PROJECT: Agricultural Transformation Agenda Support Program – Phase 1 (ATASP-1)

COUNTRY: NIGERIA

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**STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT (SESA)**

**EXECUTIVE SUMMARY**

**Date:** July 2013

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1. INTRODUCTION

1.1 The Federal Republic of Nigeria is instituting the National Economic Transformation Agenda whose aim is to diversify the economy from reliance on oil, assure food security and create jobs, especially for the youth. In line with this, the Federal Ministry of Agriculture and Rural Development is implementing an Agricultural Transformation Agenda (ATA) that will promote agribusiness, attract private sector investment in agriculture, reduce post-harvest losses, add value to local agricultural produce, develop rural infrastructure and enhance access of farmers to financial services and markets. The ATA sets out to create over 3.5 million jobs along the value chains of the priority crops of rice, sorghum, cassava, horticulture, cotton, cocoa, oil palm, livestock, fisheries, etc. for Nigeria’s teeming youths and women, in particular.

1.2 In August 2012, the Federal Republic of Nigeria requested the Bank to support the ATA. The Bank intends to contribute to the objectives of the ATA through its on-going projects, and this Agricultural Transformation Agenda Support Program (ATASP), which is a programmatic operation that will form the main instrument for consolidating Bank investments in Nigeria. ATASP Phase I (ATASP-1) will be implemented in five years and is estimated to cost UA130.09 million, with UA98.82 million and UA0.21 million from ADF loan and grant, respectively.

1.3 The proposed Agricultural Transformation Agenda Support Program Phase I (ATASP-1) has been comprises three components as follows: (i) Infrastructure Development; (ii) Commodity Value Chain Development; and (iii) Program Management. The environmental and social impacts and benefits of the Project have been analyzed through a detailed Strategic Environmental and Social Assessment (SESA) in line with the requirements of the Nigerian environmental regulations, and the Bank’s Environmental and Social Assement Procedures (ESAP, 2001). This report summarizes the findings of the SESA, the legal and policy frameworks under which the assessments were undertaken, a description of the project environment, an analysis of project alternatives, an evaluation of potential impacts, and information related to Environmental and Social Management Plan (ESMP). Separate site specific Environmental and Social Management Plans (ESMP) will be prepared for each sub-project/cluster before implementation. In view of this, the project implementing unit will prepare site-specific ESMP following the guidelines included in the SESA.

2. PROGRAM DESCRIPTION AND JUSTIFICATION

2.1 The expected impact of the Agricultural Transformation Agenda Support Program Phase 1 (ATASP-1) is to contribute to the private sector-led agricultural growth for food security, creation of jobs and shared wealth. Its specific objective is to increase, on a sustainable basis, the income of smallholder farmers and rural entrepreneurs that are engaged in the production, processing, storage and marketing of the priority commodity value chains. ATASP-1 aims to
improve agricultural production and productivity. To achieve this, the Program will comprise the following components in Table 1:

**Table 1: Program Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Costs (UA million)</th>
<th>Component Description</th>
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<tbody>
<tr>
<td>1. Infrastructure Development</td>
<td>71.56 (55.0%)</td>
<td>Rehabilitation of agricultural and ancillary social infrastructure including 1,300km of irrigation water conveyance canals (Kebbi, 280km; Sokoto, 175km; Niger, 220km; Kano, 230km; Enugu, 125km; Anambra, 75km; and Jigawa 195km); 1,007 units of various hydraulic structures (Kebbi, 167; Sokoto, 120; Niger, 229; Kano, 104; Enugu, 182; Anambra, 100; and Jigawa 105); 1,330km of feeder roads (Kebbi, 265km; Sokoto, 55km; Niger, 235km; Kano, 330km; Enugu, 115km; Anambra, 80km; and Jigawa 250km); rehabilitation of 35 primary schools (5 per state), 14 health centers (2 per state), 70 potable water supply and sanitation schemes (10 boreholes and accessories per state); 21 demonstration and technology centers (3 per state), 21 community markets and storage facilities (3 per state).</td>
</tr>
<tr>
<td>2. Commodity Value Chain Development</td>
<td>38.10 (29.3%)</td>
<td>Capacity development for public (agricultural research, extension, relevant Ministries’ department such as Rural Development and of FMARD, Monitoring and Evaluation for efficient external supervision), private (MFIs, agro-dealers, etc.) and community-based (producers’ organizations, cooperatives, inter-professional bodies, etc.) institutions; training value chain actors in technical and managerial skills; promoting use of science &amp; technology; training in post-harvest reduction methods including food processing; business and entrepreneurship training; training of communities and health workers on prevention and management of common diseases as well as good nutrition, sanitation &amp; hygiene practices; development of market information system (MIS); management of environmental and social impacts; implementation of policies to promote private investment in agriculture.</td>
</tr>
<tr>
<td>3. Program Management</td>
<td>20.43 (15.7%)</td>
<td>Coordination and supervision of program activities; and program day to day management based on adequate results measurement framework; ESMP implementation and supervision; program procurement, disbursement, financial management, audit and reporting.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130.09</strong></td>
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2.2 ATASP-1 will be implemented in four Staple Crops Processing Zones (SCPZs) of Adani-Omor, Bida-Badeggi, Kano-Jigawa, Kebbi-Sokoto and cover 21 LGAs in seven States: Anambra (Ogbaru and Orumba North LGAs), Enugu (Uzo Uwani LGA); Jigawa (Hadejia LGA); Kano (Bunkure, Kura and Rano LGAs); Kebbi (Argungu, Bagudo, Birnin Kebbi, Dandi, Ngaski, Shanga and Suru LGAs); Niger (Agaie, Gbako, Lapai, Lavun, Katcha and Mokwa LGAs); and Sokoto (Kware LGA). The Processing Zones are specially delimited contiguous expanses of land in areas of high agricultural production and potential where the localized provision of a well-developed physical infrastructure such as access roads and energy, as well as water, are necessities to support production, processing and marketing activities for selected commodities.
The selected areas in the PZs are 39,560 hectares that have high potential for rice, cassava, and sorghum production and are among the 13 PZs identified in the country’s ATA.

2.3 The direct beneficiaries are the 45,300 farmers and rural entrepreneurs participating in commercial agriculture production and value chains. This number is expected to increase significantly when other economically active value chain entrepreneurs enlist in the Program. The indirect beneficiaries include existing or potential small, medium and large-scale entrepreneurs and business associations who provide services to rural households. Among the target group, women and youth play a major role in crop and animal production, processing, small enterprises operation and marketing. They will be specifically targeted for Program activities and benefits.

2.4 The Government of Nigeria has designated thirteen sites as Staple Crop Processing Zones (SCPZ), which should be the entry points for any agricultural interventions in the country. Of the thirteen, the African Development Bank (AfDB) has elected to work in four zones; Binda – Badeggi (Middle belt), Adani – Omor (East), Kebbi (North West), and Kano (North). A Map of Nigeria is presented in figure 1-1, highlighting the location of the SCPZs to be covered by ATASP-1.

![Figure 0-1 Sites Location Map](image)

2.5 The proposed intervention will complement existing Bank assisted Programs and complement IFAD’s Community-Based Agriculture and Rural Development Project (CBARDP) and Community-Based Natural Resource Management Program (CBNRMP) as well as the World Bank (WB) Fadama III, Sustainable Land Management (SLMP) and the West Africa Agricultural Productivity (WAAP) projects. The ATASP Phase 1 (2014-2019) would entail a multi-sectoral operation that would lead to the development of agricultural value chains for selected crops. The project would contribute to poverty reduction and food security by
enhancing incomes of smallholder farmers and small/medium scale processors that are engaged in the production, processing, storage and marketing of rice and cassava on a sustainable basis.

2.6 The Bank’s involvement will help: (i) complement and support the Government’s efforts for enhanced food security in the country; and (ii) support the ATA, a top priority program of the Government. The ATA has a great potential in enhancing the role of agriculture as an engine of inclusive growth leading to employment and income generation, import substitution, poverty reduction and diversification of the economy.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 The Environmental Impact Assessment (EIA) process in Nigeria is governed by the provisions of the EIA Act No. 86 of 1992. The law confers the mandate to implement it on the Federal Ministry of Environment (MOE) in accordance with this law. It makes it mandatory for proponents of all new major development activities to carry out EIAs on their proposed projects.

3.2 Nigeria has developed a number of important initiatives in policies, laws and regulations applicable to the environment which serve as effective instruments for environmental protection, planning, pollution prevention and control. The environmental laws are enshrined in the country’s Constitution, which recognizes the importance of improving and protecting the environment whilst making provision for it. Among other issues it calls for prudent management of the environment and accords future generations their full rights to the environment. The constitution also provides for a framework for the integration or application of international environmental and foreign case law into the national legal system. The Federal Ministry of Environment has a mandate to co-ordinate the environmental protection and conservation of natural resources for sustainable development in Nigeria. The ministry has put in place statutory documents to aid the monitoring, control and abatement of industrial waste. In general these statutory documents clearly state the restrictions imposed on the release of toxic substances into the environment and the responsibilities of all industries whose operations are likely to pollute the environment. Such responsibilities include provision of antipollution equipment and adequate treatment of effluent before being discharged into the environment, etc.

3.3 At Federal level, the Environmental Impact Assessment (EIA) process in Nigeria is governed by the provisions of the ENVIRONMENTAL IMPACT ASSESSMENT (EIA) ACT. The E.I.A Act, as it is informally called, deals with the considerations of environmental impact in respect of public and private projects. Under the E.I.A Act, it is mandatory that all development plans, policies and projects undergo a process of environmental impact assessment and the administrative clearance by the The Federal Ministry of Environment (FMEnv) in conformity with the provision of the Act. In the States, the Environmental Impact Assessment (EIA) process is governed by the provision of acts, edicts and laws. The states have also set up State Environmental Protection Agencies or Authorities (SEPAs) as the regulatory bodies to protect and manage the environmental issues in the states.

Change, and (vii) The Convention on Biological Diversity. Nigeria also has obligations to protect the environment through various commitments to the African Union (AU), the Economic Community of West African States (ECOWAS) and the Commonwealth. It is also committed through relations with the European Community under the Lome IV Convention.

4. DESCRIPTION OF THE PROGRAM ENVIRONMENT

4.1 Nigeria is located in Western Africa, and borders the Gulf of Guinea, between Benin on the west and Cameroon on the east (Figure 1-1). It has a compact area of 923,768 square kilometres (356,376 square miles), of which 910,768 sq. km is land and 13,000 sq. km is water. The country's land mass extends from the Gulf of Guinea (Atlantic Ocean) in the south to the Sahel (the shore of the Sahara Desert) in the north (bordered by Chad to the northeast and Niger to the northwest). It lies between latitudes 4° 00’ N and 14° 00’ N, and longitudes 2° 50’ E and 14° 45’ E.

4.2 The current SESA study covers four SCPZs whose centres will be located in Bida-Badeggi (Niger State) in the North Central region, Kano (Kano state) in the North Western region, Kebbi (Kebbi state) in the North Western region and Adani-Omor (Enugu state) in the South Eastern region. The following is a description of the physical, biological and socio-economic environment of the four selected zones:

A) Bida - Badeggi (Niger State)
Physical Environment

(i) Climate
Niger state is in the middle belt of Nigeria and its climate is essentially tropical. The climate and weather varies by the interaction between the moist, northerly air coming off of the Atlantic Ocean and the drier air arriving from the north. It has two dominant seasons: the wet and the dry seasons. The rain season begins in April, lasting through September, with annual average rainfall ranging between 750mm and 3000mm. The dry season lasts from October to April, with high temperatures and low humidity.

(ii) Wind
Two principal wind currents affect Niger state. The south-westerlys dominate the rainy season of the year while north-easterlies (harmattan winds) dominate the dry season.

(iii) Temperature
The temperatures in Niger state are typically higher during the dry season, with no precipitation to cool the afternoon heat. The average annual maximum is around 32°C and the average annual minimum is 20°C.

(iv) Geology
Niger state lies on the southern portion of the West African Craton. The geological setting comprises broadly crystalline basement complex rocks with huge sedimentary basins. The Basement rocks are highly mineralized and give rise to soils of high nutrient status; although, variable from place-to-place. The sedimentary basins occupy the central x-shaped area in the country and are mainly feldspathic sandstone and siltstone.

(v) Topography
The landforms can simply be classified into highlands, plateaux, hills, plains and river valley systems. (Udo, 1970). The Niger State lies in the plateaus and hills that divide the plains in the
north and south of Nigeria. The characteristic landforms of the plateaus are high plains with broad, shallow valleys dotted with numerous hills or isolated mountains, called inselbergs; the underlying rocks are crystalline, although sandstones appear in river areas.

(vi) Soil Characteristics
The soils of Niger state can be classified into two (climatic) zones; the (i) Interior zone of laterite soils; and (ii) the zone of alluvial soils (Oyenuga, 1967; Iloeje, 2001). The major soil types, according to FAO soil taxonomy legends are fluvisols, regosols, gleysols, acrisols, ferrasols, alisols, lixisols, cambisols, luvisols, nitosols, arenosols and vertisols. These soil types vary in their potential for agricultural use falling into class 4 and 5, and usually having low productivity due to inadequate moisture retention capacity and low organic matter.

(vii) Surface and Ground Water Hydrology
The major drainage system in the Bida-Badeggi SCPZ consists of the Niger River, from which the country is named, and one of its major tributaries, the Kaduna. The Niger has many rapids and waterfalls, and is not navigable throughout its length. The area is also dissected by several other tributaries of the Niger River.

Biological Environment

(i) Fauna
Bida – Badeggi Zone possesses two dozen species of antelope, but large concentrations of animals, even the common antelope, are rarely observed. The hippopotamus, elephant, giraffe, leopard, and lion now remain only in scattered localities and in diminishing number. Wildcats, however, are more common and widely distributed. The Zone also abounds in bird life with a great number of species being represented.

(ii) Flora
The Zone is way inland beyond the rain forest belt, where the rain forest becomes displaced by tall grass and deciduous trees of small stature, characteristic of the savannah. It is generally called the Guinea Savannah, a region of tall grasses and trees.

B) Adani-Omor (Enugu State)
Physical Environment

(i) Climate
The Climate of the Adani- Omor SPZ is largely influenced by the interaction between the moist, northerly air coming off of the Atlantic Ocean and the drier air arriving from the north. The zone has two dominant seasons: the wet and the dry seasons. The rain season begins in late February to early March lasting through September. The dry season is short from December to February, being closer to the damp ocean winds. A second, little dry season occurs in the southern region between July and September. The break in rainfall during late summer rarely results in a complete dry season but gives farmers a brief period in which to harvest their crops.

(ii) Wind
The Zone is affected by two principal wind currents. The south-westerly dominate the rainy season of the year while north-easterlies (harmattan winds) dominate the dry season. Depending on the shifts in the pressure belts in the Gulf of Guinea, these winds are interspersed respectively by south-easterlies and north-westerlys in different parts of the year.
(iii) **Temperature**
The temperature in Adani-Omor is typically higher during the dry season, with average annual maximum of 31°C and average annual minimum from 20°C.

(iv) **Geology**
The Adani-Omor zone lays at the base of the sedimentary basins that occupy the central x-shaped area in the country (Figure 3-2). It is predominantly within sedimentary formations, which give rise to sandy and less variable soils that are deficient in plant nutrient.

(v) **Topography**
The highlands and hills are predominantly igneous structures, whilst the valleys are the sedimentary basins (Figure 3-3). The Zone is in the southern plains of the country. Gently undulating plains, which become waterlogged during the rainy season, are found in these areas.

(vi) **Soils Characteristics**
The soils in this zone can be classified into three (climatic) zones that are soil associations. The groups are: (i) Interior zone of laterite soils; (ii) Southern belt of forest soils; and (iii) zone of alluvial soils (Oyenuga, 1967; Iloeje, 2001) (Figure 3-4).

(vii) **Surface and Ground Water Hydrology**
The major drainage system in the area is the Niger river and its tributaries (Figure 3-5). It is a perennial river but non navigable because of numerous rapids and waterfalls along its length.

**Biological Environment**

(i) **Fauna**
Few large animals are found in the rain forest; gorillas and chimpanzees in decreasing numbers are present, as well as baboons and monkeys. Reptiles abound, including crocodiles, lizards, and snakes of many species.

(ii) **Flora**
Flora in the zone varies from the freshwater swamp forests, which are diversified and includes varieties of palms, the abura, and mahogany, to the rain forest, which forms a belt with an average width of some 130 km. Principal trees include the African mahogany, iroko, African walnut, and the most popular export wood, the obeche.

**C) Kebbi SCPZ (Kebbi State)**

**Physical Environment**

(i) **Climate**
The climate for the Kebbi SCPZ is generally arid. The climate and weather largely depend on the interaction between the moist, northerly air coming off of the Atlantic Ocean and the drier air arriving from the north.

(ii) **Wind**
Two principal wind currents affect the zone. The south-westerlys dominate the rainy season of the year while north-easterlies (harmattan winds) dominate the dry season.

(iii) **Temperature**
The temperature in the SCPZ typically is higher during the dry season, with no precipitation to cool the afternoon heat. The average annual maximum is 35°C whilst the average annual minimum is 18°C in the north.

(iv) **Geology**
The geological setting comprises mainly sedimentary formations. Kebbi state is predominantly covered with sedimentary rocks, Sandstones and clays of the middle Eocene epoch. The river basins are covered with Alluviums (Figure 3-2). On moving eastwards into Sokoto the geology changes to sandstones, siltstone and shales of the Cretaceous period. Further south east the predominant formations become the older granites of the pre-Cambrian period. These are highly mineralized and give rise to soils of high nutrient status; although, variable from place-to-place.

(v) **Topography**
The landforms across the sedimentary basin can generally be described as gently rolling plains becoming more dissected eastwards as we encounter the basement complex and we start to have hills and plateaus (Udo, 1970).

(vi) **Soils Characteristics**
The main soil types in the north are mainly vertisols, alisols, acrisols, ferrasols and arensoil. These soils usually have low productivity due to inadequate moisture retention capacity and low organic matter. Except for the ferrasols, they are the most dominant types found in the northern dry parts of the country.

(vii) **Surface and Ground Water Hydrology**
This zone has surface water (Rima, Niger, Zamfara, Ka and Shalla rivers) and underground water (shallow water table) resources and a total of 400,000ha of fadama land.

**Biological Environment**

(i) **Fauna**
Wildlife in the zone includes antelope, lions, leopards, gazelles, and desert hyenas, but they are found in very diminished numbers and mostly in reserved area like national parks. Rodents such as the squirrel, porcupine, and cane rat constitute the largest family of mammals.

(ii) **Flora**
The natural vegetation is mainly savannah and those that flourish in arid conditions. This region is termed the Sudan Savannah, a region of shorter grasses and more scattered, drought-resistant trees such as the baobab, tamarind and acacia.

D) **Kano SCPZ (Kano State)**

**Physical Environment**

(i) **Climate**
The climate for the Kano SCPZ is generally arid. The climate and weather largely depend on the interaction between the moist, northerly air coming off of the Atlantic Ocean and the drier air arriving from the north. The rain season, reaches the zone by early summer (April), lasting through September with the highest rainfall during August with annual average rainfall around 800mm. The dry season lasts from October to April, with high temperatures and low humidity.

(ii) **Wind**
Two principal wind currents affect the zone. The south-westerlys dominate the rainy season of the year while north-easterlies (harmattan winds) dominate the dry season.

(iii) Temperature
The temperature in the SCPZ typically is higher during the dry season, with no precipitation to cool the afternoon heat. The average annual maximum is 35°C whilst the average annual minimum is 18°C in the north.

(v) Geology
The geological setting comprises broadly crystalline basement complex rocks in the south west and sedimentary formations in the north east (Figure 3-2). The basement complex are the older granites of the pre-Cambrian era. These are highly mineralized and give rise to soils of high nutrient status; although, variable from place-to-place. The sedimentary rocks are of the lake Chad sedimentary basin and are mainly sands, clays, Sandstones and limestones of the Pleistocene/Pliocene epoch.

(vi) Topography
The landforms can simply be classified into highlands, plateaux, hills, plains and river valley systems. The landforms are more deeply dissected in the south than in the northern parts of the zone (Udo, 1970). However the zone is mostly gently undulating plains like the Borno Plains in the north-eastern corner of the country Figure 3-3).

(vii) Soils Characteristics
The main soil types in the north are mainly vertisols, alisols, acriisols, ferrasols and arenso. These soils usually have low productivity due to inadequate moisture retention capacity and low organic matter. In some areas like the Sahel savannah belt, the soils are true to type, being formed under aridity and by the deposition of sand by the wind.

(viii) Surface and Ground Water Hydrology
This zone is the source of many rivers flowing to the Niger and to Lake Chad (Figure 3-5). These include Zamfara, Ka and Shalla, hdejia rivers) and underground water (shallow water table) resources resulting in the Kano state alone having 14 dams.

Biological Environment

(i) Fauna
Wildlife in the zone includes antelope, lions, leopards, gazelles, and desert hyenas, but they are found in very diminished numbers and mostly in reserved area like national parks. Rodents such as the squirrel, porcupine, and cane rat constitute the largest family of mammals.

(ii) Flora
The natural vegetation is mainly savannah and those that flourish in arid conditions. This region is termed the Sudan Savannah, a region of shorter grasses and more scattered, drought-resistant trees such as the baobab, tamarind and acacia. In the north-eastern corner of Nigeria, the very dry semi-desert Sahel Savannah persists and the land is sparsely vegetated and prone to wind and rain erosion.

5. BENEFICIAL AND ADVERSE IMPACTS

Positive Environmental Impacts
5.1 The positive environmental impacts that will accrue from implementation of the project include: (i) **Reforestation and catchment management**, to improve and integrate management of land, water and related biological resources in order to achieve the sustainable and balanced use of these resources. (ii) **Sanitation facilities**, which involves rehabilitation and installation of sanitation facilities at the agricultural facilities, (iii) **Conservation works and agro-forestry**, which involves establishment of conservation works like planting vertiver grass, construction of swells and contours ridging and can enhanced by agro-forestry which increases the biodiversity, protects the fields from erosion and provides foliage and wood that can be used by the farmers, (iv) **Organic fertilizer production - composting** which involves producing organic fertiliser from agricultural waste, (v) **Management of waste from agro-processing** which involves the installation of effluent treatment facilities at agro-processing sites.

**Negative Environmental Impacts**

5.2 The negative environmental impacts that will accrue from implementation of the project include; (i) **Temporary Visual Intrusion from rehabilitation/construction of irrigation and Value addition infrastructure** which will change the aesthetics of the project areas and leave marred landscapes. (ii) **Water logging** which will result primarily from inadequate drainage and over-irrigation and, to a lesser extent, from seepage from canals and ditches. (iii) **Groundwater abstraction effects** will contribute to the lowering of groundwater tables resulting in natural water pollution occurring as the underground minerals behave differently under different hydraulic conditions, (iv) **Salinisation** which can arise as a result of the use of any irrigation water, irrigation of saline soils, and rising levels of saline groundwater combined with inadequate leaching. (v) **Clearing of Vegetation** for the rehabilitation/construction of irrigation infrastructure, resulting in the loss of plant cover, compaction of soil, exposure of topsoil and possible erosion, disturbance and loss of fauna habitats, weakening and degradation of soils, disturbance of the natural landscape and disfiguring of the natural morphology. (vi) **Soil and Land Degradation** emanating from the extraction of construction materials from quarries and borrow pits resulting in loss of vegetation and scarring of the landscape. (vii) **Wildlife disturbances** from noise and vibrations from the development activities may disturb the normal roaming patterns of wild animals and cause them to migrate away from the area. Any contamination of the rivers may cause fish kills and destruction of other aquatic life, (viii) **Drastic land use changes**, from converting virgin lands into cultivated lands e.g. irrigation schemes and introducing monocultures has the problem of affecting bio-diversity and introducing pests and diseases that thrive on the new intensive crop, (ix) **Disturbance of marginal areas**, from establishing the projects in marginal areas can pose serious threats to further degradation of the marginal lands, (x) **Exposure to Agro-chemicals**, from increased use of chemicals, pesticides, to realize better yields and control pests and diseases, (xi) **Loss of fragile ecosystems**, from establishing irrigation schemes in some areas impacting on fragile ecosystems like wetlands and mountain tops, (xii) **Effluent and Solid Waste Discharges** from agricultural, agro-industries, packaging and marketing operations, (xiii) **Pollution of ambient air** due to dust from construction processes and emissions from processing plants, (xiv) **Pollution of ambient Water** from wet processing of agricultural products releasing effluents, (xv) **Incidence of Flooding**, if the Scheme is in a flood plain and the developments induce flooding and river channels get blocked by silting due to erosion and deforested catchments causing flash flooding, (xvi) **Invasive plant species**, introduced from the use of poorly produced seeds, poor weed management and poor agricultural practices, (xvii) **Quela Birds** invited by the establishment of intensive and extensive crop production in the project areas.
Positive Social Impacts

5.3 The positive Social impacts that will accrue from implementation of the project include (i) **Improvement in livelihoods and local economies** as the project will generate direct benefits to small to medium scale farmers as well as some commercial farmers who are already participating in organized supply chains through increased production of high value crops, and increased farm-gate prices due to quality improvement, (ii) **Employment opportunities** from expanded Agricultural and Value addition facilities with the associated complementary activities creating more long-term job opportunities, (iii) **Gender and Youth Inclusion**, as the gender mainstreaming strategy in ATASP will focus on increasing access to project activities for women and youth as well as increasing their participation in project implementation, community representation and decision-making, (iv) **Income to material/equipment suppliers and contractors** as the proposed rehabilitation/construction of agricultural and value addition infrastructure will necessitate the procurement of equipment, construction materials and services, providing income to suppliers and contractors, (v) **Food security and risk reduction** from intensification of small to medium size and commercial agricultural production systems which will have a positive impact on food security, (vi) **Water supply infrastructures** will be enhanced by refurbishment and installation of water supply and distribution facilities (bore holes, watering points, wells, etc.) , (vii) **Improved access** to the farms due to improved road conditions will provide increased access to social services, markets and can improve the overall employment situation, (viii) **Improved aesthetics and life of agricultural facilities** - rehabilitation/construction of irrigation and Value addition infrastructure will improve their aesthetics and this should be maintained.

Negative Social Impacts

5.4 The positive Social impacts that will accrue from implementation of the project include (i) **Anxiety and anticipation** resulting from elongated planning periods, (ii) **Poor Stakeholder Participation as a result of low level** of participation of all relevant stakeholders during project planning and designing as a buy in process, (iii) **Loss of assets or access to assets** due to establishment of sub-projects in some areas interfering with the normal access to assets like grazing, fields or hunting grounds, (iv) **Loss of natural and cultural heritage** as the Rehabilitation/construction of the infrastructure may affect some natural features, antics and relics in the project area, (v) **Disruption of footpaths** from the establishment of sub-projects in some areas disrupting the day to day life of the locals, like cutting off their usual footpaths or routes and forcing them to use longer routes, (vi) **Noise from** construction, processing and production equipment, affecting the quietness of the communities and provoking irritation and anger, (vii) **Social misdemeanour by construction workers impacting on the social fabric as they indulge in** illicit sexual relationships. This will have an impact of breaking the social fabric and spreading diseases such as STIs and HIV/AIDS, (viii) **Risk of outbreak of social conflicts** especially from the non-use of local resident manpower during the rehabilitation and construction of the infrastructures could cause some frustrations at the local level, (ix) **Occupational Health and Safety risks** during the rehabilitation/construction of the infrastructure which may entail heavy construction work, (x) **Conflicts over natural resources (water and Grazing lands)** due to establishing agricultural activities which may draw substantial amounts from the sources may trigger conflicts over resource allocation in the project areas, (xi) **Water-borne or water-related diseases** are commonly associated with the introduction of irrigation eg malaria, bilharzia (schistosomiasis) and river blindness (onchocerciasis), whose vectors proliferate in the irrigation waters, (xii) **Lack of resources to sustain agricultural activities** as the local farmers may face challenges of capacity to sustain the agricultural facilities, and fail to run and maintain the equipment once the project is over.
Mitigation Measures

5.5 In order to mitigate the potential negative impacts the implementing Agents will implement the following mitigation measures: (a) re-vegetating cleared land, (b) restoration of borrow-pits, (c) use of gabions and appropriate drainage systems to control erosion, (d) installation of systems for solid waste and effluent management.

Climate Change Resilient Activities

5.6 Climate change is a reality in Nigeria. According to IPCC (2007), climate change will result in (i) high frequency and intensity of extreme weather events such as high temperatures, frost, droughts, floods and storms), (ii) declining water resources, and (iii) loss of biodiversity. For the selected project areas those in the south and middle belt are vulnerable to serious storm surges and drier summers. SCPZs in the north, in the Sahel, are especially vulnerable to increasing aridity due to higher temperatures and reduced rainfall.

5.7 Analysis of long-term variability of rainfall and temperature in Nigeria shows discernible evidence of climate change (Abiodun et al., 2011). This includes: The historical record between 1971 and 2000 shows a trend of rising temperature in Nigeria showing a total increase of the maximum and minimum temperatures by 0.4°C and 0.8°C respectively. In addition, the incidence of heat waves (defined as continuous hot days) has increased by more than 20 days over the same period. These increases were followed by yet another set of increases in the period between 2008 and 2011 in maximum temperature of approximately 4.5°C over the inland northeast regions and approximately 3.5°C over the coastal southwest. (IPCC report).

5.8 These climate changes are have devastating negative impacts on agriculture in Nigeria causing decreased crop productivity (e.g. maize yields) over the entire country. The Climate change is predicted to have a severe effect on the health sector due to increases in the incidence of disease epidemics (e.g. malaria) over the entire country. The greatest increase in malaria incidence is projected to occur in the southern zones where a hotter and wetter climate is expected.

5.9 To mitigate against impacts of climate change events requires coordinated efforts from stakeholders concerned with climate change issues. This is particularly more urgent given the size of the country, which is broadly divided into two (2) Agro–Ecological Regions, the (A) forests and (B) savannah zones, each with relatively similar climatic conditions.

Gender Mainstreaming

5.10 Women play a significant role in agriculture, in Nigeria. About 70% of the agricultural workers, 80% of food producers, and 10% of those who process basic foodstuffs are women and they also undertake 60 to 90% of the rural marketing; thus making up more than two-third of the workforce in agricultural production (FAO, 1985). Yet, the role of women in these activities, so important economically, has remained obscure for long because women seldom play any major roles in political activities or decision making processes. Although they contribute significantly to the welfare of households through involvement in reproductive as well as productive activities, they are constrained in several ways by social and culturally prescribed norms that, among other things, limit their mobility and participation in development activities.
5.11 Although, in general, most of the poor farmers have limited access to services and inputs such as fertilizers and agrochemicals, women farmers, in particular, face additional constraints such as limited access to markets and credit services, and lack of access to suffrage and participation in the development of new legislation (Oxfam 2000). Women are also confronted with the consequences of institutional “gender blindness”. For instance, although there are progressive institutional mechanisms in place to improve the status of women at the national and state levels, rural women have little representation in, or access to, service bureaucracies. The following are some instruments and modalities that will be used for gender mainstreaming and they include (i) targeting, (ii) monitoring and evaluation, (iii) sensitization, (iv) capacity-building and empowerment, (v) group promotion, (vi) gender staffing, and (vii) policy dialogue.

**HIV and AIDS**

5.12 Nigeria has the second largest number of HIV-infected persons in the world, now estimated at 3.5 million people. The ATASP’s HIV/AIDS strategy will follow the country’s strategies which include modification of the extension and research priorities; incorporation of HIV/AIDS related information in extension messages; and introduction of HIV/AIDS in the curricula of agricultural training institutions. ATASP will adopt and use the Government’s extension messages. HIV/AIDS continues to gradually spread, killing extension workers and farmers alike. The risk posed by HIV/AIDS pandemic will be mitigated by awareness campaigns, incorporation of HIV/AIDS messages in training of community leaders and staff, and through improved nutrition and income.

6. **ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN**

6.1 The proposed Environmental and Social Management Plan (ESMP) (Table 6) for the proposed Project, provides guidelines for the management of potential environmental and social aspects at all possible project sites. In each case the EMP identifies parties responsible for monitoring actions, and any training or capacity building needs. The following table is an outline of the significant environmental and social issues.

<table>
<thead>
<tr>
<th>TEXT REF.</th>
<th>IMPACT</th>
<th>MITIGATION/ENHANCEMENT</th>
<th>RESPONSIBILITY</th>
<th>CAPACITY BUILDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITIVE ENVIRONMENTAL IMPACTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Reforestation and catchment management</td>
<td></td>
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</tr>
<tr>
<td>• Catchment Management in the hinterland of schemes</td>
<td>• Support tree nurseries, plantations, fencing of protected areas</td>
<td>• PCU</td>
<td>Tree nurseries training</td>
<td></td>
</tr>
<tr>
<td>• Improve and integrate management of land, water and related biological resources in order to achieve the sustainable and balanced use of these resources.</td>
<td>• Facilitate efforts to restore of the habitats, encourages regeneration and the development of fauna.</td>
<td>• Local Government Agriculture and Forestry Officers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) Organic fertilizer production - composting</td>
<td>producing organic fertilizer from agricultural waste</td>
<td>• Support commercialisation of this venture</td>
<td>• PCU</td>
<td>Vermin-composting techniques</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lobby for organic products to boost sales of the organic manure</td>
<td>• Local Government Agriculture and Forestry Officers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Beneficiaries</td>
<td></td>
</tr>
<tr>
<td>NEGATIVE ENVIRONMENTAL IMPACTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text Ref.</td>
<td>Impact</td>
<td>Mitigation/Enhancement</td>
<td>Responsibility</td>
<td>Capacity Building</td>
</tr>
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</tr>
</tbody>
</table>
| (i)      | Salinisation | - Heavy dependence on agro-chemicals  
- Poor water management practices  
- Irrigation of saline soils  
- Rising levels of saline groundwater  
- Inadequate leaching | - Encourage organic farming  
- Limit the use of agro-chemicals and  
- Provide water management training to farmers  
- Institute good drainage all over the scheme  
- Allow for the leaching fraction when applying water in the fields  
- Know the salinity status of soils | Local Government Councils - Agricultural Officer  
PCU  
Beneficiaries | Irrigation water management techniques |
| (ii)     | Soil and land degradation | - Point source contamination from diesel, lubricants etc around working areas.  
- Increased soil erosion due to vegetation clearing, soil trampling and compaction.  
- Increased rapid runoff due to vegetation clearing and soil compaction diminishing infiltration capacity.  
- Deterioration of soil characteristics due to increased erosion. | - Stabilization of loose soil, controlled excavation, preservation of vegetation cover,  
controlled transportation of raw materials,  
Appropriate landscaping,  
Appropriate containment measures for all operational areas and proper disposal of used lubricants.  
- Soil erosion control measures (e.g. re-vegetation, reseeding of grasses, land preparation, terracing, use of gabions, etc)  
- Restoration of borrow pits, sand and quarry stone abstraction sites and brick moulding sites | GoN  
Contractors,  
Project staff,  
Local Government Councils - Agric Officer,  
FRIN | Environmental awareness training |
| (iii)    | Quelea Birds | - Availability of more agricultural activities  
- More opened fields | - All front line state Spray for quelea birds at the same time, i.e. synchronisation of the control process  
Early planting to beat diseases and quelea birds.  
Institute integrated quelea bird management  
  - Chemical spraying  
  - Drums  
  - Nets  
  - Typha weed control | Local Government Councils - Agricultural Officer  
State governments  
Federal government  
Oclalav | Environmental awareness training |

**Positive Social and Health Impacts**

(i) Improvement in livelihoods and local economies
<table>
<thead>
<tr>
<th>TEXT REF.</th>
<th>IMPACT</th>
<th>MITIGATION/ENHANCEMENT</th>
<th>RESPONSIBILITY</th>
<th>CAPACITY BUILDING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Improved agricultural outputs will enhance the livelihoods of the communities, raising their incomes and hence further improve productivity and lifestyles. • Social conflicts may arise due to increased wealth differentials among the population.</td>
<td>• Leadership should promote viable economic activities. • Awareness on replication by others should be a continuous process</td>
<td>• GON • local leadership • PCU</td>
<td>Stake holder training in entrepreneur ship.</td>
</tr>
<tr>
<td>(ii) Gender And Youth Inclusion</td>
<td>• gender mainstreaming in ATASP • increasing access to project activities for women and youth • Increasing their participation in project implementation, community representation and decision-making.</td>
<td>• support, at least 30%, involvement of women in management of agricultural infrastructure, establishment of Value Addition facilities and implementation of various complementary activities • The development of activities intended for women and young girls, (like the processing of agricultural products)</td>
<td>• GON, • Project Management • Agricultural facility Management</td>
<td>• Gender mainstrea ming • Equal participatio n</td>
</tr>
<tr>
<td>(iii) Food security and risk reduction</td>
<td>Intensification of commercial agricultural production systems would have a positive impact on food security.</td>
<td>• improve access to markets to help farmers to make better production decisions • Lobby for good pricing of farm produce.</td>
<td>• GON, • PCU • Agricultural facility management</td>
<td>Commercial approach to agricultural activities.</td>
</tr>
<tr>
<td>NEGATIVE SOCIAL AND HEALTH IMPACTS</td>
<td>(i) Anxiety and Anticipation</td>
<td>• Project planning lacks transparency and may take rather long. • stakeholders anxious as they do not know exactly what will happen and when it will happen</td>
<td>• The planning stage must be shortened • During planning, site visits must be few, comprehensive and precise to avoid continuously agitating the stakeholders before fruition of the project. • The implementation must be within schedule.</td>
<td>• GON, • PCU • Contractor</td>
</tr>
<tr>
<td></td>
<td>(ii) Loss of assets or access to assets</td>
<td>Interference with the normal access to assets like grazing or hunting grounds especially in the creation of large irrigation schemes.</td>
<td>• Where ever possible avoid impacting on people. • Create alternative access routes. • Usual hunting grounds, grazing lands and natural forests should be avoided.</td>
<td>• GON, • PCU • Local Govt. Councils</td>
</tr>
<tr>
<td></td>
<td>(iii) Social misdemeanour by construction workers</td>
<td></td>
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</tr>
</tbody>
</table>
Impacts associated with the contractor’s camp include:
- Disposal of liquid and solid wastes.
- Theft, alcoholism and sexually transmitted diseases (especially HIV/AIDS).

As a contractual obligation, contractors should be required to have an HIV/AIDS policy and a framework (responsible staff, action plan, etc) to implement it during project execution.
- Contractor to curb thefts and misbehaviour through a code of conduct.
- Contractor to manage any of its waste properly.

GON, PCU, Contractor
None

The movement of trucks to and from the site, the operation of various equipment and machinery and the actual agricultural activities will expose the workers to work-related accidents and injuries.
- Pollutants such as dust and noise could also have negative implications for the health of workers.

All safety precautions must be enforced.
- Provide PPE to all workers.
- Institute dust and noise suppression measures.

GON, PCU, Contractor
Application of various types of PPE and their proper use.

7. THE MONITORING PLAN

7.1 The implementing agent (FMARD) with the help of relevant authorities must monitor the environmental effects of project implementation and the success of mitigation measures. This monitoring is an important part of managing the impacts of the project. This should be done by an independent team of experts drawn from all spheres of the environment that may be affected.

The areas to be monitored are:
- **Soils:** The farmers must ensure that no gullies or rills develop in the project area.
- **Vegetation:** To make sure the local residents do not collect firewood excessively.
- **Loss of natural and cultural heritage:** To protect some natural features, antics and relics in the project area, including chance finds.
- **Wildlife:** Monitoring must be done to protect wild animals from being snared.
- **Marginal lands/fragile ecosystems:** Marginal lands and fragile ecosystems must be protected against overuse.
- **Chemical pollution:** In order to monitor the amount of pollutants in the soil or water, samples must be taken regularly from them for pollution testing.
- **Water resources:** Both quality and quantity of water resources in the rivers must be properly managed for sustainable livestock management to persist.
- **Ambient air quality:** All air polluting activities need to be checked regularly to minimise their effect on air quality.
- **Socio-Cultural Issues:** Regular health checks of the work force/farmers are a way to monitor disease patterns.
- **Noise and Vibrations:** Monitor noise levels from the machinery to ensure that it conforms to the limits recommended for noise levels.

7.2 It is recommended that all environmental parameters mentioned above be monitored during the implementation and operation stages and any impacts should be mitigated as soon as possible. The farmers and the implementing Agent should monitor on a daily basis. In the course of monitoring, if and when any significant impacts are detected, the monitoring team should meet and address the issue. All team members should keep records of such meetings.

**Table 7: Environmental and Social Management and Monitoring Plan**

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>METHOD OF MONITORING</th>
<th>AREAS OF CONCERN</th>
<th>POSITIVE INDICATOR</th>
<th>FREQUENCY</th>
<th>RESPONSIBLE AUTHORITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soils</td>
<td>The Developer should make a daily inspection of earth works, and ensure that slopes are suitably graded. Once earthworks are complete the Implementing Agent should monitor the restoration measures implemented by the Contractor, such as re-vegetation.</td>
<td>- Soil erosion activities&lt;br&gt;- Conservation&lt;br&gt;- Rangelands management</td>
<td>An absence of rills, gullies or other erosion features occurs.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• FRIN</td>
</tr>
<tr>
<td>Vegetation</td>
<td>The farmers must only clear areas to be used and site works.</td>
<td>- Clearing of the project sites&lt;br&gt;- Disturbance of animals.&lt;br&gt;- Flora and fauna</td>
<td>No unnecessary vegetation cleared.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• FRIN Department.</td>
</tr>
<tr>
<td>Birds</td>
<td>Interference with nesting sites</td>
<td>- Nesting sites&lt;br&gt;- Migratory routes</td>
<td>Reproductive patterns of birds undisturbed.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• EIA Department. FRIN</td>
</tr>
<tr>
<td>Small mammals habitat loss</td>
<td>Ensure that no unnecessary habitat loss occurs.</td>
<td>Animal habitats</td>
<td>No Mammals are displaced from their habitats.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• EIA Department. FRIN</td>
</tr>
<tr>
<td>Poaching</td>
<td>Monitoring is the responsibility of FRIN and the Police Departments.</td>
<td>Poaching</td>
<td>Number of poaching incidences reduced or eliminated.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• EIA Department. FRIN</td>
</tr>
<tr>
<td>Crime</td>
<td>The ATASP Secretariat should Liaise with police department if crime/theft becomes a problem.</td>
<td>Criminal activities in the area</td>
<td>Crime theft kept to a minimum. Incidences of stock theft and house breaking minimized.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• FRIN Nigeria Police Force&lt;br&gt;Local Government Councils</td>
</tr>
<tr>
<td>Noise</td>
<td>Noise monitoring should be carried out on an ad-hoc basis by the Environmental Monitor or the ATASP Secretariat to establish noise levels in the work areas.</td>
<td>Noise Levels</td>
<td>Noise levels at the nearest sensitive receiver would be kept to a minimum.</td>
<td>Regularly and ongoing as project is implemented</td>
<td>• Federal ministry of Health&lt;br&gt;EIA Department.</td>
</tr>
<tr>
<td>ISSUE</td>
<td>METHOD OF MONITORING</td>
<td>AREAS OF CONCERN</td>
<td>POSITIVE INDICATOR</td>
<td>FREQUENCY</td>
<td>RESPONSIBLE AUTHORITIES</td>
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</tbody>
</table>
| Health        | ATASP Secretariat must ensure that education and awareness campaigns are implemented. The Federal Ministry of Health, and Local Government Councils should carry out awareness campaigns on irrigation scheme related diseases, (water borne diseases) and carry out vector control methods such as regular spraying of potential breeding sites (ponds) ATASP Secretariat must mainstream HIV/AIDS issues into the project implementation Program. | - Public health  
- Ensure that stagnant water is sprayed to destroy mosquito larvae.  
- Waste management at Sub-project sites.  
- Disease outbreak due to concentration of people at the Sub-project sites.  
- Disease outbreak due to dust and water pollution.  
- Control and management of various animal diseases | - Reduction in number of cases of such diseases as Avian flu, foot and mouth, AIDS/STD related diseases recorded at hospital and medical clinic  
- Reduction in number of diseases such as malaria and cholera | Regularly and ongoing as project is implemented | Federal ministry of Health.  
ATASP Secretariat  
FMoF |
| Archaeology   | This should concentrate on chance finds. Provision should be made to allow archaeologists to be present on site during the excavation periods if they so wish. The ATASP Secretariat should inspect all excavations, and where archaeological remains are found work must stop until the ATASP Secretariat has given the all clear to proceed. The ATASP Secretariat should contact the National Commission for Museums and Monuments (NCMM) in the event of a significant archaeological find. | - Archaeological Findings  
- Archaeological remains not excavated, disturbed or destroyed. | - Regularly and ongoing as project is implemented  
- Room for chance finds | NCMM. | |
| Energy        | The Developer must inspect the provisions made by the Contractor to supply energy to the workforce, and ensure that fuel wood is not being collected. The Federal Ministry of Environment -EIA Department should enforce legislation which prohibits cutting down of trees. The EIA Department, ATASP Secretariat and local leadership (cultural and political) should sensitize the workers against cutting down of trees. | - Types of energy sources used in the project  
- Energy supplied by electric generator or other suitable source.  
- Deforestation and resultant erosion controlled and reduced | - Tests for water pollution to be done regularly | Regularly | FRIN.  
EIA Department |
| Air Pollution | Observations should be made on the levels of dust generated during the Agricultural Activity implementation by the Environmental Monitor or ATASP Secretariat. Dampening should be carried out if levels are unacceptable. | - Levels of dust emissions  
- Deposition of dust on surfaces should decrease with increased dampening | - Tests for water pollution to be done regularly | Regularly | Federal ministry of Health.  
Project ATASP Secretariat  
FMoF |
| Water resources | - Water resources should be managed well  
- The Federal Ministry of Health should test borehole water quality in the area to ascertain the suitability for human consumption. | - Watercourses and impoundments.  
- Surface water quality  
- Ground Water Quality  
- Recommended distances from | - Water made available for environmental concerns.  
- Pollution of water resources monitored/detected | Tests for water pollution to be done regularly | Federal ministry of Health.  
Project ATASP Secretariat  
FMoF  
FMWRRD  
EIA |
### Method of Monitoring

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>AREAS OF CONCERN</th>
<th>POSITIVE INDICATOR</th>
<th>FREQUENCY</th>
<th>RESPONSIBLE AUTHORITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape</td>
<td>Watercourses, Possible dam construction sites.</td>
<td>Early and remedial measures taken on time</td>
<td>Monthly</td>
<td>NCMM, EIA Department</td>
</tr>
<tr>
<td></td>
<td>Visual intrusions</td>
<td>Landscape alteration reduced to a minimum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complaints</td>
<td>The ATASP Secretariat should inspect the record of complaints made by local residents.</td>
<td>Number of complaints decreases.</td>
<td>Regularly</td>
<td>Project ATASP Secretariat, FMoF, EIA Department</td>
</tr>
<tr>
<td>Local governance</td>
<td>The following: compliancy to designs, Employment opportunities and recruitment are transparent, Allocation of land is overboard, Cultural values are respected.</td>
<td>Land management, Land allocations, Socio cultural issues, Local governance, Social Aspects, Land rights, Disputes over land, Cooperation of local leadership is secured.</td>
<td>Regularly</td>
<td>Local Government Councils, Project ATASP Secretariat, FMoF</td>
</tr>
<tr>
<td>Agricultural activities</td>
<td>Siting of works plan, Land degradation curbed, Program running smoothly.</td>
<td>Land management, Land allocations, Socio cultural issues, Local governance, Social Aspects, Land rights, Disputes over land, Cooperation of local leadership is secured.</td>
<td>Regularly</td>
<td>ATASP Secretariat, FMoF</td>
</tr>
</tbody>
</table>

### 8. PUBLIC CONSULTATION PLAN

8.1 For the successful implementation and monitoring of some mitigation or enhancement measures, a continuous consultative process is required. The implementing agency, Federal Ministry of Agriculture and Rural Development (FMARD) has the responsibility to effectively engage stakeholders in achieving the project objectives for the benefit of all. Through consultations, the Federal Ministry of Finance (FMoF) will create a bridge of communication between the public and the Government, which will improve the efficiency and transparency of project execution. This public consultation plan (PCP) forms part of the EMP and is the same for all categories of agricultural and Value addition projects.

8.2 Consultation meetings will generally take two approaches; (i) individual interviews involving completion of a standard questionnaire, (ii) focus group meeting. The consultations will be structured along the following lines:
- Advance notification
- Introduction and information
- Early break-up into work groups or roundtables
- Opportunity for each participant to make a presentation
- A closing session to allow open discussion between participants and JPAC members
ATASP Secretariat will normally act as facilitators, although professional facilitators may be employed when it is appropriate. Members of the general public may state their views:

- In a brief presented at the meeting or submitted to ATASP Secretariat before the established deadline.
- Speaking at the public meeting, using whatever form of presentation they consider appropriate.

8.3 The following table identifies the mitigation measures that require continuous consultations and monitoring. It defines the goals and expected outcomes of the consultations and indicates the frequency of the consultations:

<table>
<thead>
<tr>
<th>NO.</th>
<th>ENVIRONMENTAL/SOCIAL IMPACTS</th>
<th>PROPOSED MEASURES</th>
<th>MITIGATION MEASURES</th>
<th>RELEVANT INSTITUTION</th>
<th>GOALS AND EXPECTED OUTCOMES</th>
<th>CONSULTATION FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Spread of HIV/AIDS</td>
<td>Strengthen HIV/AIDS Awareness Campaigns in Schools, Training of school administrators and staff in HIV/AIDS issues, encouraging participation of the private and public sectors in HIV/AIDS issues and reinforcement of school curriculum with HIV/AIDS issues.</td>
<td>Federal Min of Health, EIA Departmen t</td>
<td>% increase in those affected; (Monthly statistics from hospital and clinics)</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Loss of vegetation</td>
<td>Selective clearing of project sites, reforestation, preservation of protected plant species, use of alternative sources of energy, use of environmentally friendly technologies, awareness campaigns.</td>
<td>EIA Departmen t, FRIN, FMARD</td>
<td>Increase in area of land cultivated and deforested</td>
<td>Before project implementation Annually during and after project implementation</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Loss of Soil</td>
<td>Stabilization of loose soil, controlled excavation, preservation of vegetation cover, controlled transportation of raw materials, appropriate landscaping.</td>
<td>Land Resources, EIA Departmen t</td>
<td>Area and size of gullies formed Amount of silt deposited in watercourses</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Loss of fragile ecosystems</td>
<td>Conduct feasibility studies before construction, use expert knowledge of ecologists, introduction of ecosystem conservation projects, fencing</td>
<td>FMLH (Land Resources ), FMARD, EIA Departmen t</td>
<td>Size of area affected</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Soil and water pollution resulting from the accumulation of solid and liquid waste. Soil and water pollution from chemicals &amp; fertilizers</td>
<td>Controlled disposal of wastes and effluent by use of appropriate disposal facilities, use of appropriate drainage structures, use of cleaner technologies, proper storage of materials, awareness campaigns.</td>
<td>EIA Departmen t, FMWRD, PECAN, NAFDAC</td>
<td>Change in chemical and biological water quality</td>
<td>Bi-annually</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Dust, Emissions, Strong Light, Noise and Vibration</td>
<td>Controlled operation times, use of appropriate equipment, proper orientation of lights, use of alternative materials, use water sprinklers to control dust, use of scrubbers</td>
<td>EIA Departmen t, SON</td>
<td>Number of complaints Extent of property and vegetation soil ing</td>
<td>During construction</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Water-borne and / or</td>
<td>Provision of potable water</td>
<td>Federal</td>
<td>Increase in water</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>NO.</td>
<td>ENVIRONMENTAL/ SOCIAL IMPACTS</td>
<td>PROPOSED MEASURES</td>
<td>MITIGATION MEASURES</td>
<td>RELEVANT INSTITUTION</td>
<td>GOALS AND EXPECTED OUTCOMES</td>
<td>CONSULTATION FREQUENCY</td>
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</tbody>
</table>
| 8   | Loss of natural and cultural heritage. | Conduct feasibility studies, fencing, introduce proper antiquity education Programs | • FMCTNO - Dept of Tourism  
• Federal Min. of Education | Number or size of property lost | Before project implementation 
During project implementation |
| 9   | Loss of animals and aquatic life. | Minimize vibrations and strong noise, enforcement of parks and wildlife law, conduct feasibility studies, avoid contamination of soil and water | • FRIN.  
• Fisheries Dept  
• EIA Department | Animal count  
Fish and aquatic life estimates | Before project implementation 
Annually during project implementation |
| 10  | Disturbance of marginal areas | Avoid extraction of raw materials from marginal areas, no construction of structures in marginal areas. | • EIA Department  
• FMARD | Size of area affected | Bi-annually |
| 11  | Incidence of Flooding | Forestation of the catchment areas of the irrigation schemes, installation of flood control structures, | • EIA Department  
• FRIN | Number of trees planted  
Area planted with trees  
Number of people or properties affected | Annually |
| 12  | Exposure to Agro-chemicals | Encourage organic farming, and limit the use of Agro-chemicals. Conduct awareness training & workshops | • PECAN,  
• NAFDAC  
• Local Government Councils  
• Federal Min of Health | Number of people affected by agro-chemicals | Annually |
| 13  | Lack of farm inputs (loans, agro-chemicals etc) | Encourage organic farming, provide training on marketing and bulk purchasing to farmers, and provide critical marketing information to farmers regularly. | • FMARD  
• Farm | productivity (per Ha)  
Financial status of the farmers  
Change in standard of living | Annually |

9. COMPLEMENTARY INITIATIVES

9.1 The main ATASP project basically looks at constructing/rehabilitating agricultural and value addition infrastructure, including conservation works. The complementary initiatives that are proposed to improve the ATASP project’s environmental or social performance include the following:

- Capacity building
- Reforestation
- Catchment Management of the facility/scheme hinterland
- Production of Organic Manure from agro-processing waste
- Health and HIV/AIDS mainstreaming
- Agro-forestry
- Stream bank stabilisation and river training.
Enhancing communication

10. IMPLEMENTATION ARRANGEMENT

10.1 The Federal Ministry of Agriculture and Rural Development (FMARD) will be the executing agency for the Program. The existing Agricultural Transformation Implementation Council (ATIC) will continue to provide oversight functions for the entire Agricultural Transformation Agenda including ATASP. To efficiently coordinate the program activities, FMARD will be strengthened with a National Program Coordination Team (NPCT). Its members will be competitively appointed to coordinate program activities and undertake supervision, technical assistance, monitoring and evaluation functions. The NPCT will be staffed by relevant specialists including a program coordinator, a civil engineer, an irrigation engineer, a procurement specialist, an environmentalist, a private sector specialist, an accountant, a financial management officer, an M&E officer, a gender and social development expert, an outreach specialist, a communication officer, an internal auditor, and support staff.

10.2 The existing State Agriculture Transformation Implementation Committee (SATIC) in the Processing Zones shall provide oversight function on the implementation of the Program. A Processing Zone Implementation Team (PZIT) will be established for the day-to-day management and coordination of program activities. The PZIT will be headed by a coordinator supported by engineers (civil and irrigation); commodity specialists; agribusiness/marketing specialists; environmental specialists; outreach specialists; communications specialists; M&E experts; rural sociologists/community development experts; gender specialists; accountants; internal auditors; and support staff. This arrangement will guarantee efficient implementation of the Program and ownership by the States.

10.3 The main responsibility for facilitating and monitoring compliance with the Bank’s social and environmental policies during sub-project implementation at the community level lies with the PZIT, Ministry of Agriculture and Rural Development, and Ministry Water Resources. The environmental specialists at PZ level spearheads this function and works hand in hand with the project cluster management team. The NPCT will conduct periodic checks to ensure compliance. There is need for the various players to be involved and participate in the project from inception so that all the issues are taken care of from the start. The EIA Department of the Federal Ministry of Environment is important in raising the environmental awareness and following-up on compliance issues relating to their national mandate. There are two implementing levels (national and PZ cluster) for the project (Figure 9-1):
ATIC National Program Coordination Team

Legend
ATIC : Agricultural Transformation Implementation Council (National)
SATIC : State Agricultural Transformation Implementation Committee

Value Chain Actors
(Producers, Processors, Marketers, Linkages)

Fig 9.1: Organogram for Program Implementation
11. **FUNDING ARRANGEMENTS**

The proposed environmental activities for the project will be funded directly by the project resources in accordance with the proposed plan laid out below:

**Table 0-1  Cost estimates for the ESMP implementation**

<table>
<thead>
<tr>
<th>ID. NO.</th>
<th>ACTIVITY DESCRIPTION</th>
<th>ALLOWANCES/FEES</th>
<th>TRANSPORT</th>
<th>Other (Equipment, Furniture etc)</th>
<th>Grand total (US $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sub-total (US $)</td>
<td>Sub-total (US $)</td>
<td>Type</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>Development of Site-specific ESMPs</td>
<td>54,375</td>
<td>3,800</td>
<td>stationary</td>
<td>61,175</td>
</tr>
<tr>
<td></td>
<td>Development of Site Specific Work plans</td>
<td>20,000</td>
<td>2,500</td>
<td>stationary</td>
<td>22,500</td>
</tr>
<tr>
<td></td>
<td>Implementation of Mitigation measures</td>
<td>37,000</td>
<td>67,200</td>
<td>stationary</td>
<td>112,000</td>
</tr>
<tr>
<td></td>
<td>- Soil and water conservation works</td>
<td></td>
<td></td>
<td></td>
<td>27,000</td>
</tr>
<tr>
<td></td>
<td>- River bank stabilization</td>
<td></td>
<td></td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>- Flood control structures</td>
<td></td>
<td></td>
<td></td>
<td>20,000</td>
</tr>
<tr>
<td></td>
<td>Watershed Management</td>
<td>130,000</td>
<td>160,750</td>
<td>stationary</td>
<td>300,750</td>
</tr>
<tr>
<td></td>
<td>- Reforestation</td>
<td></td>
<td></td>
<td></td>
<td>43,200</td>
</tr>
<tr>
<td></td>
<td>- Agro-forestry</td>
<td></td>
<td></td>
<td></td>
<td>20,000</td>
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<tr>
<td></td>
<td>Sub-Total</td>
<td>241,375</td>
<td>234,250</td>
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<td>599,525</td>
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<tr>
<td>2.0</td>
<td>Promotion of Waste Management</td>
<td>40,250</td>
<td>46,000</td>
<td>waste handling, land &amp; water mgnt training</td>
<td>141,250</td>
</tr>
<tr>
<td></td>
<td>- General amenities at agricultural facilities</td>
<td></td>
<td></td>
<td></td>
<td>25,000</td>
</tr>
<tr>
<td></td>
<td>- Production of Organic Manure</td>
<td></td>
<td></td>
<td></td>
<td>100,000</td>
</tr>
<tr>
<td></td>
<td>Sub-Total</td>
<td>40,250</td>
<td>46,000</td>
<td></td>
<td>188,000</td>
</tr>
<tr>
<td>3.0</td>
<td>Annual Environmental Audits</td>
<td>40,000</td>
<td>4,000</td>
<td>stationary</td>
<td>48,000</td>
</tr>
<tr>
<td></td>
<td>End-of Project Environmental Audit</td>
<td>18,000</td>
<td>1,500</td>
<td>stationary</td>
<td>21,500</td>
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<tr>
<td></td>
<td>Staff Training in Participatory Environmental Monitoring</td>
<td>5,400</td>
<td>1,500</td>
<td>stationary</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td>Beneficiary Training in Participatory Environmental Monitoring/Community Level</td>
<td>64,800</td>
<td>6,000</td>
<td>stationary, Venue</td>
<td>73,300</td>
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<tr>
<td></td>
<td>Sub-Total</td>
<td>128,200</td>
<td>13,000</td>
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<td>153,800</td>
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<tr>
<td>4.0</td>
<td>Capacity building For the Environment Department</td>
<td>10,000</td>
<td>3,000</td>
<td>stationary</td>
<td>14,000</td>
</tr>
<tr>
<td></td>
<td>Health and HIV/AIDS mainstreaming</td>
<td>5,000</td>
<td>2,000</td>
<td>stationary</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>Enhancing communication</td>
<td>5,000</td>
<td>4,000</td>
<td>stationary</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td>Sub-Total</td>
<td>20,000</td>
<td>9,000</td>
<td></td>
<td>29,500</td>
</tr>
<tr>
<td>5.0</td>
<td>Grand Total</td>
<td>409,825</td>
<td>293,250</td>
<td></td>
<td>703,075</td>
</tr>
</tbody>
</table>

**Notes:**

- Construction stage mitigation measures (Erection of Waste Treatment Systems) under the responsibility of the contractor and supervising engineer will be included in the Bills of Quantities (BoQ) estimated at 5% of the BoQ for environment and social mitigation/remediation measures.
- Specific and clearly identified budget line for environmental and social issues should be included in the tender documents.
- 10% of contract value should be kept until the Environment Officer/EAD confirms that all the environmental and social mitigation measures are appropriately implemented and the Environmental Affairs Department has approved.
- There are no resettlement issues envisioned for the construction and operation of the proposed infrastructure. Should there be any resettlement issues and/or payment of compensation to the affected population, the Government of Nigeria will implement the activities prior to the commencement of the civil works. The funding for such activities will come from the counterpart funding from the Government of Nigeria.

12. IMPLEMENTATION SCHEDULE AND REPORTING

The implementation schedule for the ESMP is outlined in table 11-1 and takes into account all activities related to the proposed measures (enhancement and mitigation), the monitoring program, consultations, complementary initiatives and institutional arrangements. To monitor the progress of the implementation of the measures are included in this ESMP. Annual reviews will be carried periodically. The principal output of the annual reviews is an annual review report that documents the review methodology, summarizes the results, and provides practical recommendations. To ensure early detection of critical environmental and social conditions and to provide information on the mitigation progress and results, reporting deadlines have been specified in the implementation schedule.
<table>
<thead>
<tr>
<th>No.</th>
<th>PROJECT ACTIVITIES</th>
<th>REPORTING DEADLINES</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>YEAR 4</th>
<th>YEAR 5</th>
<th>YEAR 6</th>
<th>YEAR 7</th>
</tr>
</thead>
</table>
| 1.0 | Stakeholder Consultations | • ESMP before project approval  
• Annually at end 4th quarter |        |        |        |        |        |        |        |        |
| 2.0 | Development of site specific ESMPs | End Year 1, of 1st quarter |        |        |        |        |        |        |        |
| 3.0 | Development of Site Specific Work plans | End Year 1, of 1st quarter |        |        |        |        |        |        |        |
| 4.0 | Implementation of Mitigation measures | soil and water conservation works  
Monitoring the progress of the implementation of the mitigation measures  
river bank stabilisation  
Flood control structures  
Crop rotation / agro forestry  
Procedure for chance finds – archaeology  
Good scheme design – relocate foot paths  
Preservation of PPE  
Dust suppression measures  
Mainstream HIV/AIDS | Annually with each planting session  
Annually at end 4th quarter  
By end of 3rd quarter of Year 1  
By end of 3rd quarter of Year 1  
Annually as appropriate  
As and when chance find occurs  
By end of 3rd quarter of Year 1  
Continuous throughout project life  
During Construction and throughout whenever and where dust is generated. |        |        |        |        |        |        |        |        |
| 5.0 | Watershed Management | Habitat restoration  
Revegetation/reforestation  
Stabilisation of loose soil in fields  
River bank stabilisation/training  
Appropriate Levelling and landscaping  
Appropriate waste disposal facilities  
Soil erosion control measures  
Restoration of burrow pits  
Erection of Flood control systems  
Allow for environmental flows  
Promotion of Waste Mgmt.  
general amenities  
Production of organic Manure  
Appropriate containment measures for all operational areas  
Training on Safe handling of chemicals  
Erection of alternative water points and wash-points away from canals | By end of 4th quarter year one and refresher course annually.  
By end of 4th quarter year one and continually as need arises  
By end of 3rd quarter year one and continually as need arises  
By end of 4th quarter year one  
By end of 3rd quarter year one  
By end of 3rd quarter year two and continually thereafter as need arises.  
By end of 4th quarter year three  
By end of 3rd quarter year three  
By end of 2nd quarter year two and continually thereafter  
By end of 4th quarter year one  
By end of 3rd quarter year one  
By end of 3rd quarter year two  
By end of 2nd quarter year one  
By end of 3rd quarter year one  
|        |        |        |        |        |        |        |        |        |
| 6.0 | Promotion of Waste Mgmt. | waste handling, land & water mgnt training  
general amenities  
Production of organic Manure  
Appropriate containment measures for all operational areas  
Training on Safe handling of chemicals  
Erection of alternative water points and wash-points away from canals | By end of 4th quarter year one  
By end of 2nd quarter year two  
By end of 2nd quarter year one  
By end of 3rd quarter year one  
By end of 3rd quarter year two  
|        |        |        |        |        |        |        |        |        |
| 7.0 | Annual Environmental Audit |        | Annually by end of 3rd quarter |        |        |        |        |        |        |
| 8.0 | End-of Project Environmental Audit |        | By end of 3rd quarter year five |        |        |        |        |        |        |
| 9.0 | Staff training in Participatory Environmental Monitoring |        | By end of 2nd quarter year one |        |        |        |        |        |        |
| 10.0 | Beneficiary Training in Participatory Environmental Monitoring/Community Level | Water management training for farmers  
Appropriate training to manage the improved schemes  
Sanitation and health training | By end of 4th quarter year one  
By end of 2nd quarter year two  
By end of 4th quarter year two |        |        |        |        |        |        |        |
| 11.0 | Capacity building For the Environment Department |        | By end of 4th quarter year two  
Sanitation and health training |        |        |        |        |        |        |        |
| 12.0 | Health and HIV/AIDS mainstreaming | Establishment of health and sanitary facilities and raising HIV/AIDS awareness in the schemes |        |        |        |        |        |        |        |        |
| 13.0 | Enhancing communication | Assisting in bringing the necessary networks closer to the farmers |        |        |        |        |        |        |        |        |
| 14.0 | Planned Maintenance | Continuous/planned Scheme maintenance to sustain improved aesthetics |        |        |        |        |        |        |        |        |

Nigeria ATASP-1 – SESA Summary
13. CONCLUSIONS AND RECOMMENDATIONS

13.1 The proposed project has potential to significantly improve the local production of rice, sorghum and cassava in the target Staple Crop Processing Zones (SCPZ). An improvement in the productivity of the Smallholder farmers will translate to improved food security as the country will import less rice. Besides, project development and operation will provide considerable economic opportunity within the local areas like income for material/equipment suppliers, construction contractors and agriculture professionals. The environmental impacts that the developmental activities are likely to cause include disturbance of soil from digging of pits and foundations, and irrigation and value addition structures construction activities, tree cutting and general vegetation clearing, emission of dust and generation of noise. These envisaged environmental impacts will be experienced during the construction phase and will be localized, minimal, short term and can be mitigated.

13.2 During the operation phase, the potential environmental impacts will include Solid and liquid waste, dust emissions from agro-processing and noise from machinery, which will be generated from the normal operations of the facilities and can be managed by incorporating the requisite waste and effluent handling units to the facilities. This impact would be exacerbated by inadequately trained scheme members. However the ESMP presented in the study will be used to mitigate the impacts during and after the rehabilitation of the agricultural and value addition infrastructure. The final benefits of this project to the nation will, by far outweigh potential negative effects.

13.3 It is therefore recommended that:

- All agricultural and value addition infrastructure must include the requisite waste disposal or handling systems.
- The choice and type of construction materials and finish should maximize the blending concept.
- It is important that stakeholder organisations such as Local Government Councils (LGCs), EIA Department, NGOs and other interested parties are consulted and kept informed of the implementation progress so that they can play their part.
- Reduction and control of noise levels to minimize any disruption to the living conditions of wildlife be strictly adhered to.
- The land around any sub-project works should be left intact and pollution be minimised.
- Bush clearance should be confined to the absolutely necessary part, buffer strips be maintained and huge indigenous trees in the area should be preserved as much as possible.
- Labour intensive methods should be encouraged as they benefit the local community in terms of job creation. For this the project should employ locals as much as possible to ensure that benefits remain in the area where development is taking place.
- The use of destructive machinery should be avoided as much as possible. Machinery will adversely affect soils and undergrowth.
- The recommended mitigation measures should be implemented to reduce significant environmental impacts.

The project overall will not have any apparent significant environmental impacts if the recommended mitigations are carried out.