B (natural Region of Casamance / Kolda-Sedhiou (very active cross-border markets) affecting the Regions of Kolda and Sédhiou; PIZ C (groundnut basin / A center which is an old groundnut area PIV (irrigated areas) and PPM female market-gardening on resources related to water surface or drillings). This zone extends in the regions of Fatick; Kaffrine and Kaolack.

The realization of such a project requires meeting the requirements of the World Bank environmental and social safeguard policies. To do this, and in agreement with the World Bank, the project was classified in category A of the World Bank, the equivalent of category 1 in Senegalese legislation about environmental assessment. Given, the details (including locations of physical investments, the size, etc.) of the program will not be known before the presentation of the request to the Board of Directors of the World Bank, it was agreed to prepare management frameworks that define the mechanisms and procedures to identify and manage the risks and impacts of the program when the above details will be known during the implementation (after approval by the Board of the World Bank). It is: (i) a framework of environmental and social management (FESM) this document is completed by; (ii) a policy framework and resettlement; and (iii) a management plan for the pests (PGP). Moreover, given that the program may affect international waters, the Government will send a notice to the OMVS High Commissioner as appropriate, and will inform the Bank in accordance with its policy on international waters.

The specific objectives set through the framework of environmental and social management (FESM) are:

- ensure that environmental and social impacts during the phases of preparation and implementation of sub projects of the program are evaluated appropriately and on time so that measures are taken into account in the final design, tender documents, contracts, implementation plans approved by the project manager and during the execution of the work;
 - provide a mechanism for the consultation of the people potentially affected as well as the civil society, NGOS;
 - disclose relevant information to populations potentially affected by the project as well as to the stakeholders; and
 - ensure that compliance to the safeguard policies is guaranteed during the phase of implementation of the sub projects.
- ☞ **National Environmental and social Legislation**

law n ° 2001-01 15th January 2001 made the environmental assessment one of the tools to support the decision to the competent authorities responsible for the environment. The Decree No. 2001-282 of April 22, 2001, with application of the code of the environment is an instrument of implementation of the law, for this purpose it fixes obligations both to the authorities, project and program promoters. According to the potential impact, the nature, the extent and the location of the project, project types are classified in one of the following categories:

- category 1: projects are likely to have significant impacts on the environment; a study of the environmental impact assessment will help to integrate environmental considerations into the economic and financial analysis of the project; This category requires a thorough environmental assessment;
- category 2: projects have limited environmental impacts or impacts can be mitigated by applying measures or changes in their design; This category is a summarized environmental assessment).

In the list of projects to be an environmental and social impact assessment (ESIA) and based on category 1, include: projects and programs that modify deeply the practices used in agriculture and fishing; exploitation of water resources; projects in areas ecologically fragile and protected areas; projects that may have harmful effects on species of fauna and flora at risk or their critical habitat or having harmful consequences for biological diversity and the transfer of populations (move and resettlement). However fall into the second category are: small and medium-sized agro-industries. irrigation and drainage of small scale; irrigation projects ranging from 100 to 500 hectares, surface water and underground water ranging from 200 to 1,000 hectares.

☞ **By-laws related to impact studies:**

The system of the Code of the environment is completed by five by-laws which are:

- By-law No. 009471 of 28 November 2001 contents of terms of reference of the EIES;

- By-law No. 009470 of 28 November 2001 on the conditions of issue of accreditation delivery for the activities relating to environmental impact studies;
- By-law No. 009472 of 28 November 2001 with contents of the report of the EIES;
- By-law No. 009468 of 28 November 2001 regulating the participation of the public in the environmental impact study;
- By-law No. 009469 of 28 November 2001 with organization/operation of the Technical Committee.

☞ **Requirements of safeguard policies of the World Bank that would be met by the present CGES**

World Bank operational policies that could potentially be released are the following:

- the OP 4.01 on environmental assessment (the present CGES and the subsequent ESIA provide the relevant dispositions);
- the OP 4.04 on natural habitats (the relevant dispositions are attached in the CGES);
- the OP 4.09 on the management of pests (a separated pest management plan (PMP) is prepared in addition);
- the OP 7.50 on international waters (a notice is sent to the OMVS);
- the OP 4.12 on involuntary resettlement (a separated policy framework of resettlement (PFR) separated is prepared in addition);
- the OP 4.36 on Forests (the relevant dispositions are attached in the FESM);
- the OP 4.07 on water resources management (national dispositions about this and other instruments are presented in the FESM for this purpose).

☞ **Identification of environmental and social issues in the different PIZ of the project**

Key challenges based on the PIZ are reported in the table below.

Challenges	Sensitivity analysis of the PIZ		
	PIZ Bassin du Fleuve Sénégal	PIZ arachidier Bassin	PIZ Casamance
- Water resources	- -A sharp decrease in the available resource (surface water). - -Exceptional Hydrological Scenarios - Irregularity / Weakness	- Presence of the layer of the salt maestrichtien	- High rainfall (> 800 mm) - Advanced salty tongue

Challenges	Sensitivity analysis of the PIZ		
	PIZ Bassin du Fleuve Sénégal	PIZ Bassin arachidier	PIZ Casamance
	<ul style="list-style-type: none"> of floods causing significant reduction of flooded areas - Reduction of resource renewal (Groundwater) - 		
- Soils	<ul style="list-style-type: none"> - Persistence of drought - Floods - Land degradation (loss of agricultural potential of soils, modification of ecological biodiversity). - Degradation of the banks of the Senegal River (Deforestation of the banks, collapse of the banks, destruction of the banks for the manufacture of artisanal bricks) 	<ul style="list-style-type: none"> - Polarization of 57% of arable land in the country. - Very advanced degradation of the slightly leached tropical ferruginous soils called "dioric soils" located in the northern part of the groundnut basin - - Poverty of soils increasingly accentuated with the reduction of fallow time and the insufficiency or absence of the fertilization of the land - Vulnerability to erosion with the destruction of vegetable cover 	<ul style="list-style-type: none"> - Polarization of 20% of the country's arable land - Salinization and acidification of land, especially in the mudflats and in certain lowlands in Lower Casamance and in the Middle Casamance - Loss of fertility in soils due to bush fires, rainfall erosion on plateaus and terraces, and silting of rice fields
- Biodiversity	<ul style="list-style-type: none"> - Strong forest degradation caused by severe climatic conditions and high anthropozoic pressure 	<ul style="list-style-type: none"> - Disappearance of natural woody formations 	<ul style="list-style-type: none"> - Slight retreat of the forest formations with the extension of the agricultural perimeters and the

Challenges	Sensitivity analysis of the PIZ		
	PIZ Bassin du Fleuve Sénégal	PIZ Bassin arachidier	PIZ Casamance
	<ul style="list-style-type: none"> - Reduction and degradation of natural wetlands - Modification of the river's ichthyological landscape from the establishment of the dams - 		<ul style="list-style-type: none"> exploitation of the wood - Fraudulent exploitation of wood to The Gambia - Conversion of populations to fisheries due to insecurity and pressure on fisheries resources, particularly on protected species and protected areas and the use of unauthorized fishing techniques.
-Human and animal health	<ul style="list-style-type: none"> - Upsurge of certain endemic human water-borne diseases (malaria, intestinal bilharziasis, urinary bilharziasis, diarrhea) - Risk of spread of epidemics of water-borne diseases (Yellow fever, Cholera, Poliomyelitis, Shigellosis) - Risk of diseases caused by chemical poisoning with the use of pesticides (congenital malformations, interruptions of 		The region still has deficiency in health care for its population. Indeed, the number of health care staff working in the area does not allow to meet the standards of the World Health Organization (WHO) (ANSD, 2013).

Challenges	Sensitivity analysis of the PIZ		
	PIZ Bassin du Fleuve Sénégal	PIZ Bassin arachidier	PIZ Casamance
	pregnancy, etc.).		
- Social Conflicts	The development of irrigated crops is now superimposed on pre-existing agro-pastoral systems, where it disputes space and active forces, especially in the middle valley. The insertion of the irrigated perimeter in the environment and its agropastoral systems is still far from being achieved. This coexistence is marked by various constraints and conflicts, due to the "shock" between logic and the rationality of the two systems, irrigated and agro-pastoral	- Land management conflicts between farmers and breeders - Economic stratification for agriculture - Land losses of indigenous peoples.	The region's insecurity and crisis situation caused a high sensitivity on land occupation and led to latent social conflicts. . (ANSD, 2013).

☞ **Potential negative environmental and social impacts / risks**

Activities	Impacts
Planning and founding hydraulic structures	<ul style="list-style-type: none"> - Risk of embrittlement and eutrophication of the river by agricultural activities - Risk of disturbance of the spawning grounds of the river - Deforestation, degradation of soil by erosion, destruction of habitats during clearing - Destruction of microfauna and organic material - Loss of pasture land (encroachment on sylvo-pastoral areas) - Dust and disturbance (work phase) - Increased pace of management (threat to livestock, fisheries and EAF) - Deforestation, degradation of soil by erosion, destruction of habitats during clearing - Increase in water-related diseases - Strong pressure on land and water

Activities	Impacts
	<ul style="list-style-type: none"> - Possible loss of income or property during construction - Risks of diseases such as STIs / HIV / AIDS
Vegetable production	<ul style="list-style-type: none"> - Loss of soil fertility - Pollution of water and soil due to pesticides and fertilizers - Health nuisances due to pesticides - Destruction of non-target pesticides - Nuisance when using uncontrolled organic manure - Increase in water-related diseases - Emphasizing farmer-livestock conflicts for access to water or pasture - Risks of diseases such as STIs / HIV / AIDS - risks of conflicts of use (drinking water supply, agriculture, livestock and fisheries), risks of land conflicts between indigenous and non-indigenous investors
Infrastructure (storage, packaging; Transformation; Access roads to production areas, power lines	<ul style="list-style-type: none"> - Dust, noise, pollution from construction waste, hygiene and safety (accidents) related to the construction of buildings - Lack of hygiene in packaging and processing - Loss of biodiversity along the route and at laterite sites - Encroachment on arable land (for new tracings) - Obstruction of runoff paths - Risks of accidents, nuisances (dust, noise) during work
Use of OGMs	<ul style="list-style-type: none"> - Risk of uncontrolled spread of genes in nature - Risk of transmission of resistance, for example to weeds - risk of disturbance of biodiversity with risk of selection of non-controllable individuals - risk of increased loss of gene diversity of cultivated species - the risk that GMOs (high-added value transgenic plants) will displace locally grown agricultural species. - Human and animal health risks (allergies, fertility problems, congenital malformations, toxicity and other impacts on human and animal health)

☞ **Environmental and Social Management of PARIIS**

Implementation of the strategy at the operational level may require environmental assessments (thorough impact assessments, initial environmental analyses), taking into account simple environmental and social measures. In order to facilitate the identification of the type of environmental work to be carried out according to the stakes related to the sites where the structures are located, carrying out these assessments where necessary and / or taking environmental and social measures into account in technical planning, Present FESM proposes an approach focusing on the national procedure for conducting environmental assessments, supplemented by a number of model documents including (i) the environmental and social selection form, (ii) the checklist of impacts and mitigation measures In the design and operation of irrigation systems, (iii) the monitoring of impacts and mitigation measures in the design,

construction and operation of structures (main irrigation system, ground tanks , (Iv) an example of a typical environmental and social clauses for the performance of the work, and (v) a model price slip, and (vi) a model of the work and operation impact report.

The following strategic measures are proposed to address the major environmental and social issues of the project.

- Classification of sites for the activities implementation in the project areas
- Carrying out environmental and social studies (based on the screening detailed later in the environmental and social management plan) and respect for environmental and social safeguards.
- Maintaining landscapes and conserving particular ecosystems
- Protection of production systems
- Establishment of a policy of access to land and water
- Taking into account vulnerable groups and gender in access to land and water
- Linking the project with sustainability planning instruments
- Capitalization of environmental and social management of other programs and coordination between actors.
- Organizational and capacity-building measures for recipients
 - Training program
- Communication strategy and consultation plan

☞ **Organization and Institutional Arrangements for the Implementation of the FESM**

Several institutions are involved in the implementation of the FESM, mainly:

- The Program Steering Committee:
- Program Implementation Unit (PU):
- The Department of Environment and Designated Establishments:
- Local authorities;
- Recipient Producers’ Associations.

Roles and responsibilities are outlined in the table below, taking into account existing regulations and good practices in the environmental and social management of programs / projects. Table 1: Matrix of Roles and Responsibilities (under the Institutional Arrangement for FESM Implementation)

No	Steps/Activities	person in charge	Support Collaboration /	Project manager	Verific ation / Approv a
1.	Identification of the location / site and main technical characteristics of the sub-project	PU	Local authorities, DSP/ASUFOR, CADL, SAED,	PU	

No	Steps/Activities	person in charge	Support Collaboration /	Project manager	Verification / Approva
2.	Environmental Selection (Screening-form filling), And determination of the type of specific safeguard instrument	Specialist Safeguard environmental and social (SSES) of the PU	<ul style="list-style-type: none"> • Recipients; • Town halls 	SSEP/PU	<ul style="list-style-type: none"> • DRE EC/DE EC World Bank
3.	Approval of categorization by the EIES entity and the Bank	Project Coordinator	SSES/UP	•	<ul style="list-style-type: none"> • DRE EC/DE EC World Bank
4.1	Preparation of the specific Category A sub-project E & S safeguard instrument				
	Preparation, approval and publication of TDR	SSES/UP		SSEP/PU	DREE C/DEE C World Bank
	Conduct study including public consultation		Procurement Specialist (PS); EN-EIE ; Mayor	Consultant	
	Validation of the document and obtaining the environmental certificate		SPM, Mayor	<ul style="list-style-type: none"> • EN-EIE, • World Bank 	<ul style="list-style-type: none"> • Technical Committee • World Bank
	Publication of the document		Coordinator	<ul style="list-style-type: none"> • Media ; • World Bank 	•
4.2	Preparation of the specific B & C sub-project E & S safeguard instrument				
	Préparation et approbation des TDR	Specialist Safeguard environmental and social (SSES) of the PU	Procurement Specialist (PS);	SSES/PU	DEEC World Bank
	Réalisation de l'étude y compris consultation du public		DNACPN ; Mayor	Consultant agréé	

No	Steps/Activities	person in charge	Support Collaboration /	Project manager	Verification / Approva
	Validation du document et obtention du certificat environnemental		SPM, Maire	Steering Committee / World Bank	Technical Committee
	Publication du document		Coordinator	<ul style="list-style-type: none"> • Media ; • World Bank 	•
5.	Integration in the tender file (TF) of the subproject, of all the measures of the phase of work that should be contracted with the company	Technical manager (TM) of the activity	<ul style="list-style-type: none"> • SSES • SPM 		
6.	Execution / implementation of measures not contracted with the construction company	SSES	<ul style="list-style-type: none"> • SPM • TR • financial officer (FO) • Mayor • Xxxx 	<ul style="list-style-type: none"> • Consultant • NGO • Others 	DEEC/ Technical Committee
7.	Internal monitoring of the implementation of E & S measures	SSES	<ul style="list-style-type: none"> • Specialist in Monitoring and Evaluation (S-SE) • FO • Town hall • Xxxx 	control office	DEEC/ Technical Committee
	Dissemination of internal monitoring report	Coordonator	SSES		DEEC / Technical Committee
	External monitoring of the implementation of E & S measures	DEEC/ Technical Committee	SSES		
8.	Environmental and social monitoring	SSES/PU	<ul style="list-style-type: none"> • Other SSES • S-SE • xxxxx 	<ul style="list-style-type: none"> • Labora tories / speciali 	•

No	Steps/Activities	person in charge	Support Collaboration /	Project manager	Verification / Approva
				zed centers • NGO	
9.	capacity-building of stakeholders in E & S implementation	SSES/PU	• Other SSES • PS	• Consultants • Competent public structures	• DEEC/ Technical Committee
11.	Audit of implementation of E & S measures	SSES/PU	• Other SSES • PS • S-SE • EN-EIE • Mayor	• Consultants	• DEEC/ Technical Committee

Within the framework of the implementation of the FESM, the following protocols are recommended under the institutional arrangements:

- environmental monitoring with the DEEC;
- monitoring of water resources with the DGPRES;
- complementary technical and social studies specific to the sites where irrigation systems are installed, mainly those related to hydrogeology, land, agricultural demand, among others, with the relevant technical services, mainly the DGPRES

☞ Budget

The budget is estimated to 600 000 000 FCFA calculated on the basis of the following assumptions and variables:

- • Two (02) Class A environmental assessments per PIZ;
- • three (03) specific technical studies by PIZ

Table 10- 1 : PCGES Implementation Budget

Post	Cost (FCFA)
Capacity-building Plan	210 000 000

Provisions for studies specific to the determination of reference situations for environmental monitoring and support for environmental and social decision-making	180 000 000
Provisions for Environmental and Social Assessments	150 000 000
Coordination of environmental and social management	60 000 000
Total Cost	600 000 000

This budget will be refined in accordance with the evolution of project planning and negotiations with the various partners.

☞ Public consultation

Public participation in conducting an environmental assessment is the appropriate approach to put the project into its socio-economic context.

It allows to integrate the opinions and comments of the different actors, especially the local population and the technical services, in an interactive way, to measure and take into account the impacts of the project associated with its implementation, in order to minimize or eliminate the negative impacts and to improve the beneficial effects.

This participation is done under the way of :

- public consultation, i.e meetings during the study, in the concerned places in order to get the opinions of the populations or their representatives;
- a public hearing intended to disseminate widely the completed study to the populations in order to record possible oppositions and also the opinions on the solutions, proposals, recommendations and mitigation measures contained in the report.

It is also a form of restitution so that people can check whether their opinions, proposals and especially their interests are taken into account.