



The Government of the Gambia



The Gambia

Second Generation National Agricultural Investment Plan-Food and
Nutrition Security (GNAIP II-FNS)

2019-2026

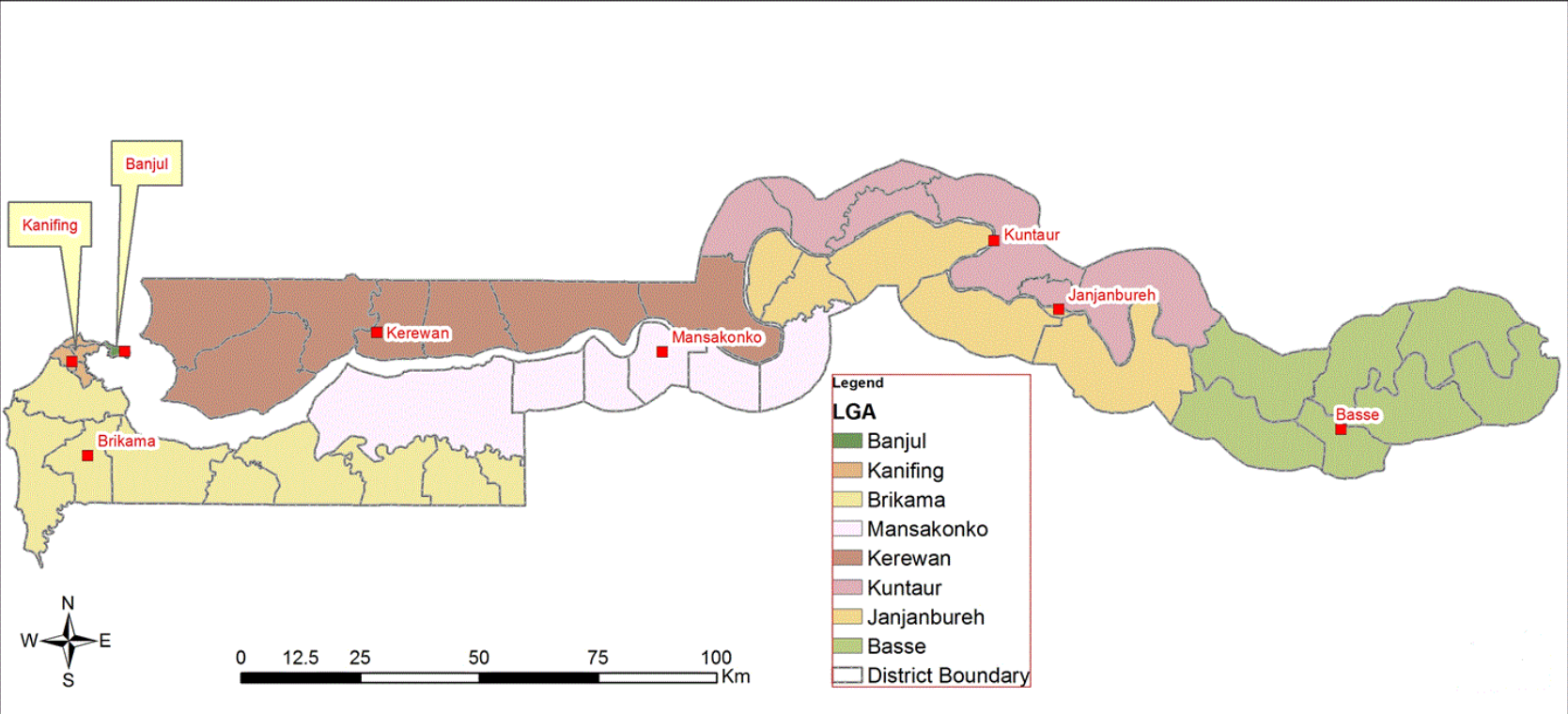
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Acronyms and Abbreviations

AACC	Adapting Agriculture to Climate Change
AfDB	African Development Bank
ANR	Agriculture and Natural Resources
ANRP	Agriculture and Natural Resources Policy
AVCDP	Agricultural Value Chain Development Project
CAADP	Comprehensive Africa Agricultural Development Programme
CARD	Coalition for African Rice Development
CB	Country Brief
CFAN	Commercial Farmers Agri-business Network
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CH	Cadre Harmonize
CILSS	Permanent Inter-State Committee for Drought Control in The Sahel
CPCU	Central Projects Coordinating Unit
CIPriSSA	Continental Investment Plan for Accelerating Rice Self-Sufficiency in Africa
CRR	Central River Region
CSA	Climate Smart Agriculture
DOA	Department of Agriculture
DLS	Department of Livestock Services
DLS	Department of Livestock Services
DPWM	Department of Parks and Wildlife Management
DWR	Department of Water Resources
ECOWAS	Economic Community of West African States
ECOWAP	ECOWAS Agricultural Policy
EDF	European Development Fund
EU	European Union
FAO	Food and Agriculture Organization
FASDEP	Food and Agriculture Sector Development Project
GACH	Gambia Angola China Holdings
GALDEP	Gambia Agricultural Lowland Development Project
GAP	Good Agricultural Practices
GAFNA	Gambia Food and Nutrition Association
GBOS	Gambia Bureau of Statistics
GCAV	Gambia Commercial Agriculture value Chain Project
GCCI	Gambia Chamber of Commerce and Industry
GEF	Global Environment Facility
GOTG	Government of The Gambia
GHI	Global Hunger Index
GNAIP	Gambia National Agricultural Investment Plan
GMD	Gambian Dalasi
IDA	Iron Deficiency Anaemia
IDD	Iodine Deficiency Disorder
IFAD	International Fund for Agricultural Development
IsDB	Islamic Development Bank
ITC	International Trade Centre
MA&D	Market Analysis and Development
MOA	Ministry of Agriculture
NaNA	National Nutrition Agency

NAPs	National Adaptation Plans
NARI	National Agricultural Research Institute
NBSAP	National Biodiversity Strategy and Action Plan
NCC	National Climate Change Committee
NDP	National Development Plan
NEDI	National Enterprise Development Initiative
<i>Nema</i>	National Agricultural Land and Water Management Development Project
NHSM	National Horticulture Sector Master plan
NGO	Non-Governmental Organization
NNC	National Nutrition Council
NRDS	National Rice Development Strategy
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
P2RS	Programme for Building Resilience against Food and Nutrition Insecurity in the Sahel
RVCTP	Rice Value Chain Transformation Project
SMART	Standardized Assessment Methods for Relief and Transition
TANGO	The Associations of NGOs in The Gambia
UK	United Kingdom
UNDP	United Nations Development Programme
UP	Universal Purpose
USD	United States Dollar
USAID	United States Agency for International Development
URR	Upper River Region
VAD	Vitamin A Deficiency
WB	World Bank

EXECUTIVE SUMMARY

The Gambia is among the Low-Income, Food Deficit Countries (LIFDC) of the world. Per capita GDP was estimated at USD534.30 in 2017. With a UNDP Human Development Index (HDI) of 0.460, the country was ranked 174th out of 189 countries in 2017. The poverty rate was estimated at 48.6% of the population and was higher in rural than in urban areas, 69.5% and 31.6%, respectively in 2015. The analysis of the performance of the agricultural sector and changes in the food and nutrition situation of the country revealed that yields for key crops such as rice, coarse grains and groundnuts remain low; livestock population growth has also been fluctuating due to disease outbreaks and climate change. Gambian households experience both acute and chronic food insecurity with 8% of households being food insecure or vulnerable to food insecurity. The analysis also revealed that agricultural value chains face a number of challenges centred around: insufficient infrastructure; limited access to agricultural inputs and finance; unfavourable agribusiness environment and problems linked to limited inclusiveness, sustainability and nutrition.

The Gambia Agriculture Investment Plan (GNAIP) II constitutes the main investment framework for agricultural development in The Gambia in the medium term (2019-2026). GNAIP II was formulated through a participatory process with stakeholders from the public and private sectors including farmer organizations. The Vision articulated for agriculture under the Medium term NDP is: *“a modern, sustainable and market-oriented agriculture and livestock sector for increased food and nutrition security, income and employment generation, poverty reduction and economic transformation”*. *GNAIPII aims to increase food and nutrition security at household level including for vulnerable households through increased ANR productivity based on sustainable use and management of natural resources in support of national goals of poverty reduction and improved livelihood”*. GNAIPII revolves around four strategic axes, namely: improving production and productivity of agro-forestry-pastoral and fisheries products; structuring of the value chains; strengthening the resilience of vulnerable populations; and governance.

The following constitute the six priority programs of GNAIP II:

- Production and value chain promotion on food crops and vegetables sub-sector;
- Production and value chain promotion on livestock husbandry and pastoralist sub-sector;
- Production and value chain promotion on fishery and aquaculture sub-sector;
- Production and value chain promotion on forestry and environment sub- sector;
- Food and nutrition security, resilience, social protection; and,
- Promote good governance of the whole agriculture and natural resources sector.

The total budget of the GNAIP II for the period 2019 – 2026 is estimated at US\$387.96 million of which the base cost is US\$369.49 million with US\$18, 470 as the amount of contingency. This budget is broken down by priority area as presented in table 15 to compare as follows: Programme 1: Production and value chain promotion on food crops and vegetable sub-sector totals US\$161.47 million (43.70%); Programme 2: Production and Value chain promotion on Livestock husbandry and pastoralist sub-sector costs US\$50.10 million (13.56%); Programme 3: Production and value chain promotion on fisheries and aquaculture sub-sector amounts to US\$75.55 million (20.45%); Programme 4: Production and value chain promotion forestry and environment sub-sector costs US\$ 22.6 (6.12%); and Programme 5: Food security, Nutrition, Resilience and Social protection totals US\$49.76 million (13.47%); Programme 6: GNAIP Coordination, Monitoring and Evaluation costs US\$10 million (2.71%).

Implementation of GNAIP II will be carried out at different levels and the key institutions involved will include: the National Council of Ministers (NCM), the highest decision-making body to provide overall policy

direction and guidance; the Project Steering Committee (PSC) responsible for the management and overall implementation and monitoring of all the GNAIP II programmes and activities; the Programme Coordination Office (*PCO*), the technical arm of GNAIP II, overseeing programme planning, implementation and coordination and progress at a programmatic level; and the **Programme Support Units (PSUs)** are responsible for implementation the implementation of donor funded programme/projects. At the decentralized level, Regional PSCs (RPSC) will be established as a sub-committee of the existing Regional Development Committees to coordinate and manage GNAIP implementation ensure effective and timely delivery of results.

The Monitoring and Evaluation system has been developed and the verifiable indicators identified in the Results Framework. The indicators will be incorporated into the revitalized Gambia Agricultural Information System (GAINS) of the MOA M&E Framework as an MIS. A special unit of the CPCU will be assigned to ensure that robust, reliable, and timely data is generated for the assessment of implementation of the GNAIP. The Unit will also be responsible for knowledge management.

The key risks that that could potentially limit meeting GNAIPII objectives include climate change, insufficient funding, pest and disease outbreaks, lack of political will and coordination between partners, market and foreign exchange fluctuations and mismatch between current public/private sector capabilities and those required for implementation.

PART 1 INTRODUCTION

1.1 Key Macro-economic and Food and / Nutrition Security Indicators

The Republic of The Gambia, located in West Africa stretches 450 Km along the Gambia River, has a total surface area of 10, 689 Km² and population of 2.1 million. It is surrounded by Senegal, except for a 60 Km Atlantic Ocean front. With a population density of 176 persons per km², it is one of the most densely populated countries on in continental Africa. The Gambia comprises five¹ administrative regions and two² municipalities.

Up until 2016 the macroeconomic situation in The Gambia had been challenging, erratic and undulating. There was a sharp economic downturn of the Gross Domestic Product (GDP) with average growth rate down from 5.9% in 2015 to 0.4% in 2016, accompanied by loss of public confidence in macroeconomic management. Reasons advanced for the unpredictable macroeconomic policy environment were attributed to sudden policy shifts and slippages, exogenous weather shocks, excessive borrowing (rising debt to GDP ratio) and susceptibility to economic shocks, weak institutional set up and management, irrational resource utilization and excessive budgetary spending that adversely affected economic growth.

However, in 2017, the macroeconomic situation started to recover from the 2016 economic downturn when real GDP growth rate at factor cost averaged 3.5% due to a better agricultural season and a strong rebound of tourism and trade subsectors. Better still, the recorded inflation declined from 8.8% in January 2017 to 6.6% in the corresponding month of 2018 resulting in the stabilization of the local currency (Dalasi) and seemingly a decline in general food prices. All these macroeconomic achievements were underpinned by the desired fiscal discipline embarked upon by the new political administration and the needed donor financial support received paving the way for the Dalasi to remain stable with gross international reserves increasing from 1.6 months of import cover in 2016 to 2.9 months at end 2017 (IMF Article IV 2017). According to the 2019 Budget Report, import cover further increased from 2.9 months in 2017 to 3 months in early October 2018.

At macro-level, The Gambia is among the Low-Income, Food Deficit Countries (LIFDC) of the world. Its GDP per capita was recorded at USD534.30 in 2017 which is only 4% of the world's average and also averaged USD512.15 from 1966 until 2017 with a Gini coefficient of 35.9 points in 2015. Its UNDP Human Development Index (HDI) was estimated at 0.460 (i.e. ranked 174th country) in 2017 with slightly increasing poverty levels. The 2010 Integrated Household Survey (IHS) indicated a poverty headcount rate of 48.4% compared to 58% of the 2008 Poverty Assessment Report with rural and urban disparities. In 2010, the rural and urban poverty headcount ratios were computed at 73.9% and 39.6%, respectively indicating that poverty is a rural phenomenon. Poverty was highest (76.4%) among household heads working in the agriculture and fishing industries which constituted 52% of the entire population. In the subsequent survey (IHS 2015/2016), 48.6% lived below the poverty line of US\$ 1.25 with the urban areas of Banjul and Kanifing decreasing by 1.8 % during the period. On the other hand, poverty in the rural areas increased by 5.3% , exacerbated by the fact that while the rural population constitute less than 50% of the population, they make up more than 60% of the total poor. These figures indicate that about 52% of the entire population is still suffering from pervasive and endemic poverty. To stem against this poverty menace, articulated and concerted macroeconomic stabilization reform measures must be re-directed at reducing the negative poverty impacts on the affected population.

¹ West Coast Region(WCR), Lower River Region (LRR), North Bank Region(NBR), Central River Region(CRR), and Upper River Region(URR)

² Banjul City Council (BCC) and Kanifing Municipal Council (KMC).

1.1 The Origin and Formulation of Second Generation GNAIP-FNS

In pursuit of the agenda for agricultural transformation in Africa, the African Union Commission (AUC)'s development agency- the New Partnership for Africa's Development (NEPAD), embarked upon the Comprehensive Africa Agriculture Development Programme (CAADP). The CAADP constitutes Africa's blue print for agricultural-led growth. Unveiled in 2003, it has the overall objective to "help African countries achieve a higher level of economic growth through agriculture-oriented development" and thereby "eradicate hunger and reduce poverty through agriculture" (CAADP, 2013).

2003 Maputo Declaration

The African Union (AU) Assembly of Heads of State and Governments, during their Second Ordinary Session on Agriculture and Food Security held in Maputo in July 2003, made strong political support to the CAADP. They agreed to adopt sound policies for agriculture and rural development and committed themselves to achieving 6% annual agricultural growth and a 10% public agricultural expenditure share of the national budget. The Maputo Declaration sought to achieve Millennium Development Goal One (MDG 1C), to halve the level of extreme poverty and hunger by 2015.

ECOWAS Agricultural Policy (ECOWAP) Process

The ECOWAS Agricultural Policy (ECOWAP) was developed through a participatory process in 2002 by the 15 member nations and stakeholders. It was aligned to the CAADP process and adopted at the Summit of Heads of State in 2005. The objective of ECOWAP is "*contributing in a sustainable manner, to meeting the food needs of the people, economic social development and poverty reduction in member states.*" ECOWAP is strongly oriented towards greater regional integration of markets and is hinged on three main axes: 1. increasing productivity and competitiveness of agriculture; 2. implementation of intra-community trade regime; and, 3. adaptation of the external trade regime.

The principal framework of the ECOWAP is presumed on subsidiarity and complementarity. Following the adoption of ECOWAP, the principal instrument for implementation-the Regional Agricultural Investment Plan (RAIP) and the fifteen National Agricultural Investment Plans (NAIP) were formulated respectively from 2008-2010.

2014 Malabo Declaration

African leaders in the 23rd Summit of the African Union in Malabo, in June 2014 recommitted their governments to agriculture-led growth. This hinged on accelerated agricultural growth and transformation for shared prosperity and improved livelihood. It upheld key commitments of the 2003 Maputo Declaration including the CAADP target of 6% annual agricultural growth and 10% public agricultural investment share. A number of new commitments were outlined in the Declaration including the goals of ending hunger and halving poverty, boosting intra-African trade in agricultural commodities and services, enhancing resilience to climate variability and other related risks, and mutual accountability to actions and results through a review process of the progress made in implementing the provisions of the Declaration.

At the regional level, the Economic Community of West African States (ECOWAS) formulated the Regional Agricultural Investment Program (RAIP) complimented by the national plans, taking into account spill overs and regional economies of scale in investment and policy. In effect, this was based on two key

pillars: the fifteen National Agricultural Investment Plans (NAIP) and the Regional Agricultural Investment Plan (RAIP). The NAIPs reflected the priorities of the States and those of national actors. They focused mainly on productive investments and covered the different sub-sectors, i.e., agriculture, livestock, fisheries, and forestry. They defined the volume and allocation of investments to help generate at least 6 % annual growth in the agricultural sector, which was considered necessary to halve the poverty prevalence rate (MDGs.). The overwhelming majority of the first generation NAIPs devoted most of their funding to the production segment (input subsidies, irrigation development, etc.). Investments in marketing, processing, food safety, research, extension and human capital development were relatively not emphasized. The RAIP and many of the first generation NAPSIPs ended in 2015.

Following implementation and review of the first phase, a second phase extending the CAADP and the formulation of a successor – 2016-2020 Regional Agriculture Investment Plan and Food Security and Nutrition was formulated and approved. In 2016, the launching of the revision of the NAPSIPs was effected with a methodological guide provided under the coordination of ECOWAS. To ensure the use of the methodological guide during NAFSIP revision, the Directorate of Agriculture, Environment and Water Resources has charged the Rural Hub with the supervision of national processes. In the same vein, International Food Policy Research Institute (IFPRI) and Regional Strategic Analysis and Knowledge Support System (ReSAKSS) mobilized an Experts Group of African researchers to provide the analysis for the 15 Member States of the ECOWAS. For the Gambia, this culminated in the production of a resource material- The Gambia, Agricultural development Status Assessment.

Sustainable Development Goals (SDGs) for 2030

With the completion of the Millennium Development Goals (MDGs) in 2015, the United Nations approved the seventeen Sustained Development Goals (SDGs) (Figure 1) to be achieved by 2030. Key SDGs are 1 (no poverty); 2 (zero Hunger), 5 (gender equality), 13 (climate action), 15 (life on land) and 17 (partnership) are particularly relevant and provide rallying points.

Figure1: Sustainable development goals of the United Nation



The ECOWAP Strategic Framework for 2025-the RAIPFSN

The 2016-2020 RAIPFSN is based on the first generation RAIP and focuses on six thematic issues for the five-year period: (i) Combating hunger and malnutrition; (ii) Adapting to climate change; (iii) Strengthening resilience to food and nutrition insecurity; (iv) providing employment, vocational training and securing the status of producers, farm workers and young

people;(v) systemic gender mainstreaming; and, (vi) promotion of competitive and inclusive value chains.

It aims to help address the major challenges facing the region:

- Ensure food security and sovereignty and cover the nutritional needs of the population in a context of high population and urbanization which gives central roles to markets, especially to regional markets;
- Modernize family farms, increase their resilience and better integrate them into the markets, by taking into account employment, poverty reduction issues, the diversity of family farms, their trajectory and prospects;
- Promote itineraries for the intensification of sustainable and climate-friendly production system (CSA) in a context of great diversity of high agro-ecological zones;
- Structure and develop efficient labour-intensive value chains to meet the challenge employment, based on contractualization and fairness in trade relations.

Scope of GNAIP II

The Gambia Agriculture Investment Plan (GNAIP) II constitutes the main investment framework for agricultural development in The Gambia in the medium term (2019-2026). It reflects sector priorities such as modernization and transformation with the private sector as the major catalyst for growth and development in the sector. *“The GNAIP aims to increase food and nutrition security at household level including for vulnerable households through increased ANR productivity based on sustainable use and management of natural resources in support of national goals of poverty reduction and improved livelihood”*. The following constitute the six priority axes of the GNAIP II:

- Production and value chain promotion on food crops and vegetables sub-sector;
- Production and value chain promotion on livestock husbandry and pastoralist sub-sector;
- Production and value chain promotion on fishery and aquaculture sub-sector;
- Production and value chain promotion on forestry and environment sub- sector;
- Food and nutrition security, resilience, social protection; and,
- Promote good governance of the whole agriculture and natural resources sector.

It should be noted that all first four include capacity building, youth employment and women empowerment, climate change adaptation, regional trade promotion, whilst the 6th includes Institutional capacity, steering and coordination, monitoring and evaluation and communication.

1.2 The GNAIP II Formulation Overseeing Process

1.2.1 GNAIP II Formulation Process

The National Steering Committee is responsible for coordinating the formulation of GNAIP II. The Committee has a broad-based membership and is chaired by the Ministry of Agriculture with the Central Projects Coordinating Unit (CPCU) serving as the Secretariat. The formulation process entailed convening of meetings, formation of subcommittees and facilitating sub-committee meetings. The Steering Committee was assisted by the Monitoring and Evaluation Technical Working Group (M&ETWG) which comprised M&E officers of the various public agriculture sector projects, which provided technical guidance and support to the subcommittees of the nine thematic working groups.

The sub-committees comprised experts with specialization and mandate in the thematic areas as shown in the timelines presented in Table 1. Each thematic sub-committee nominated a team leader and agreed on tasks to be undertaken including data collection and collation. Their key tasks entailed: (i) the review of GNAIP I and related documents; (ii) drafting of the relevant thematic area; and (iii) compilation of Draft report based on submission of thematic groups.

Table 1: Thematic Sub Committees and Composition

#	SUB-COMMITTEE	COMPOSITION
1	Improvement of Agricultural Land and Water Management	CPCU Coordinating body, DOA (SWMS), HTS, NARI, FAO, MoWA/Women's Bureau, Department of Lands, DWR, DLS, AATG, DCD, NEA, NAWFA
2	Improved Management of Other Shared Resources	CPCU Coordinating institution, DOF Depart. of Wildlife, NEA, DWR, Department of Community Development, DLS, DOA, Department of Fisheries, Women's Bureau, NACOFAG, GLMA, NAWFA
3	Development of Agriculture Value Chains and market, processing and storage promotion	CPCU Coordinating institution, FTS, DLS, ABS, United Purpose (Concern Universal), AATG, Women's Bureau, GCCI, GIEPA, National Food processors, NAWFA, GLMA, DCD, FSQA and Standard Bureau, NYC, NEDI, DPPP (MOFEA), Trade & Industry Departments (MOTIE), NACOFAG
4	National Food and Nutrition Security	CPCU Coordinating Institution, NaNA, FSQA, FTS/DOA and NARI, PPS and PACA, DOF, DLS, Standard Bureau
5	Livestock Production and Productivity and Value Chain Development	CPCU Coordinating Institution, DLS, FAO, NaNA, GLMA, AVCDP, WALIC, NaLOA, National Poultry Farmers' Cooperative, NBAG
6	Youth in Agriculture and Gender	CPCU Coordinating Institution, Women's Bureau, NEDI, NYC, CPCU, DOA, DLS, Activista, GYIN. NACOFAG
7	Climate Change and Resilience	NEA, CPCU, Department of Forestry, Department of Parks and Wildlife, Nema-CHOSSO, Plant Protection Services, Planning Services Unit, SWMS, NARI, DLS, CPCU, NDMA, DWR, Ministry of Environment (GCF) and NSA
8	Governance and Political Advocacy	CPCU, MOL&RG, DCD, MOA, CPCU, AATG, and OP/OVP, Farmers Platform, NACOFAG, National Deputy Chairperson of the Assembly Select Committee on Agriculture and members
9	Private Sector	GCCI, GIEPA, Bankers Association, CFAN, MOFEA, MOTIE

Resources mobilized from USAID by Hub Rural was utilized by the Sub-Committees for their various tasks culminating in the Zero Draft GNAIP II (Table 2). Subsequently, the FAOG was approached by MOA and it agreed to fund the revision of the Draft and fielded a national consultant for the exercise. FAO Funding was provided under the project “supporting developing countries to integrate the Agricultural Sectors into National Adaptation Plans (NAPs)”- a partnership among the Gambia Government (MOA and DWR/MOFWR&NAM), Federal Republic of Germany (Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety), UNDP and FAO. The project aims to support vulnerable countries through coordinated and country-wide capacity enhancement to integrate climate change adaptation concerns of their agriculture sector into NAPs. Eleven countries are targeted including The Gambia.

Table 2: The time line of key GNAIP II formulation processes

Activity	Time Line
Commencement of Second Generation GNAIP formulation Process with launching of the Development process – National Restitution workshop	27-29 September, 2016
Establishment of the GNAIP Technical Steering Committee chaired by PS, MOA+ Directors, NGOs and CSOs	May 17, 2017
Various subcommittees were formed based on the identified thematic areas vis-a vis expertise of the institutions	May , 2017
Road Map was developed and finalized by 2 FAO Consultants fielded into the country	May, 2017
Convening of the GNAIP Steering Committee with NSA’s leading to the identification of priority thematic areas	June, 2018
Identification of priority programme areas completed	June, 2017
Conducted a multi-sectoral review using the IFPRI/RESAAK NAIP tool kit	August, 2017
Revised the NAIP-FNS priority programmes from 9 to 6	October, 2017
Zero Draft of the Second Generation GNAIP-FNS Report compiled	January, 2018
National Consultant recruited to finalize the zero draft	January, 2018

1.2.2 Country’s Basic Strategy Development Blue Prints

The long-term development framework for sustained development is enshrined in the Vision 2020 (1996-2020). The medium-term national development blue print is vested in the Gambia National Development Plan (2018-2020) which has the goal to “*deliver good governance and accountability, social cohesion, and national reconciliation and a transformed economy for the well-being of all Gambians*” (NDP, 2018). The above goal is to be realized through eight strategic priorities comprising:

- Restoring good governance, respect for human rights, the rule of law, and empowering citizens through decentralization and local governance;
- Stabilizing our economy, stimulating growth, and transforming the economy;
- Modernizing our agriculture and fisheries for sustained economic growth, food and nutrition security and poverty reduction;
- Investing in our people through improved education and health services, and building a caring society;
- Building our infrastructure and restoring energy services to power our economy;
- Promoting an inclusive and culture-centered tourism for sustainable growth;
- Reaping the demographic dividend through an empowered youth; and,
- Making the private sector the engine of growth, transformation and job creation.

Figure 2 depicts the revised priorities of GNAIP ii and Figure 3 shows the linkages with the National Development Plan.

Figure 2: Revised priority programme areas of Second Generation GNAIP-FNS

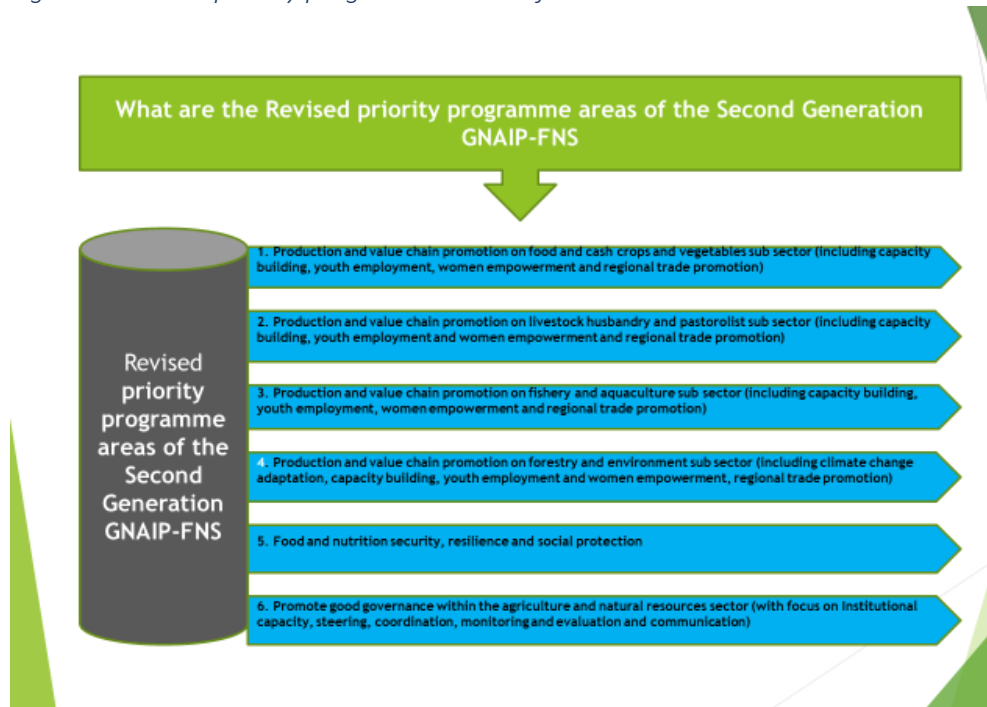
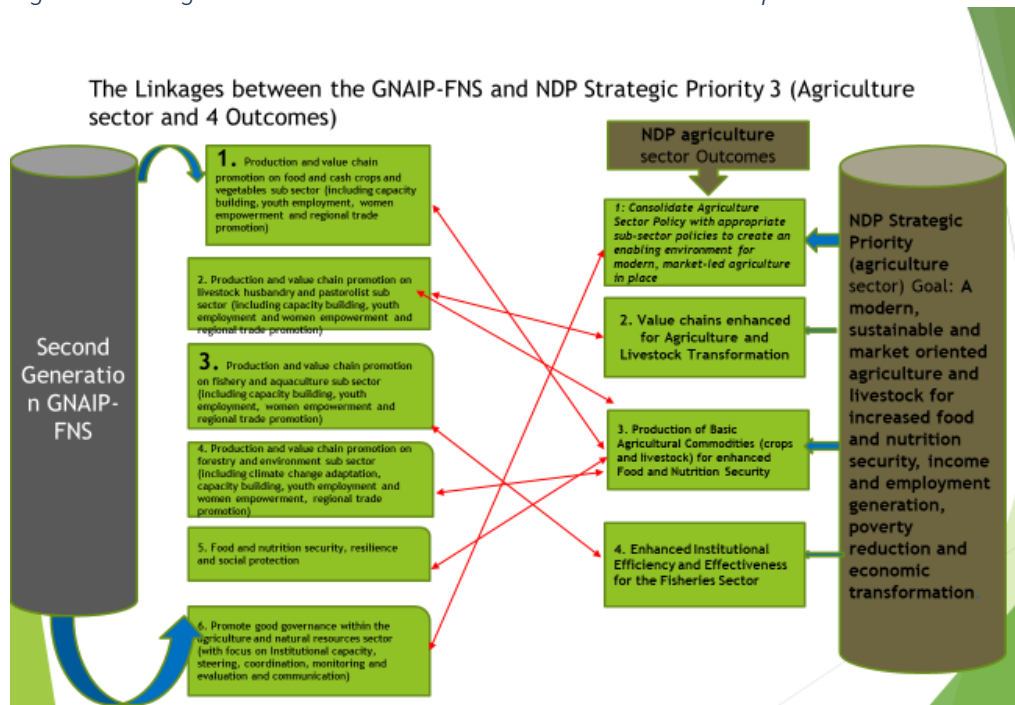


Figure 3: Linkages between GNAIP-FNS with the National Development Plan



At the sector level a number of strategies and policies have been formulated for implementation in the bid to increase production, improve productivity, enhance food security and nutrition and reduce poverty. These include: National Agricultural Sector Strategy (NASS, 2014) covering the period 2015-2020 providing a

broad framework for the development of the sector in order to reduce dependence on food imports, increase foreign exchange earnings through exports, and improve food security and nutrition through income generation. The ANR Sector Policy (ANRP, 2017-2026) formulated in 2017 provides the framework for development of the sector in the medium-term, it is complimented by the Supplementary Agriculture and Natural Resources (ANR) Policy focusing on the natural resources subsector. In the bid to achieve zero hunger in line with SDG 2, the Government with support from the United Nations Country Team (UNCT) formulated The Gambia Zero Hunger Strategic Review (GZHSR, 2017). A number of subsector strategies exist in the natural resources notably: Strategic and Development Plans of Fisheries and Aquaculture Sectors in The Gambia (2017-2021), Forestry Strategy and Action Plan (2019-2028) and National Biodiversity Strategy and Action Plan (NBSAP 2015-2020) for fisheries, forestry and biodiversity development respectively.

In the bid to attain self-sufficiency in rice, the chief staple of the country, the National Rice Development Strategy (NRDS, 2015-2024) was developed under the auspices of the Coalition for African Rice Development (CARD). NRDS is aimed at attaining rice self-sufficiency by 2024 through increased domestic production was formulated. Recently, the Continental Investment Plan for accelerating Rice Sufficiency in Africa (CIPRiSSA, 2019) for The Gambia was formulated with the support of the African Development Bank (AfDB). CIPRiSSA provides a road map for achieving rice self-sufficiency by 2029.

Other relevant strategies include the commodity specific themes including: the Gambia Cashew Sector Development Strategy (2014-2019), the Gambia Sesame Sector Development Strategy (2015-2019) developed with the support of the International Trade Centre (ITC); the National Horticulture Sector Master plan (NHSM, 2015) for the period 2015-2035 to improve horticulture development in the long-term and the National Aflatoxin Control Action and Investment Plan (NACAIP 2014-2014) aligned with the African Union (AU) regional the Partnership for Aflatoxin Control in Africa (PACA) Strategy (2014-2022) and the ECOWAS Aflatoxin Action Plan (ECOACAP 2014-2024).

PART II ASSESSMENT OF THE FIRST GENERATION NAIP

2.1 The Growth Performance of Sectors (External Effectiveness of the NAIP)

The Gambia's economy is primarily agrarian, with farming the main source of livelihood, especially among rural dwellers. Agriculture and natural resources (ANR) activities constitute the principal source of livelihood for most Gambians. More than 500,000 smallholder farmers participate in agriculture and natural resources production and most of them are among the poorest and also net food purchasers. About 70% of the predominantly rural labour force was employed in the ANR sector, contributing between 20% and 25% to GDP and generating 40% of total export earnings, and an estimated two-thirds of total household income (GBOs, 2017). For food security, the ANR sector's domestic annual food production caters for only half the national consumption requirement with the food deficit filled by imports particularly of rice - the main staple food of the country. Current annual rice imports exceed USD70 million which is a huge drain on the Gambian economy and leads to acute food, nutrition and income insecurity particularly among the vulnerable groups (women and youth). The ANR sector is characterized by low production and productivity, limited diversification, low capacity and skills amongst institutions and individuals and low value addition.

Given the foregoing challenges, the negative agriculture average growth rate registered during GNAIP implementation period would be compensated by the expected recovery of agriculture growth rate of 7% in 2015 (from -7.1% in 2014) mainly to be propelled by the crops sub-sector growth of 12.3% in 2015 (from -20.0% in 2014) with supportive and recognizable growth rates from the livestock, forestry and fisheries sub-sectors as detailed in Chart 1 below.

Agriculture and Natural Resources sector production and productivity was assessed through the conduct of analytical computations using databases of crops, livestock, forestry and fisheries sub-sectors during the GNAIP implementation period (2011-2015) and beyond. At macro-level, results from both the World Bank's *The Gambia: Policies to Foster Growth* (2015) and IMF (Article IV, 2015) reviews of the Gambian economy show an estimated 4.7% real GDP growth in 2015 after a rebound from the 2014 extended drought spell. In a similar vein, computations of the data obtained from the Gambia Bureau of Statistics (GBOS) shows the average GDP growth rate of 2.4% between 2011 and 2015 (GNAIP implementation period) (Figure 4). Two years later (2016 and 2017), the average GDP growth rate slightly increased to 2.6% with the bulk of growth coming from fisheries and aquaculture sector (12.1%). This modest performance of the GDP was largely attributed to the sectoral contributions comprising services (59%), agriculture (20-25%) and manufacturing and construction (12%) in 2016. Major contributions came from the rebound of the tourism and trade in the services and agricultural sectors.

2.1.1 ANR Growth Performance

The ANR sector comprises of agriculture (crops and livestock), forestry, water resources, fisheries, Parks and Wildlife and the environment. Over the recent past, the ANR sector's performance has been mixed primarily characterized by undulating production and productivity of its enterprises with peaks denoting high outputs while troughs present low outcomes. Reasons advanced for the low outputs of the ANR sector include: short duration, unevenly distributed and erratic rainfall induced by severe climate changes; low access and utilization of essential inputs, mechanization, machinery accessories/attachments and fishing gears; costly fuel prices, untimely availability and affordability of agro-chemicals, veterinary drugs and

vaccines; low adoption of good agricultural practices (GAPs); little or no value addition of ANR produce; high post-harvest losses, inadequate storage facilities (including cold storage), limited access to markets and marketing opportunities (conditions/facilities); unavailability and limited affordability of relatively cheaper credit; limited access and use of genetically improved crop varieties, livestock breeds, forest seedlings, fishery species and disincentive producer price support.

In addition to the challenges listed above, the Government's budgetary allocations to the ANR sector during the GNAIP I period, did not reach the 10% required under the Maputo Declaration; investments through donor funded projects could not also fill the funding gap; and, Commercial Bank loans to agriculture averaged less than 5% for the period.

2.1.2 Agricultural Performance

Table 3 shows the average cultivated area, productivity (yield) and production of crops. Crops comprise early millet, late millet, sorghum, maize, findo (*Digitaria exilis*), rice, groundnuts and sesame. Horticulture consists of fruits (pomology), vegetables (olericulture) and flowers (floriculture). Overall, the average cultivated area of all crops during the GNAIP I implementation period (2011-2015) plus two years (2016 and 2017) was estimated at 321,310 ha with high variability in average production and productivity, attributable to constraints highlighted above. For instance, the average cultivated area, yield and production of early millet were 79,589 ha, 797 kg/ha and 64,365, respectively. These estimated figures for yield and production are far below the GNAIP I targeted figures for all the major crops except sorghum. Analytical computations of the Planning Services Unit's (PSU) crop statistics, reveal that achievements recorded in cultivated area expansion over the GNAIP I implementation period had been encouraging and well surpassed 50% except for maize (42.9%) and swamp rice (22.1%). In view of the cultivated area achievement, significant investment be directed at revitalizing and improving the yields (productivities) of principal crops to obtain higher production for increased food, nutrition and income security.

In an attempt to revitalize and rationalize ANR sector's contribution to GDP, GNAIP I's planned development objective was to realize a targeted agricultural growth rate of 8% per annum although the CAADP growth rate was pegged at 4% which was realized under GNAIP I implementation period. Further analytical computations show that average GDP growth rate of 4.7% was achieved by 2017. During GNAIP I implementation, the low performance of the agricultural sector was indicative of the negative impacts exerted by the constraints listed above. Of this low agriculture average growth performance, the crop sub-sector which is the largest grew at an average of -9.0%, livestock 3.7%, forestry 3.2% and fisheries 4.4% during GNAIP I implementation period (between 2011 and 2015). More analysis of the performance of the ANR sector after the end of the GNAIP I in 2015, shows an increase of the overall agricultural growth performance from -4.0% (2011-2015) to -2.0% (2016-2017) although both growth rates are negative indicating the severity of the low productivity and production of the sector as shown in Figure 4 below. More increases were registered in the following sectors: crops from -9.3% to -7.2% and fishing and aquaculture from 4.4% to 19.1% during the GNAIP I (2011-2015) and after GNAIP I (2016-2017) respectively. The rest of the two sectors registered recognizable declines in production and productivity and these sectors include: livestock from 3.7% to -4.3% and forestry and logging from 3.2% to -12.7% during the same above-mentioned corresponding periods.

Figure 4: GDP and ANR Sectors Average Growth Rates



Sources: Gambia Bureau of Statistics (GBOS), IMF Article IV, 2017 and 2019 Budget Speech Report

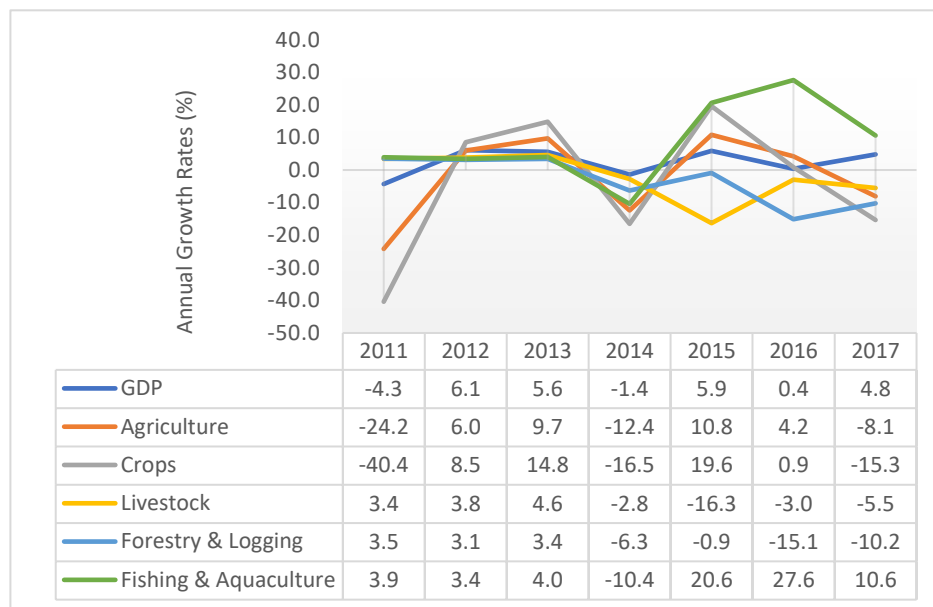
The agricultural average growth rate of -4.0% between 2011 and 2015 fell far short of the GNAIP I targeted growth rate of 8% per annum by 2015 mainly attributed to less than expected agricultural performance during GNAIP I implementation period primarily aggravated by a myriad of challenges (mentioned above) that plagued the sector's growth performance. Although this negative growth trend has slightly improved after GNAIP I implementation (-2.0%), the realization of 8% agricultural growth is still farfetched and therefore the Gambia Government should relentlessly explore the active engagement of its donor partners and the private sector for adequate financial assistance mainly directed at revamping the ANR sector and also uplifting the livelihood status of smallholder resource poor farmers.

The negative annual average growth rate registered in the crops sub-sector was indicative of the severity of weather conditions and other challenges mentioned above on the performance of the subsector. To corroborate this point, there were 3 years (2011, 2013 and 2014) of negative growth rates registered between 2010 and 2015 in the crops subsector thus rendering it highly vulnerable to exogenous shocks. However, Figure 4 also presents remarkable average growth rates in the livestock, forestry and more importantly in the fisheries sub-sectors during GNAIP implementation period. In the light of this, there is need to diversify the country's productive base towards these growth centres. After GNAIP I implementation in 2015, negative average growth rates were registered in crops, livestock, and forestry and logging subsectors. In fact due to the severity of the dry spells on the ANR sector, on 18th September 2018 the Government of the Gambia declared an Emergency Food Crisis Situation for the cropping season 2018/2019. This emergency declaration by the current Government called for the intervention and support of the donor partners in alleviating the plight of resource poor farmers in the ANR sector.

Figure 5 shows the annual growth rates of the ANR subsectors between 2011 and 2017. These figures show negative annual growth rates for all the ANR subsectors with varying counts of growth negativity. For instance, in the crop subsector there were 3 years out of 7 years with negative annual growth rates except

for the fisheries and aquaculture subsector where only one negative annual growth rate (-10.4% in 2014) was registered. A similar trend is shown in Figure 5 below.

Figure 5: GDP and Annual Growth Rates (2011 -2017)



Sources: Gambia Bureau of Statistics (GBoS), IMF Article IV, 2017 and 2019 Budget Speech Report

Cultivated Area, Productivity and Production Achievements

Agriculture alone contributes between 25% and 30% to the GDP of the Gambia and employs about 70% of the labour force therefore due diligence should be paid to its optimal output expansion, value addition and marketing. This will uplift the food, nutrition and income welfare status of its peasant operatives in particular and the general population at large. In this regard, succinct attempts should be made to attract incentive investments in the sector. With these investible resources, the cultivated area (to some extent), productivity and production of crops can be expanded and deepened. Cereals are the major food crops of the country and comprise millet, maize, sorghum, findo, upland and swamp rice with rice being the main staple food crop. Figure 6 shows the area cultivated, productivity (yield) and production achievements of cereals and groundnuts with GNAIP’s target crop estimates used as baseline. Coarse grain comprising early and late millet, sorghum, maize and findo, its value chain analysis shows that a significant expansion of area took place, however productivity has been stagnant at 0.88 Mt/ha out of a targeted 1.3 Mt/ha with limited value addition. Achievements registered on production of coarse grains was 169,208 Mt of the targeted 222,000 Mt.

For cultivated areas, rice value chain only 24,000 Ha of a planned 70,000 Ha for the lowlands was achieved attributed to the very low productivity (yield/ha). Similarly, productivity for upland rice was low with yields of 0.850 /ha against a 2.5 /ha). Furthermore, sorghum registered the highest hectare achievement of 216.1% and the lowest was recorded for swamp rice of 22.1% by end 2017. This achievement indicates that sorghum’s cultivated area unprecedentedly surpassed its target estimate set in the GNAIP I report. With hindsight, such an achievement may be due to underestimation of its target cultivated area in the same report. To corroborate this point, sorghum is not a high priority crop for most Gambian farmers as it is

relatively a long duration crop variety; less favourable to be grown under erratic rainfall and severe climate change conditions. With the declining rainfall situation being experienced in the country, both upland and swamp rice cultivation is also of diminished priority among rice growers.

Table 3: Achievements of Crops by 2017

Crops	By 2017		
	% Cultivated Area (Ha) Achieved	% Yield (Mt/Ha) Achieved	% Production (Mt) Achieved
Millet	95.7	46.6	41.3
Maize	42.9	45.0	26.8
Sorghum	216.1	87.8	117.8
Groundnuts	79.9	60.0	48.0
Upland rice	76.3	16.1	12.3
Swamp Rice	22.1	21.9	4.8

Source: GNAIP I 2011-2015 and PSU Crop Statistics

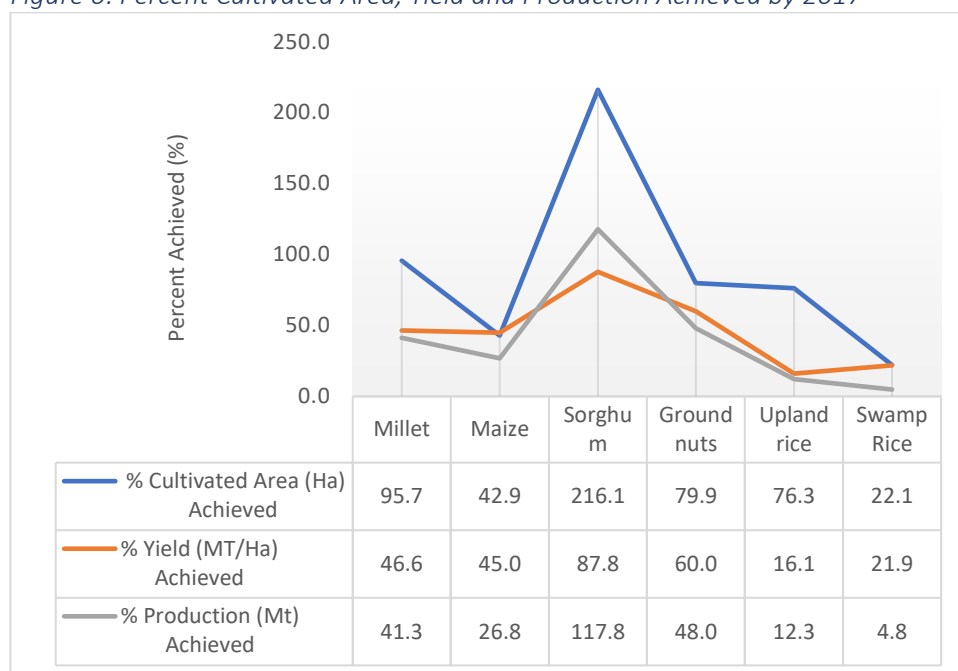
Productivity of crops is one of the determinant factors in estimating production and the trend analysis of crop productivity shows that sorghum again gained the highest productivity achievement of 87.8% with the lowest yield achievement (16.1%) recorded for upland rice. A similar trend is depicted in the production achievement of other cereals. Remarkable cultivated area expansion has been achieved in sorghum, millet, groundnuts and upland rice but less than 50% achievement was recorded for yield and production parameters for all the crops except sorghum and yield achievement of groundnuts.

For groundnuts which is the major cash crop of the country, nearly 80% cultivated area achievement has been obtained with yield achievement of 60% and production achievement of 48%. As the major cash crop, these achievements in the groundnut subsector are less commendable particularly its production achievement of 48% given the high priority groundnuts enjoins among peasants as their main source of livelihood. To corroborate this point, poverty studies conducted in the country revealed that poverty is highest in households cultivating groundnuts. Therefore, for groundnuts to continue as the major cash crop of the country, there should be a paradigm shift from subsistence to a more vibrant and market-led commercialized groundnut subsector modelled on a dynamic, competitive and rational mechanism for industrialization in order to bring about sustainable economic growth and development for poverty reduction. In the Groundnut value chain, significant area expansion was registered with an achievement of 106,000ha out a planned 100,000 ha, the productivity attained (0.815 /ha) is below the targeted (1.2 /ha). Furthermore, quality issues relating to high aflatoxin contamination remain critical for the export market of HPS.

Horticulture is one of the areas with most potential for food, nutrition and income security as well as export potential of the Gambian economy. Given its value chain analysis, some 250 ha (25%) out of a planned 1,000 ha have been developed and equipped with boreholes, overhead tanks and water reticulation systems by public sector projects. A number of horticulture development models using out-grower schemes supported by Gambia Competition Project (GCP) were implemented with facilitation of the private sector (GHE and Radville).

Therefore, all meaningful interventions in the agricultural crops subsector must be directed at and concentrated on productivity improvement strategies for increased production levels.

Figure 6: Percent Cultivated Area, Yield and Production Achieved by 2017



Source: Planning Services Unit's (PSU) NASS Reports

- *Livestock Subsector Performance*

Livestock is part of the farming systems and a means to accumulate assets, earn cash income, and provide draught power as well as manure for crops, and a source of food and nutrition security. The livestock species kept in The Gambia are cattle, sheep and goats (small ruminants), chickens, pigs, horses and donkeys. The key livestock commodities produced are meat (beef, mutton, goat meat and pork), milk and eggs. Table 4 gives details of the cattle, sheep, goats chicken and pig populations and productivity data for the six livestock commodities; productivity is measured by the amount of meat, milk and eggs produced per year.

Between 2010 and 2015 the cattle population grew by 17.2% or 3.4% annually. Cattle meat production increased from 4,080 Mt. in 2010 to 4,520 Mt. in 2015, an increase of 10.8% or a growth rate of 2.2% per year. During the same period milk production increased from 70,586 to 80,712 Mt., a percentage growth rate 2.9. The annual growth rates registered for meat and milk are less than the annual population growth rate of 3.4% indicating a decline in productivity by 1.2 and 0.5% for meat and milk, respectively.

Table 4: Growth rates of livestock populations and production (2010 – 2015)

Population/Commodity	2010	2011	2012	2013	2014	2015	Growth Rate (%)	Annual Growth Rate (%)
Cattle Population ('000)	425	398	373	436	479	498	17.2	3.4
Cattle meat (Mt.)	4,080	3,840	3,840	3,720	4,116	4,520	10.8	2.2
Milk (Mt)	70,586	74,250	74,956	74,968	77,827	80,712	14.4	2.9
Sheep population ('000)	251	180	112	110	53	41	-83.7	-16.7
Sheep meat (Mt)	660	495	440	440	190	237	-64.1	-12.8
Goat population ('000)	352	304	312	267	360	372	5.7	1.1
Goat meat (Mt)	880	803	825	858	1,038	1,000	13.6	2.7
Pig population ('000)	28	15	6	5	8	11	-60.1	-12.1
Pig meat (Mt)	740	400	420	200	302	416	-43.8	-8.8
Chicken population ('000)	850	1,000	1,274	1,300	13,000	1,312	54.3	10.1
Chicken meat (Mt)	1,200	1,250	1,500	1,550	1,577	1,536	28.0	5.6
Eggs (Mt)	824	924	950	968	970	976	18.5	3.7

Source: FAOSTAT, April 2019

From 2010/2011 to 2015, the sheep population declined by 83.7% or 16.7% annually. There was a corresponding decline in mutton production, from 660 to 237 Mt., equivalent to 12.8% decline yearly; indicating a 3.9% decline in productivity. In contrast to sheep, the goat population registered a marginal annual growth rate of 1.1%, from 352,000 to 372,000 head, and goat meat production expanded by 2.7% which implies that productivity improved by 1.6% annually. The number of pigs in the country declined by 12.1% per annum, from 28,000 to 11,000 Mt., pork production also registered a decline of 8.8% per annum. While the chicken population increased by 10.1% per annum, chicken meat and egg production registered 5.6 and 3.7% annual growth rates, suggesting 4.5% and 97.3% decline in productivity in respect to meat and eggs, respectively.

The livestock sub-sector continuous to be challenged by increased incidence of emerging and re-emerging animal diseases, deficiencies in animal feed both in quality and quantity, low genetic potential of the indigenous breeds, inadequate infrastructure and financing, weak public sector institutions for animal health delivery, extension, research and technology dissemination, ineffective, inefficient and uncompetitive value chains. To address these challenges, appropriate policies need to be put in place; in addition, large amount of resources are needed in order to capitalise on the strengths that give the sub-sector potential for growth and higher levels of productivity.

- *Forestry, Logging and Parks and Wildlife Subsector Growth Performance*

The forestry, logging and Parks and Wildlife subsector provides an important natural resource for the country. It contributes at least 1% to GDP while for domestic uses, the subsector provides more than 85% of the domestic energy (fuel-wood) and about 17% of the timber needs of the population. The Gambia's total forest area was estimated at 423,000 ha in 2010 as compared with 520,400 ha in 1998. Attributed to this deforestation, has been the demand pressure exerted by the teeming population for residential purchases and also an increase in demand for agricultural land caused by increased mechanization of farming. Its primary policy objective was geared towards achieving a forest cover of 30%, with 75% of the cover to be managed by local communities and the private sector. In support of this policy objective, the government has declared 222,000 ha as forest reserves, 40,000 ha as forest parks, and 18,000 ha as community forests. As the subsector is facing a number of challenges, relentless efforts have been directed at reducing rampant bushfires. However, this move has been undermined by the insatiable demand for fuel wood and charcoal to meet domestic energy needs which serves as a deterrent to the effective management of the total forest cover. Despite the degradation of forest areas, open and closed forest increased by at least 1% since the last survey in 2005 through the Participatory Forest Management Programme of Community Forestry.

Rangeland resources within or outside the forested areas also serve as feed for livestock and rangelands are categorized into upland (405,133 ha) and lowland rangelands cover 70,393 ha which account for 19% of all dry season feed to livestock.

Parks and Wildlife are an integral part of the forest eco-system as forest provide habitat for wild animals. The country has a significant wealth in biodiversity, with 8 wildlife protected areas covering 76,064 ha or 6.4% of the country's area. The country also has 8 national parks and nature reserves which are complemented by community based conservation reserves and parks. The protected area network also provides important habitats for rare and endangered species of global importance, as well as spawning and nursery grounds for over 114 fish species, and over 576 species of birds. The Gambia also has three protected areas recognized under the Ramsar Convention as wetlands of international importance (Zero Draft Second Generation GNAIP, 2017-2026)

Notwithstanding the numerous efforts put in place to curb the above mentioned challenges, the subsector portrayed unexceptional growth performance in the recent past. During the GNAIP implementation period (2011-2015), the forestry, logging and Parks and Wildlife subsector grew at an average of 3.2% but steeply declined to -12.7% two years after the end of GNAIP. The subsector registered 4 years of annual negative growth rate out of the 7-year (57%) period (2011-2017) as presented in figure 5. Rampant and uncontrolled bushfires, deforestation which encourages desertification and inadequate participation of local communities in community forest management are few reasons for the negative growth performance of the subsector.

- *Fisheries and Aquaculture Growth Performance*

The fisheries and aquaculture sector offers great potential in providing fishery resources to uplift the food, nutrition and income security of the country as well as for exports. It contributes about 6.5% to GDP with an average annual total production of 53,719 Mt (NDP 2018-2021) of fish resources of which 32% is destined for export and the main supplier of animal protein (40%) in the diets of most Gambians. The sector is divided into artisanal, industrial and aquaculture subsectors. In the artisanal subsector, artisans are primarily engaged in relatively extensive low-input fishing related practices the majority of whom use traditional fishing crafts/canoes (\approx 40% motorized). They also employ diverse fishing gears and techniques in their fishing operations. The subsector's fish production is estimated at 47,135 Mt in 2016 with bonga fish constituting most of the catches. There are over 500 fish species in the country grouped into demersals (shrimps, lobsters, catfish, etc.) and pelagics (sardinellas, shad/Bonga).

Its growth performance has been relatively exemplary during GNAIP implementation period (2011-2015) and even beyond. During this period, the fisheries and aquaculture sector grew at an average rate of 4.4% over the GNAIP implementation period followed by an unprecedented average growth rate of 19.1% two years after GNAIP implementation (2016-2017). This quantum leap in average growth performance registered in the sector is an added impetus to the country's economic gains, welfare achievement for the population in general and operators, processors and marketers engaged in value chain operations in particular. In addition, the annual growth performance of the sector has shown a positive trend over the GNAIP implementation period and beyond. Over the period, the sector registered only one negative annual growth performance in 2014. Despite the quantum achievement registered in the sector, there is need to rationally exploit its potentials through the sustainable promotion and management of the achieved growth performance. To achieve this objective, the following few challenges marring the sector's development need to be effectively rationalized and these include: an unintelligible and inconsistent legal policy framework and inadequate research and data management capacity for effective policy development and implementation including innovation and value addition just to mention a few. Territorial waters surveillance and the operationalization of the new jetty in Banjul to curb abroad landings and lack of in-country processing which caused losses to the socioeconomic gains of the country are worthy of

commendation. In addition, government's only 10% levy on industrial catch is a positive step in the right direction to boost the industrial fisheries sub-sector. However, with increased strict surveillance of the Gambian territorial waters, foreign fishing companies will be forced to land substantial portions of their catches in the country as oppose to landing only 6,000 in the country in 2014.

In addition, other achievements realized in the fisheries and aquaculture sub-sector include: the formulation of a Fisheries Strategic Action Plan, 2012-2015 which has now expired and the finalization of the new strategic plan is at an advanced stage; infrastructure development comprising fish markets, jetty and access roads through public sector projects (GAFDP and Japanese Assistance); aquaculture is becoming a potential strategy for feed security and the establishment of isolated fish ponds in swamp and irrigated rice plots is being widely adopted and less costly; industrial fishing targeting high value, bottom-feeding demersal fish accounts for 10% of the total national fish consumption and 20% of the locally processed fish. Due to inadequate landing facilities, government's licensed foreign companies landed their catches in foreign ports with only about 6,000 MT landed in the country in 2014.

Special attention is also drawn to the fisheries key targets in the National Development Plan (NDP, 2018-2021, Table 2.6). These numerical targets include: increasing total fish production from 53,719 to 75,000 MT; percent contribution of fish resources to GDP from 6.5% to 15%; budget allocation to the aquaculture development from GMD2 million to GMD10 million and percent fish resources exported from 32% to 43%. Although the fisheries and aquaculture subsector has great potential for production expansion/exploitation, the resource is not infinite and therefore need to be rationally and optimally exploited. In this regard, the numerical targets quoted from the NDP appear to be very ambitious given the short time frame of 3 years (2018-2021) excluding 2018.

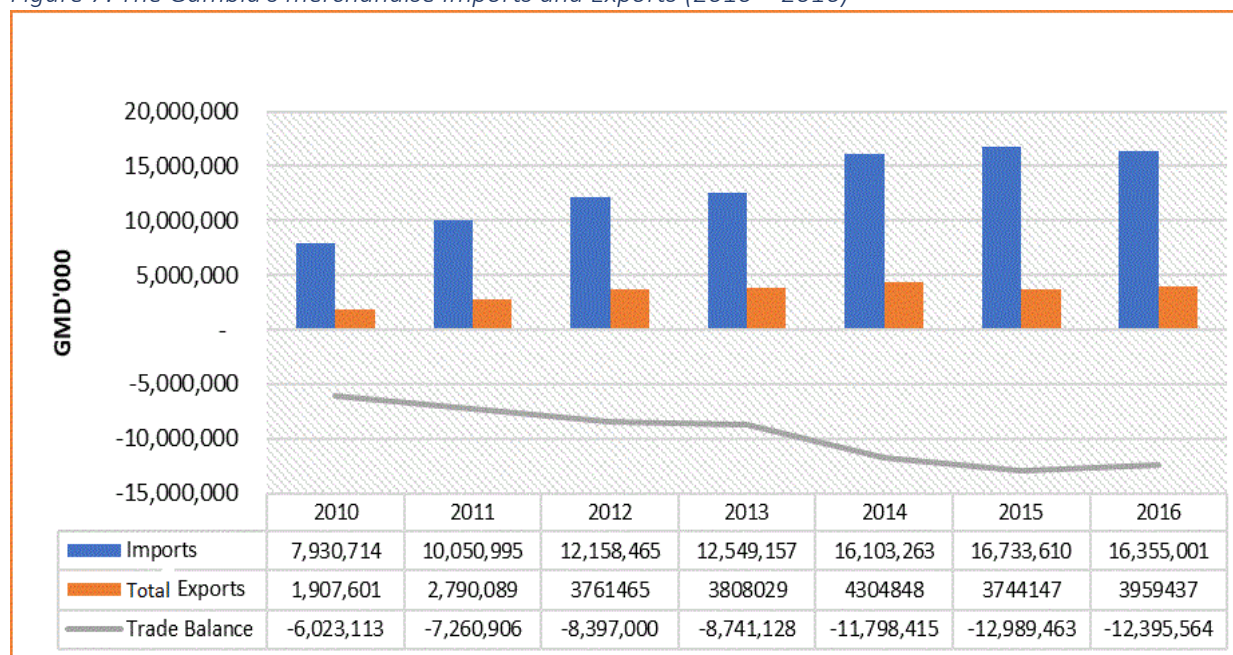
- *Insertion into the Regional and International Markets*

The Gambia has an open market policy characterized by a liberalized input and output product marketing where there is no price control system in place and the agricultural commodity pricing mechanism is usually based on the effective demand and supply of the products with public sector involvement strictly limited to regulatory functions, provision of marketing infrastructure and services of public goods and implementation of supportive macroeconomic policy. It's important to note that the Gambia has marketing links with many regional and international trading blocs. It is a member of the Economic Community of West African States (ECOWAS) and has trade links with EU, Asia and USA trading organizations. Gambian businessmen also export agricultural commodities to these trading nations and also import from them. These products include: groundnuts, horticultural products and fisheries products.

- *Agricultural and Food Trade Balance (imports, exports, re-exports and agri-food balance of the country).*

Analysis of the trade statistics since 2011 showed a deteriorating trade balance with the value of imports increased substantially from GMD7.93 billion in 2010 to GMD16.36 billion in 2016. In comparison, the value of total exports, which is predominantly re-exports, also greatly increased from GMD1.91 billion in 2010 to GMD 3.96 billion in 2016. Notwithstanding, the increase in both import and export values (106% and 107% respectively) during the period under review (2011 to 2016), there has been minimal effect on the trade balance which deteriorated from the deficit of GMD6.02 billion in 2010 to GMD12.4 billion in 2016. The trend of The Gambia's merchandise imports and exports is show in Figure 7 below.

Figure 7: The Gambia's merchandise Imports and Exports (2010 – 2016)



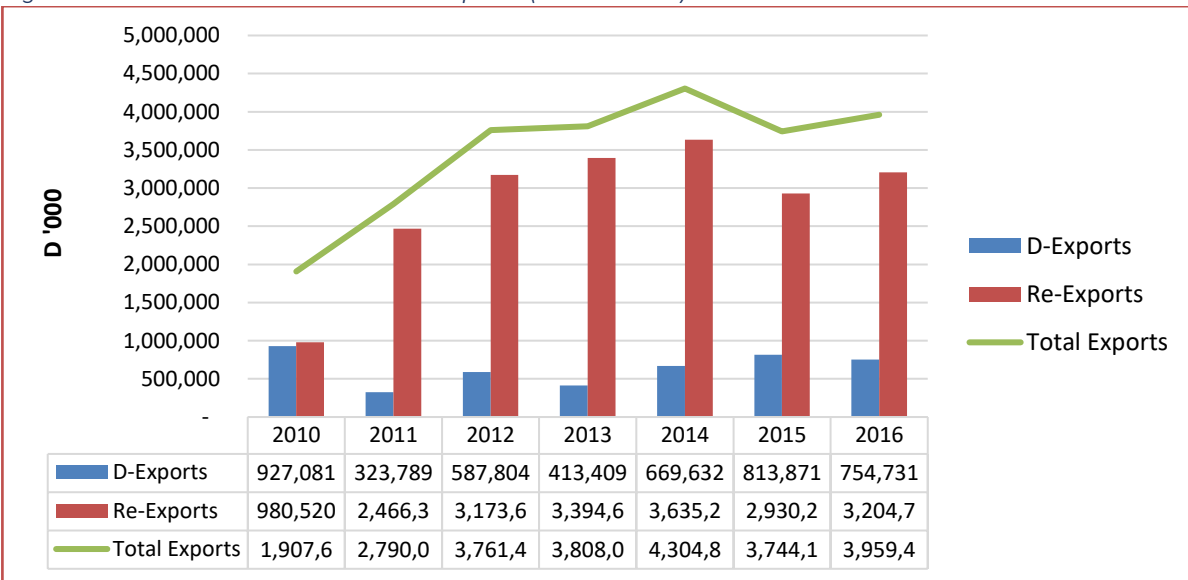
Source: Ministry of Trade's Statistics

- *Exports*

The Gambia has a narrow export base that is declining comprising of few product groups. Out of the country's total exports in 2010, 48.6% constituted direct exports while the rest were re-exports. In comparison, the share of direct exports reduced drastically by 2016 to represent only 19.1% showing the growing importance of re-export trade in the country's trading environment, as depicted in Figure 8 below. The Gambia's main domestic exports are groundnuts, cashew nuts, sesame, and fisheries products. To a lesser extent, some horticultural crops such as green beans, sweet corn, guava and mangoes have also been exported from the country destined for EU countries mainly to UK markets.

The Table 5 below shows the 20 top products from 2012 to 2016, with the three main exports from The Gambia being shelled groundnuts, cashew nuts and crude groundnut oil. The value of shelled groundnuts increased over the 2012-2016 periods, but the exports of cashew nuts and crude groundnut oil has been very erratic. The persistent trade deficit, due mainly to a narrow productive and export base, and weak domestic and international trade linkages and systems, remain a key challenge for The Gambia.

Figure 8: The Gambia's Merchandise Exports (2010 - 2016)



Source: Ministry of Trade's Statistics

Table 5: Top 20 Products Exported 2012-2016 (FOB Value US\$'000)

Product	2012	2013	2014	2015	2016
Shelled Groundnuts	1,723.97	2,411.06	482.02	4,025.90	8,683.29
Cashew nuts	3,019.88	5,711.28	4,998.56	2,788.75	1,999.22
Crude groundnut oil	3,306.71	-	-	4,960.13	-
Frozen flat fish	169.82	71.59	133.37	1.98	-
Frozen fish	23.55	152.54	122.71	250.66	-
Other prepared or preserved fish	1,347.43	177.28	60.05	29.74	12.52
Guavas, mangoes and mangos-teens	-	33.36	85.89	90.21	27.98
Fresh or chilled Salmonidae	121.41	42.42	363.51	0.75	262.24
Shrimps and prawns	35.82	37.56	47.63	277.29	694.91
Dried fish, not smoked	49.58	60.75	51.86	686.19	75.06
Cuttlefish and squid	-	120.13	26.02	269.25	47.78
Unused postage, revenue or similar stamps	200.98	153.54	96.19	42.71	47.03
Frozen Salmonidae	-	363.93	495.24	126.63	-
Smoked fish	31.65	4.54	-	145.45	5.28
Anchovies salted or in brine	3.13	10.70	-	54.66	642.90
Fresh or chilled flat fish	16.44	0.50	279.51	52.05	25.93
Cuttlefish and squid, live, fresh or chilled	7.97	30.52	22.80	91.55	95.08
Fuel wood, in logs	299.69	31.93	-	-	-
Octopus (excl. live, fresh or chilled)	-	13.88	30.08	25.04	-
Total	10,386.13	9,427.51	7,295.46	13,918.95	12,619.21

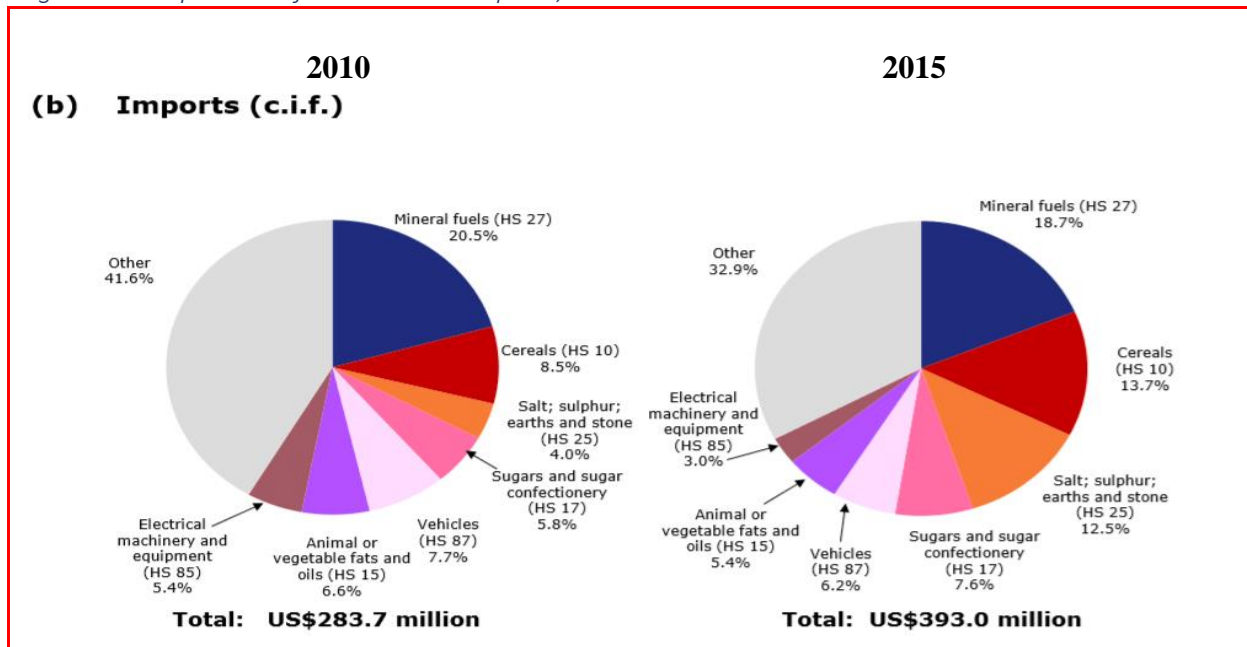
Source: Industrial Policy and Trade Strategy (2018)

The Gambia's main export market is Asia, where over 50% (2015) of The Gambia's goods are destined, mainly to Vietnam, India and China. The second largest export market is the European Union (EU) where about 42% (in 2015) of The Gambia's goods are exported to.

- *Imports*

The Gambia's imports are dominated by foodstuffs (particularly rice, sugar and vegetable oils), fuels, cement, vehicles, and capital goods. Figure 9 below shows the composition of The Gambia's imports in 2010 and 2015.

Figure 9: Composition of merchandise imports, 2010 and 2015



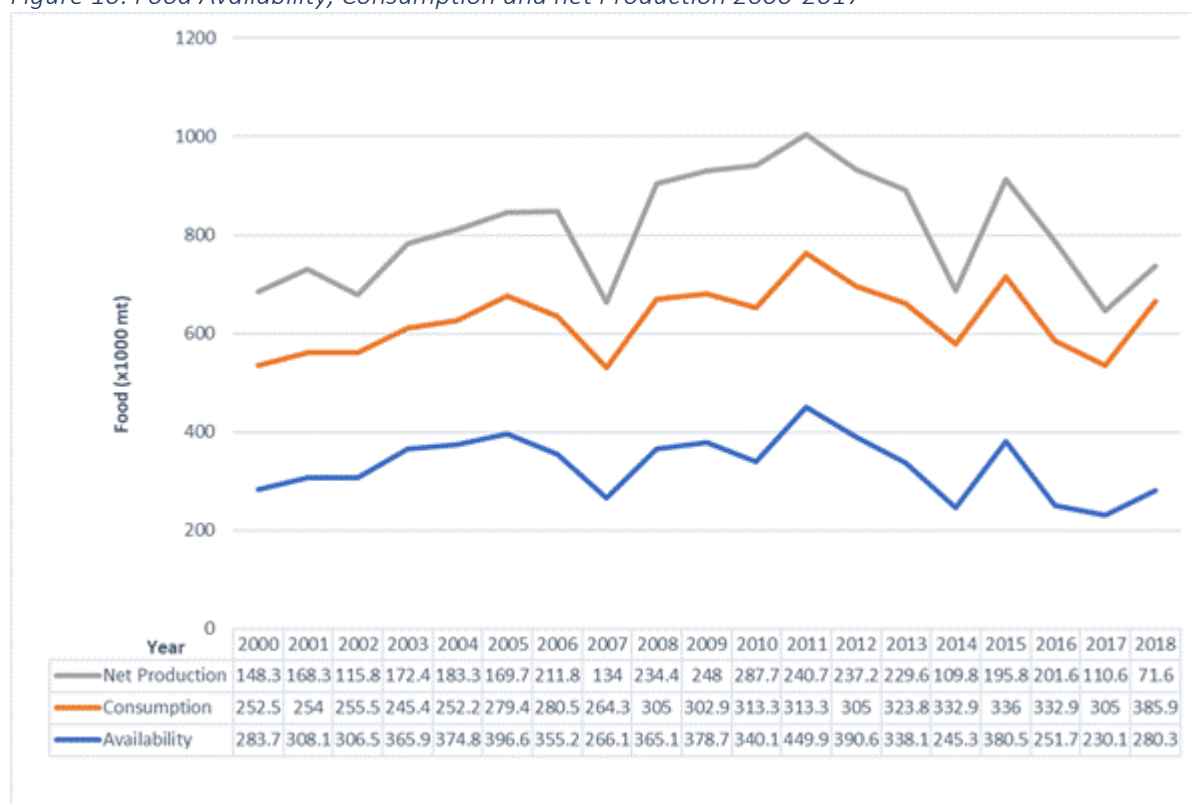
Source: Gambia Trade Policy Review 2018 (WTO Secretariat report)

In 2015, imports mainly originated from the European Union, West Africa (mainly Côte d'Ivoire and Senegal), Brazil (notably for sugar) and China. Imports from Côte d'Ivoire were predominantly fuel while those from Senegal were mainly cement.

- *Agri-Food Balance*

Review of the National Cereal Balance Sheets from 2000 to 2018 (Figure 10) reveals that net cereal production has been consistently below consumption requirements. It shows that a large proportion of consumption is met through commercial imports. Further analysis reveal that only 19% of rice (the staple food) demand is met from local production and that commercial imports, particularly of rice have been on the rise and averaged over 110,000 Mt during the last 10 years.

Figure 10: Food Availability, Consumption and net Production 2000-2017



Data Source: Planning Services Unit

2.2 The Evolution of The Food and Nutrition Situation

The Gambia imports half of its food consumption requirements and most producers are net purchasers of food, attributed to low production and productivity due to multi-years of climate induced low yields and inadequate access to quality production inputs. Households in The Gambia experience both acute and chronic food insecurity. The Global Hunger Index (GHI) computed each year to assess progress and setbacks in combating hunger using three principal indicators: level of child malnutrition, rate of child mortality and proportion of people who are calorie deficient indicate that The Gambia has registered consistent improvements from a score of 27.3 in 2000, 26.2 in 2005, 22.3 in 2010 and 22.3 in 2018. The country nonetheless remains in the serious category. Results from the Comprehensive Food Security and Vulnerability Analysis (CFSVA, 2016) show that 148, 458 people or 8% were food insecure or vulnerable to food insecurity in 2015, this is higher than the 5.6% reported in a similar survey (CFSVA, 2011).

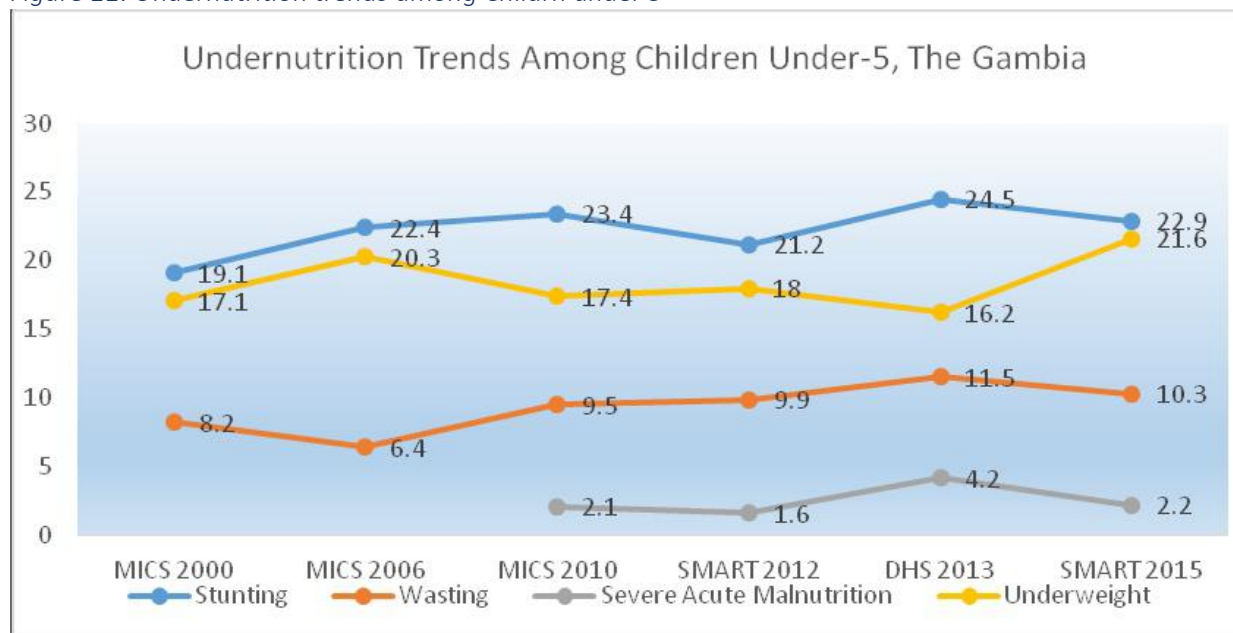
Food insecurity in The Gambia is characterized by regional and temporal variations with Lower River, Central River and Upper River the most vulnerable and August and September-the hungry season. The causes of food insecurity in The Gambia are very diverse and multi-dimensional. The key causes can be attributed to: seasonality of food crop production, huge reliance on rice and livestock imports; low and volatile cereal grain production; the declining groundnut sector (principal cash crop and source of livelihood) underdeveloped and threatened livestock production systems; lack of storage facilities at household or national levels; absence of a food reserve system at regional or national level; inadequate marketing networks/arrangements; high poverty levels; and vulnerability to external shocks.

Access to food is strongly influenced by increasing and fluctuating food prices exacerbated by the high rural poverty rate and high proportion of income spent on food (58%) (CFSVA, 2011). The low purchasing power of poor urban and rural households also has serious nutrition and health implications. Households in the lowest wealth quintile spend in excess of 64% of their income on food (CFSVA, 2016).

The Gambia experiences the triple burden of malnutrition- undernutrition, micronutrient deficiency and overweight. According data from the National Nutrition Survey (SMART, 2015) the prevalence rates for undernutrition monitored through stunting, underweight and wasting were 22.9%, 21.4% and 10.3%, respectively. The data shows that stunting is highest in rural areas (27.3%) compared to 16.7% in the urban area, while underweight and wasting were 16.1% and 9.1% for Urban compared to 24.9% and 10.8% for the rural respectively. Figure 11 from SMART, 2015 shows the trends of undernutrition from a number of Nutrition surveys conducted from 2000 to 2015. These high rates are due to a range of factors including household food insecurity, poverty, inadequate child care practices, policy fragmentation, weak coordination mechanisms between key stakeholders despite nutrition being recognized as a crosscutting sector.

Micro nutrient deficiency manifested through Iron Deficiency Anaemia (IDA), Vitamin A Deficiency (VAD) and Iodine Deficiency Disorder (IDD) are prevalent. Principal causes are inadequate intake of food rich in the micronutrients and their impaired absorption or utilization. Recent data (NaNA, 2018) show that 18.2% of children have VAD with the prevalence differing significantly by age and lower in the 2-23 month category in comparison with the 24-59 month category.

Figure 11: Undernutrition trends among Children under 5



Source: SMART, 2015

Overweight and its related cardiovascular conditions have been on the rise, a NaNA study (VAMU, 2010) revealed that 25% of women living in 2 urban settlements (Banjul and Kanifing) were overweight with 17% obese. The increase is attributed to changes in dietary habits and life style. Recent data (NaNA, 2018) show that 18% of women are overweight and approximately 11% are obese with prevalence increasing with age until 44 years followed by a decrease at 44-49 years of age. It also notes that the prevalence are higher among women in the urban area with increases consistent by wealth quintile.

2.2.1 Vulnerability Assessment

The Gambia ranks as one of the most vulnerable country's to climate change. According to the GAINS Index, it is the 16th most vulnerable (163rd out of 180 countries). The food security vulnerability to climate change, measured in terms of food production, food demand, nutrition and rural population is 177 out of 186 ranked countries. The indicators for the score include projected changes of cereal yields, projected population growth, food import dependency, rural population, agriculture capacity and malnutrition (IFAD, 2015b).

Food security situation is influenced by a number of underlying factors, which disproportionately affect the rural poor. In this regard, a number of recurrent shocks have been registered, including the drought of 2011/2012 cropping season, which adversely affected crop production and productivity. The 2014/2015 cropping season, registered late onset and erratic rainfall culminating in a significant drop in crop production. According to the Cadre Harmonize (CH) in 2016 some 453,000 people were at risk with 181,585 in severe conditions requiring immediate assistance. The 2018/2019 cropping season registered late onset with dry spells occurring during critical growth phases of crops, culminating in the production of major cereal crops being less than the five-year average as shown in Table 6.

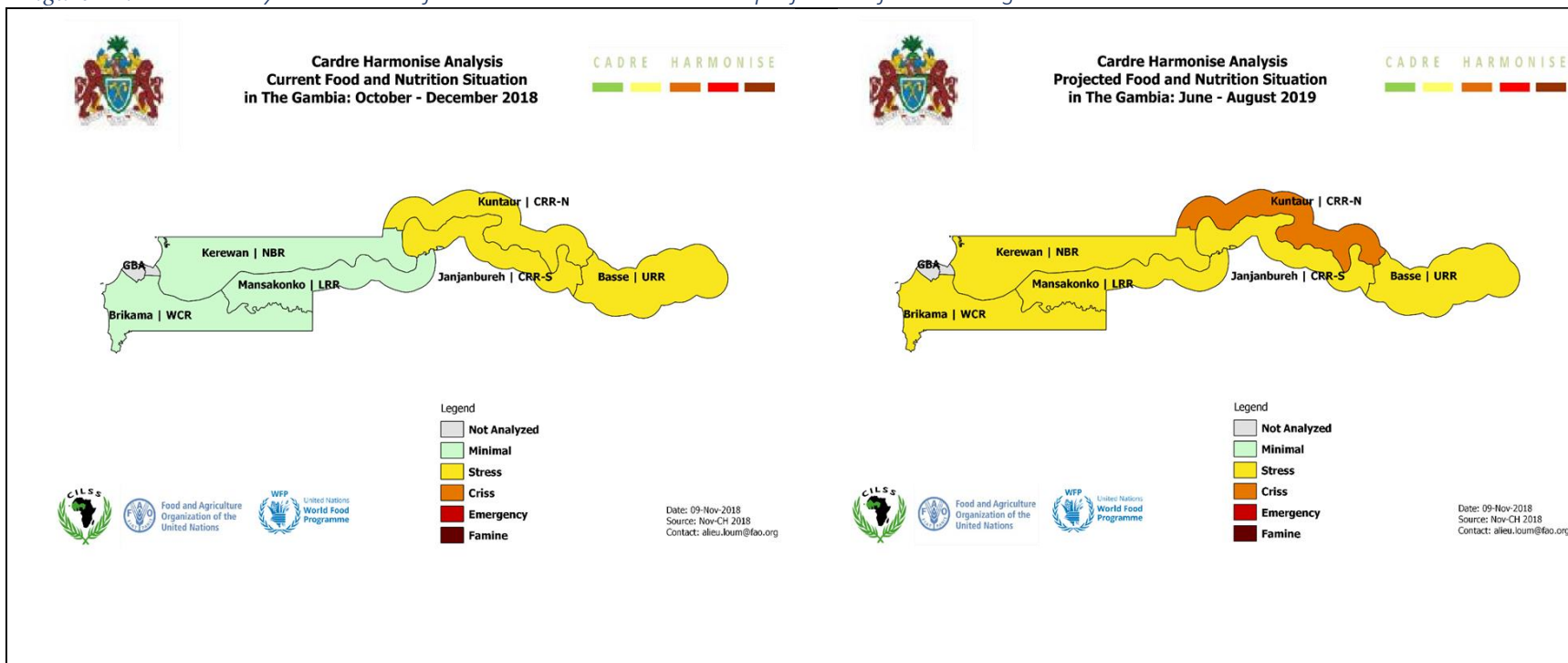
Table 6: National cereal production forecast and comparison with the average of the last 5 years

Crop	2013	2014	2015	2016	2017	2018	% change 2017-2018	5yr.Ave	% change 2018-5yr.ave
Early Millet	66,527	59,115	55,902	54,663	39,874	27,705.32	-31	55,216	-50
Late Millet	22,272	17,701	37,906	17,798	12,135	9,099.15	-25	21,562	-58
Sorghum	30,390	20,289	26,891	20,458	18,846	8,121.25	-57	23,375	-65
Maize	33,061	30,290	38,520	31,005	21,441	18,069.63	-16	30,863	-41
Rice	69,706	46,672	69,794	48,778	29,967	26,412.84	-12	52,983	-50
Findo	414	397	1,464	686	554	555.84	0	703	-21
Total Cereals	222,370	174,464	230,477	173,388	122,817	89,964.03	-27	184,703	-51

Source: National Agricultural Sample Survey (NASS), Planning Services Unit (PSU)

The latest vulnerability assessment (CH, 2019) indicate that 993,298 people (67%) of the rural population are food insecure, 595,979 (60%) are marginal, 59,598 (6%) moderate and 9,933 (1%) severe. Figures 12 present the situation for October-December 2018 and projections for June-August 2019.

Figure 12: Vulnerability situation as of October-December 2018 and projections for June-August 2019



Source: Cardre Harmonise, November, 2018

2.3 Governance of the Agricultural, Food and Nutrition Sector

Governance of the agriculture and food sector is vested in key public institutions comprising:

- The Ministry of Agriculture (MOA) which provides the overall supervisory, regulatory, policy guidance, coordination and monitoring and evaluation role for the public sector in agriculture. The Minister has ultimate responsibility and is assisted by Permanent Secretary I for policy issues and Permanent Secretary II for project implementation and administrative matters, the four deputies in charge of Programmes/Projects, Investment and External Relations, Administration and Finance and the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) coordinate the overall strategic management of MoA and coordinates operational activities. It comprises the Department of Agriculture (DOA) with nine service agencies, National Agricultural Research Institute (NARI) and Department of Livestock Services (DLS).
- The Ministry of Environment and Natural Resources, charged with the mandate of managing and conserving the environment whilst promoting the rational use of our natural resources and ecological heritage for the benefit of present and future generation. It has the Vision to achieving sustainable development by managing the country's natural resources through quality water management, biodiversity conservation and maintenance of environmental integrity. The Minister assisted by the Permanent Secretary, Deputy Permanent Secretary have overall responsibility for management and coordination. It comprises two technical departments and one agency: the Department of Forestry (DOF), the Department of Parks and Wildlife Management (DPWM) and the National Environment Agency (NEA).
- The Ministry of Water Resources, Fisheries and National Assembly Matters, charged with supervision, policy implementation and regulation of the water and fisheries resources. Headed by a Minister supported by a Permanent Secretary and Deputy; It comprises two technical departments: Department of Water Resources (DWR) and the Department of Fisheries.
- The National Nutrition Agency (NaNA), is the institution charged with coordination of nutrition related policies and programme and is under the purview of the Office of the Vice President. It is headed by an Executive Director assisted by a Deputy and a number of Programme and Specialist staff.

These are served by a number of coordinating structures including:

- *The Agriculture and Natural Resources (ANR) Working Group*

The Agriculture and Natural Resources (ANR) Working Group has been established as one of the first technical Working Group for enhanced coordination of interventions within the ANR and for GEAP implementation. It is co- chaired by the Permanent Secretary Ministry of Agriculture (MOA) and that of Natural Resources and the Environment with the National Environment Agency (NEA) as the Secretariat. The ANR Working Group has registered a number of successes since its inception. It has established a permanent body and forum, acting as a clearing house for the respective natural resource and environment sub sectors, ensuring co-ordination among the members (including Ministries, NGOs, and the private sector) in the area of environment and natural resources management. The process has created a permanent system for continuous consultation and dialogue among the stakeholders in order to ensure that sectoral programs are complimentary to maintain maximum impact from often limited resources.

- *The National Nutrition Council (NNC)*

The National Nutrition Council (NNC) has a 12-person membership, chaired by the Vice President, the Executive Director of NaNA serves as the Secretary. The rest of the membership, apart from the Chairman of the NaNA Board are Cabinet members. The Council has responsibility for ensuring overall policy implementation and review; advocacy for increased support for nutrition and ensuring political commitment to nutrition security.

- *The National Assembly Select Committee on Agriculture*

The National Assembly Select Committee on Agriculture provides lawful oversight over public sector enterprises and agencies, public services and projects. This is in view of the fact that Government and public services as well as public enterprises and agencies are all accountable to The Gambian tax payers. In this regard, all public enterprises and agencies must submit their annual reports and audited financial statements to the National Assembly within three months of the end of each financial year.

- *National Climate Change Committee (NCC)*

The National Climate Committee (NCC), the body charged with decision and policy making for climate change. The NCC has representatives from both the public and private sectors with an open membership. The Committee has successfully coordinated the preparation of the First and Second National Communications Reports (work progressing on the Third Communication). While membership comprised some highly experienced personalities on the subject of climate change, a key limitation is the high turnover of representations, with new members requiring training and updating, culminating in the loss of valuable time during meetings.

- *The Gambia Chamber of Commerce and Industry (GCCCI)*

The Gambia Chamber of Commerce and Industry (GCCCI) is a not-for-profit membership based private sector organization. It engages government to inform policy, law and regulations in pursuit of a more business friendly environment. It also seeks opportunities from development partners and delivers them to Micro, Small and Medium businesses and entrepreneurs for the enhancement of their trade. GCCCI is also the secretariat for the National Business Council comprising of representatives from the private sector as well as members engaged in the agribusiness sector.

- *The Commercial Farmers Agribusiness Network (CFAN)*

The Commercial Farmers Agribusiness Network (CFAN) comprises service providers, individual and enterprises / businesses in the crop, livestock, fisheries and forestry value chains. The aim is to bring together commercial agricultural value chain actors to network, partner, coordinate, dialogue and lobby in the interest of the agri-food sector.

- *Non-Governmental Organizations (NGOs)*

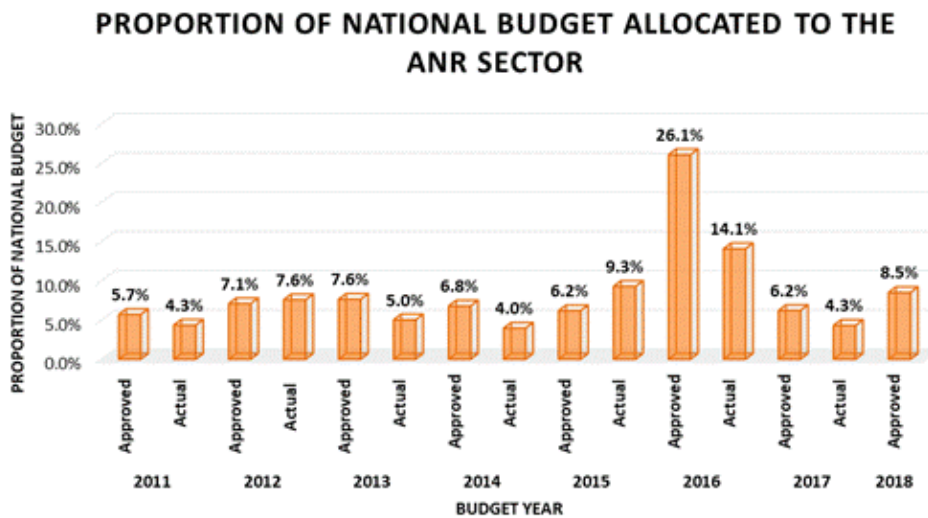
A number of NGOs are operating at grass root level undertaking diverse interventions ranging from capacity building of producers, enhancing production and productivity of diversification crops to service delivery in savings and credit mobilization. Key NGOs intervening agriculture and the food/nutrition sector include ActionAid International The Gambia (AAITG), Universal Purpose (UP) and National Association of Women Farmers (NAWFA), Catholic Relief Services (CRS), Gambia Food and Nutrition Association

(GAFNA), Agency for the Development of Women and Children (ADWAC) and Gambia Methodist Mission Agriculture Program. Most NGOs operate under the umbrella of The Association of NGO in The Gambia (TANGO).

- *Resources Allocation and Utilization*

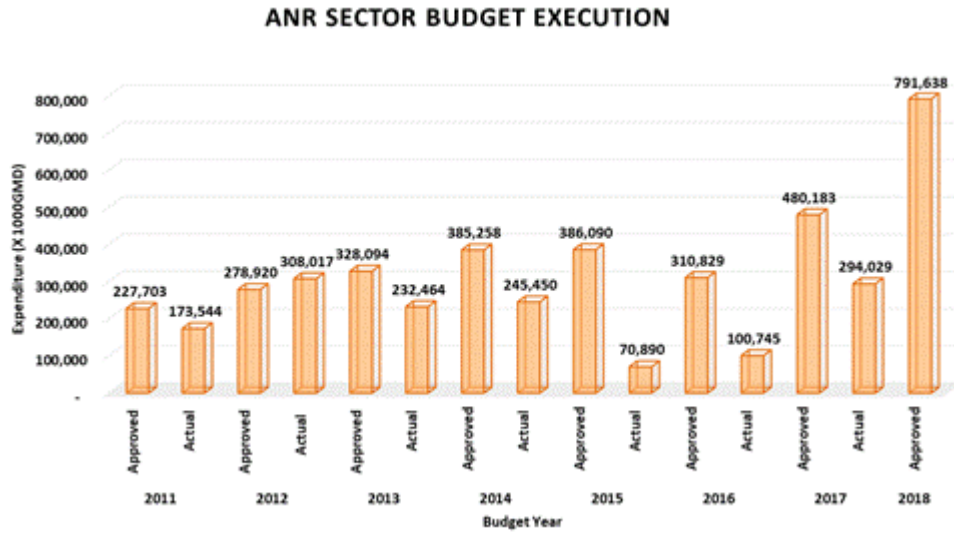
Review of public sector annual budgetary allocations to the ANR sector (Development and Recurrent) as presented in Figure 13, show that for the period 2011-2015 (GNAIP 1) and 2016-2018 (beyond), allocations have except for 2016 and the approved for 2018, always been below the 10% required under both the Maputo(2003) and Malabo (2014) declarations. The availability of domestic resources is further complicated by the under-utilization of the allocated funds. Figures 14A and 14B provide information on the annual budget execution from 2011-2017 and shows that except for 2012. When 110% execution was registered, in all the other years it has been 76% and below. In 2015 the execution was only 18% of the approved.

Figure 13: Proportion of National Budget Allocated to The ANR Sector



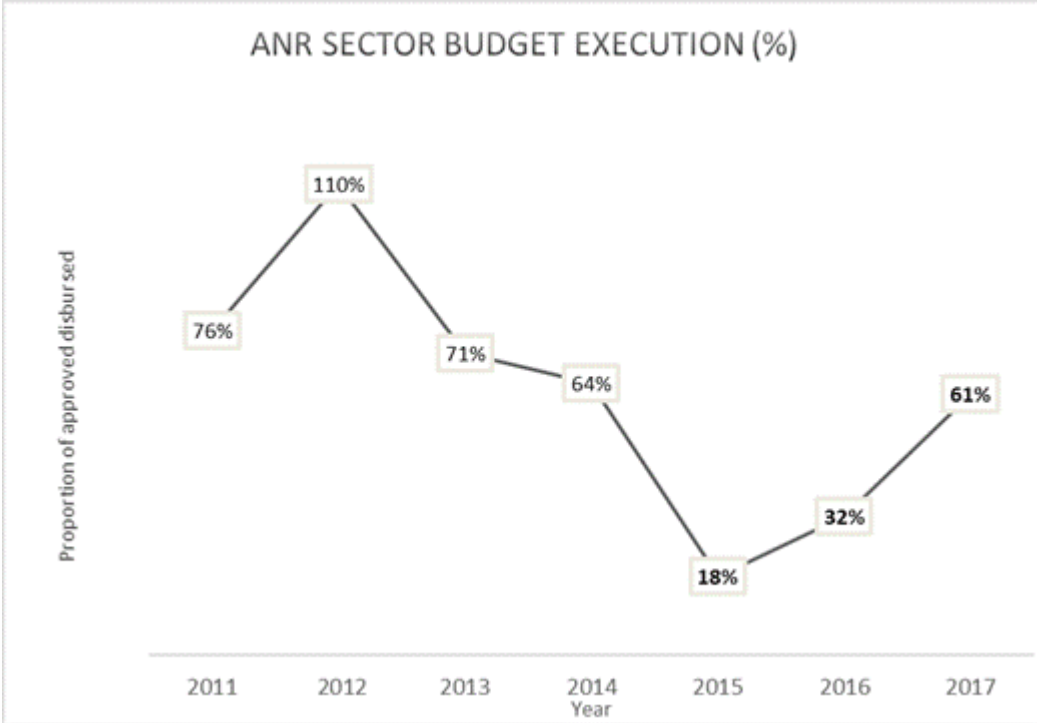
Data Source: GoTG. Estimates of Revenue and Expenditure (2012 to 2019)

Figure 14A: ANR Sector Budget Execution



Data Source: GoTG. Estimates of Revenue and Expenditure (2012 to 2019)

Figure 14B: ANR Sector Budget Execution



Data Source: GoTG. Estimates of Revenue and Expenditure (2012 to 2019)

Table 7 provides information on ongoing and pipeline public sector projects in the ANR and Nutrition sectors. The ongoing projects are funded by development partners including the African Development Bank (AfDB), Arab Bank for Development (BADEA), African Union Commission (AUC), European Union (EU), Green Climate Fund, International Fund for Agricultural Development (IFAD), Islamic Development Bank (IsDB), Global Environment Facility (GEF), World Bank (WB) and United Nation agencies (FAO, UNEP, UNDP). With medium-term framework of four to six years their interventions range from agricultural value chain management and development, resilience building to climate change adaptations.

A number of priority projects have been designed and await implementation, notable among these are the Rice value Chain Transformation Project (RVCTP) to be funded jointly by the AfDB, IsDB and BADEA; the pilot project to be funded by the French Agency for Development (AFD) and the ROOTS follow-up to *Nema/Chosso* for the next cycle of IFAD funding.

Table 7: Ongoing and pipeline Public sector projects

Project Title	Amount (USD million)	Currency	Development Partner	Instrument	Status
Nema CHOSSO ³	39.40	USD	IFAD: (\$30 million) IsDB (\$ 15 million)	Grant	Ongoing (2013-19)
Programme for building resilience against food and nutritional insecurity in the Sahel (P2RS)	20.4	UA 11.5 million	AfDB	Loan	Ongoing (2014-2019)
Building Resilience to Recurring Food Insecurity in The Gambia (BRRFI)	17.9	USD	IsDB	Loan&Grant	Ongoing (2014-2019)
The Gambia Commercial Agriculture and Value Chain Management Project (GCAV)	15.92	USD	WB	Loan&Grant	Ongoing (2014-2019)
The Agricultural Value Chain Development Project (AVCDP)	8.5	USD	AfDB	Loan	Ongoing (2016-2020)
Community-Based Sustainable Dry Land Forest Management	3.2 ⁴	USD	GEF	Grant	Ongoing (2016-2020)
Adapting Agriculture to Climate Change	6.3	USD	GEF	Grant	Ongoing (2016-2020)

³ Note the Management of *Nema Chosso* also executes the Program for Building Resilience against Food and Nutrition Insecurity (P2RS) and the Building Resilience for Recurring Food Insecurity in the Gambia funded by the IsDB

⁴ 3,066,347US\$

Post-Crisis Response to Food and Nutrition Insecurity in The Gambia (EU EDF 11 Envelope B)	4.6	USD	EU	Grant	Ongoing (2018-2021)
Agriculture for Economic Growth	15.8	USD	EU	Grant	Ongoing (2018-2021)
Building Resilience through Social Transfer for Nutrition Security in the Gambia (BREST)	3.46	EURO	EU	Grant	Ongoing
Action Against Desertification (AAD) –GGW	1.73	1.5 million EURO	AUC/FAO	Grant	Ongoing (2016-2019)
Strengthening climate services and early warning systems in The Gambia for climate resilient development and adaptation to climate change – 2nd Phase of the Early Warning Project	10.96	9.5 million EURO	GEF/UNEP /UNDP	Grant	Ongoing (07/15 - 06/19)
Maternal and Child Nutrition and Health Results Project	13.68	USD	World Bank (IDA, HRITF)	Grant (\$11.205m) Loan (\$2.475m)	Ongoing (05/14-07/19)
Large-scale Ecosystem-based Adaptation in The Gambia: developing a climate-resilient, natural resource-based economy.	25.52	USD	Green Climate Fund	Grant (\$20,546,756) GOTG (\$4,974,611)	Ongoing 01/17 - 12/22
Regional Stabilisation and Development Fund for Financial Cooperation in ECOWAS Member States - The Gambia Pilot Programme.	11.53	10 million EURO	KFW	Grant	Ongoing
Rice Value Chain Transformation Project (RVCTP)	40.0	USD	AfDB/IsDB/BADEA	Grant	Pipeline
Small Ruminant Production Enhancement	26.0	USD	IsDB	Grant	Pipeline
Project Preparation Facility (PPF)-Agricultural Transformation Programme (ATP)	0.93	USD	AfDB	Grant	Pipeline
URR Pilot Irrigation Project	5	Euro	AFP(French)	Grant	Pipeline
MAVA – small pelagic	1.71	Euro	MAVA	Grant	Pipeline
West Africa Regional Fisheries Project (WARFP)	16	US\$	WB		Pipeline
ROOTS - follow-up to Nema	80	US\$	IFAD (40), GEF (20), WB (10)	Loan & Grant	Pipeline

PART III: STRATEGIC GUIDELINES FOR AGRO-FORESTRY-PASTORAL AND FISHERIES DEVELOPMENT, BUILDING THE RESILIENCE OF VULNERABLE POPULATIONS BY 2026

GUIDING PRINCIPLES AND OBJECTIVES

The guiding principles and objective mirror that of the Agricultural Transformation Program of the African Development Bank (AfDB) but have been tailored to suit the national context. The GNAIP II will be guided by the following principles:

Country Ownership: The Interventions in GNAIP II will be aligned with national and regional plans and strategies. The National Development Plan (NDP), The ANR Policy will be the starting point for the agricultural transformation, food security and nutrition enhancement and the GZHSR process.

Leveraging the Private Sector: Leveraging investment by the private sector in the agricultural value chains by catalysing the crowding in of the private sector operators. This will require a conducive policy environment, along with the necessary institutional and legal environment for private sector development to take place.

Development results and value added: particular attention will be paid to concrete results while at the same time ensuring its participation generates sufficient value added. To foster this approach, existing collaborative arrangements between all parties will be crucial.

Inclusivity and Sustainability: Assuring youth inclusiveness, gender equality and sustainable outcomes underpin all investment and sector dialogue actions;

Partnerships: Collaboration among the different stakeholders operating in the agriculture and natural resources space including development partners, private sector entities, Non-Governmental Organizations, Community-Based Organizations and Civil Society is important. In particular, partnership will be forged to address areas where partner engagement will be emphasized;

Taking to scale: This will entail replicating, advancing and taking to scale; pockets of successful programs and projects that abound nationally, regionally and globally in order to fully realize transformational impact;

Business Oriented approach: Critically, there needs to be a reorientation away treating agriculture as a “way of life” or social welfare system to a business, and look to frame a transformation agenda that is public-sector enabled and private-sector led; and,

Securing improved smallholder agricultural livelihoods based on enhancing the value of their assets (land, labour, time) while assuring higher returns and household food security.

3.1 The Vision

The Vision for agro-pastoral and fisheries development of ECOWAP is focused on regional agricultural development. It is encapsulated thus: *“An agro-sylvo-pastoral and fisheries sector that is modern,*

competitive, inclusive and sustainable, provides decent jobs and guarantees food and nutrition security as well as food sovereignty". This vision covers the modernization of farming operations and the critical role of the private sector in the various segments of the value chains; the involvement of youths and gender equity; sustainable production, processing, storage and distribution systems as well as the promotion of Climate Smart Agriculture (CSA).

The GNAIP II (2017-2026) is the main investment framework for ANR development. The Vision articulated for agriculture under the Medium term NDP is: *"a modern, sustainable and market-oriented agriculture and livestock sector for increased food and nutrition security, income and employment generation, poverty reduction and economic transformation"*. Except for the regional perspective's focus of the ECOWAP pertaining to markets, shared water bodies and related infrastructure, the regional and national visions are very similar.

3.2 Challenges and Issues by priority area

A number of challenges mar the development agricultural and related value chains, these centre on under-performing value chains; insufficiency of public and private infrastructure; limited access to financing; adverse agri-business environment; and, limited inclusivity, sustainability and nutrition challenges. Table 8 extracted from AfDB's FEED AFRICA (Strategy for Agricultural Transformation in Africa 2016-2025 pp 13) succinctly presents the challenges of the agricultural value chains.

Table 8: Challenges of Agricultural Value Chains

Under-performing value chains	Limited coordination of <u>research and development</u>	Insufficient utilization of <u>inputs and mechanization</u>	Limited reach of extension to boost <u>on-farm production</u>	Poorly organized post-harvest <u>aggregation and transport</u>	Inconsistent capacity for effective <u>value addition</u>	Poorly developed <u>market linkages</u> and trade corridors
Insufficient infrastructure	Insufficient transport, energy, water, waste and other <u>hard infrastructure</u> , leading to uncompetitive cost structures			Undeveloped <u>soft infrastructure</u> including aging smallholder farmers and a lack of skills for commercial agriculture and agro-allied industries		
Limited access to agricultural finance	Real and perceived <u>risk</u> limiting private sector investment		High <u>service cost</u> due to small deal sizes, lack of credit data, and low capacity in agricultural lending	Limited <u>market attractiveness</u> relative to perceived higher returns outside of the agricultural sector		
Adverse agri-business environment	Unfavorable <u>market access and incentives</u> limiting trade and capacity to produce high-quality products		Ineffective <u>sector regulation</u> creating long lead times for new technologies and inconsistent trade policies	Unsupportive <u>business enabling environment</u> restricting land tenure and general ease of doing business		
Limited inclusivity, sustainability and nutrition	Insufficient <u>inclusivity</u> of women and youth in agricultural development		Limited incentives to ensure <u>sustainability</u> and climate-resilient practices	Limited access and affordability of commodities with high <u>nutrition</u> levels		

Source: Dalberg analysis, expert consultations

Summary challenges by priority area comprising: Production and value chain promotion on food crops and vegetables sub-sector; production and value chain promotion on livestock husbandry and pastoral sub-sector; production and value chain promotion on fishery and aquaculture sub-sector; production and value chain promotion on forestry and environment sub- sector; food and nutrition security, resilience, social

protection; and, promote good governance of the whole agriculture and natural resources sector. These are presented in Table 9.

Table 9: Challenges in Production and Value Chain Promotion by priority area

1: Production and value chain promotion of food crops and vegetables sub-sector

- The customary land tenure system impedes: investment into improved agricultural/cultural practices and use land as collateral; large scale mechanical cultivation due to fragmented nature of land holdings and production units; effective beneficiaries' participation in development, operation and maintenance of development programmes.
- Soils and soil fertility - infertile and erosion prone soils compounded by unaffordability and/or untimely availability of chemical fertilisers and fertiliser use efficiency.
- Lack of viable credit facilities and inaccessibility of production inputs (appropriate seed varieties) and services (especially land preparation);
- Youth participation: Limited youth participation in the agricultural value chain, an gaining farming population and limited employment of modern/new technology in the production activities
- Climate - rainfall spatially variable and temporal in nature with intermittent floods and droughts; degraded lowlands, especially within the Western region of the country, as a result of saline water intrusion to farmland and acidification.
- Sustain production - Cost of infrastructure/facilities for harnessing/abstraction and distribution networks as well as Knowledge gap in the operation and maintenance of irrigation infrastructure;
- Pest and disease control compounded by inappropriate production practices and lack of financial resource for the procurement of services affects quality of produce (risk of aflatoxin in groundnuts and maize) and marketability;
- Storage - inappropriate and inadequate storage infrastructure and facilities (at production sites and markets) are key disincentives hindering development of the crop production sector.
- High post- harvest losses (estimated at 20 -30%), quality issues and seasonality of production (gluts and scarcity) of fruits and vegetables.
- Processing, packaging and labelling is at its infancy and development of the industry is constrained by: lacks of appropriate processing equipment and facilities; inadequate supply of quality raw materials; lack of desired technological know-how; and improper packaging and labelling materials
- Free trade policy - Local products susceptible to competition from imports (rice, onions, tomatoes, etc.) and shocks from price volatilities.

Production and value chain promotion of livestock sub-sector

Traditional milk production system:

- Low genetic potential of N'Dama for milk production;
- High prevalence of diseases and deficiencies of animal feed both in quantity and quality
- Weaknesses in public and private veterinary services
- Poor milk handling techniques affecting quality/food safety
- Lack of storage and processing facilities

Peri-urban milk producers:

- Low AI success rates; non availability of F1s
- Restricted availability of low-cost feed sources and high cost of purchased feed inputs
- Poor support services, weak public and private veterinary services
- Absence of a livestock breeding policy

Cattle/ beef value chain

- Low growth rates with mature animals losing between 10 to 25 percent of their body weight in the dry season
- Prevalence of diseases and inadequate feeding and scarcity of watering points
- Weaknesses in public and private veterinary services
- Sub-standard marketing infrastructure including slaughtering, processing and handling facilities

Small ruminants value chain

- Frequent diseases outbreaks (PPR)
- Weaknesses in public and private veterinary services
- Inadequate supply of feeds
- Sub-standard marketing and processing infrastructures

Poultry value chains

Traditional village production systems:

- High mortality: Newcastle Disease (NCD) is the major cause of mortality in village chicken production
- Weaknesses in public and private veterinary services
- Poor management
- Predation

Commercial poultry (egg and meat production)

- Inadequate supply of day old chicks (DOC)
- Irregular access to and high cost of quality feed
- Cheap imports of poultry meat and eggs
- Inadequate storage and processing facilities

Pig value chain

- Disease outbreaks, notably African swine fever
- Weaknesses in public and private veterinary services
- Inadequate feed
- Absence of live pig market, slaughtering facilities and stalls in municipal market

Honey value chain

- Inadequate public investment in modern bee keeping and processing materials
- Inadequate capacity of DLS to provide veterinary services and disseminate bee husbandry to farmers
- Inadequate availability of modern bee keeping and processing materials to farmers

Production and value chain promotion of fishery and aquaculture sub-sector

- inconsistent legal and policy framework;
- inadequate research and data management capacity for effective policy development and implementation including innovation and value addition;
- weak monitoring and enforcement capacity including territorial water policing;
- inadequate accessibility and affordability of sufficient credit for the purchase of fishing gears to boost artisanal fisheries catches;
- uncontrolled use of inappropriate fishing gears and techniques thus giving rise to overexploitation of the artisanal fisheries resource base;
- domination of the lucrative coastal fisheries by foreigners;
- low human capacity in terms of trained personnel and weak institutional linkages;
- habitat degradation through mangrove dieback, human destruction, pollution of the environment;

<ul style="list-style-type: none"> • uncontrolled post-harvest losses due to inadequate processing, transportation and storage facilities; and • economic losses to the country due to inadequate modern landing sites to attract foreign companies to land the quantities of fish caught in-country for processing and exportation. The capacity of the new jetty in Banjul is presently inadequate to attract foreign companies' fish landings.
<p>Production and Value chain promotion on forestry and environment sub-sector</p> <p>Forestry</p> <ul style="list-style-type: none"> • Increasing population pressure on forest resources through crop area expansion, settlement and urbanization particularly in WCR • Unsustainable logging and harvesting practices of trees and fruits • Recurrent bush fires damaging the forest cover • Climate change with increased frequency of extreme weather events-droughts, floods, winds • Weak institutions and limited private sector intervention • Weak integration of forest considerations in poverty reduction planning and implementation <p>Biodiversity, Wildlife and Parks</p> <ul style="list-style-type: none"> • Inadequacy of financing by both public and private sector for the effective management of protected areas • Inadequacy of human resources in both numbers and quality (skills and qualifications) for optimal biodiversity management • Insufficiency of park facilities and infrastructure for optimal eco-tourism
<p>Food and nutrition Security, resilience and social protection</p> <ul style="list-style-type: none"> • Nonexistence of food security policy and sector strategy on food security • Insufficient domestic food production, low productivity with rising population and urbanization • High vulnerability, particularly of the vulnerable groups to external shocks (price volatility, weather and markets) • High level of malnutrition, particularly under nutrition in the rural areas • Fragmented social protection mechanism with mostly short-term and inadequately funded cash transfer interventions • Absence of food reserve system at national level with only limited community food reserve management through cereal banks
<p>Promote good governance of the whole agriculture and natural resources</p> <ul style="list-style-type: none"> • A Non-functional National Agriculture Sector Strategy • Weak leadership and uncoordinated mechanisms in the ministries for the effective implementation of the GNAIP II • Conflicting objectives among the three ministries e.g. between agricultural expansion and forestry/biodiversity and wildlife conservation • Duplicity of interventions across multiple Agricultural projects • Weak monitoring and evaluation mechanisms to effectively ensure physical and fiduciary progress and for corrective action

3.3 Strategic Axis

GNAIP II is pivoted on four strategic axes, namely: improving production and productivity of priority agro-forestry-pastoral and fisheries products, structuring of the value chains, strengthening the resilience of

vulnerable populations and governance. These strategic axes also hinge on fifteen sub-axes as presented in Table 10.

Table 10: Strategic Axes

No.	Axes and sub axes
1.0	Improving production and productivity of priority agro-forestry-pastoral and fisheries products
	Sub axes: 1.1: Food crop and vegetable productivity and expansion 1.2: Enhancing livestock production and productivity 1.3: Enhancing sustainability of captured fisheries and expansion of aquaculture 1.4: Improving agro-forestry and bio-diversity
2.0	Structuring of the value chains
	Sub axes: Enhancing processing and other value addition operations Enhancing market access, markets and quality control of products Value chain financing Capacity building of value chain actors
3.0	Strengthening the resilience of vulnerable populations
	Sub axes: 3.1: Enhancing food and nutrition security of households and communities 3.2: Build resilience of farmers and natural resources stakeholders to climate change 3.3: Strengthening and expansion of social protection and social safety nets
4.0	Governance
	Sub axes: 4.1: Creating the enabling policy environment 4.2: Institutional capacity building Institutional capacity building 4.3: Human capacity building 4.4: Coordination

3.4 Expected impacts

The key expected impacts resulting from the implementation of GNAIP II are indicated in Table 11.

Table 11: Expected impacts

Strategic axes 1: Improving production and productivity of priority agro-forestry-pastoral and fisheries products
Sub axes 1.1: Food crop and vegetable productivity and expansion
<p>Rice:</p> <ul style="list-style-type: none"> • 60,000 ha of upland rice production areas consolidated and productivity is projected to increase from average yield of 0.850 to 2.5 Mt /ha; • 19,000 ha of rain fed lowlands improved, consolidated and productivity is projected to increase from 0.933 to 2 Mt/ha; • 3,600 ha of tidal irrigated schemes improved productivity is projected to increase from annual average of 6 to 8 Mt/ha; • 1,400 ha of pump irrigated schemes improved, productivity is projected to increase from an annual average of 4 to 10 Mt/ha. • Increased income and food and nutritional security <p>Coarse grains:</p> <ul style="list-style-type: none"> • Millet productivity is projected to increase from an average of 0.876 to 1.4 Mt/ha; • Maize productivity is projected to increase from an average of 0.995 to 1.6 Mt/ha • Sorghum productivity is projected to increase from an annual average of 0.827 to 1.0 Mt/ha • Increased income and food and nutritional security <p>Groundnuts:</p> <ul style="list-style-type: none"> • Productivity is projected to increase from an annual average of 0. 897 to 1.2 Mt/ha • Increased income and food and nutritional security <p>Horticulture:</p> <ul style="list-style-type: none"> • Additional 1,500 ha of land is projected to be put under year round vegetable production • Onion production is projected to increase from 6,000 to 19 Mt/annum • Tomato production is projected to increase from 4,000 to 15,000 Mt/annum • Increased income and food and nutritional security
Sub axes 1.2: Enhancing livestock production and productivity
<p>Cattle:</p> <ul style="list-style-type: none"> • The population is projected to register an annual growth rate of 5% by 2025; • Calving rate is expected to increase from 47-52% to 55%; Calf mortality rate is expected to be reduced from 14-24% to 10%; • Offtake rate is estimated to increase from 9.1 to 12%. • The 25 milk production schemes are projected to produce 14.4 million litre of milk by 2026. • Milk production from the traditional village herds is projected to increase from 25,882,650 to 28.14 million litres. • Beef production from the traditional village herds is projected to increase from 4,931 to 5,299 Mt. • Increased income and food and nutritional security <p>Sheep:</p> <ul style="list-style-type: none"> • The population is projected to register an annual growth rate of 10% by 2025; • Lamb mortality rate is expected to be reduced from 14-24% to 10%;

- Offtake rate is estimated to increase from 22.3 to 30%.
- Mutton production is projected to increase from 449 to 1,103 Mt
- Increased income and food and nutritional security

Goats:

- The population is projected to register an annual growth rate of 10% by 2025;
- Kid mortality rate will be reduced to 10%;
- Offtake rate is estimated to increase from 25.1 to 30%.
- Goat meat production is projected to increase from 988 to 1,983
- Increased income and food and nutritional security

Pigs:

- The population is projected to register an annual growth rate of 10% by 2025;
- Mortality rate will be reduced to 10%;
- Offtake rate is estimated to increase from 50 to 60%;
- Pork production is projected to increase from 1,166 to 1,328 Mt;
- The established pig production and fattening schemes are projected to produce 2,906 of pork per year.
- Increased income and food and nutritional security

Poultry:

- Meat from local chickens is projected to increase from 720 to 1,000 Mt
- The established commercial broiler production schemes are projected to produce 410 Mt of meat per year.
- Meat production is thus expected to increase from 562 to 972 Mt
- The established commercial layer production schemes are projected to produce 723 eggs/year.
- Egg production is thus expected to increase from 675 to 1,398 Mt.
- Increased employment, income and food and nutritional security

Honey:

- The established honey production scheme are projected to produce 650 litres of honey per year.
- Honey production is thus expected to increase from 5.0 to 5.7 Mt.
- Increased income and food and nutritional security

Sub axes 1.3: Enhancing sustainability of captured fisheries and expansion of aquaculture

- Fish production is projected to increase from 53,719 to 75,000 Mt.
- Contribution of fish resources to GDP projected to increase from 6.5 to 15%
- Fish exports projected to increase from 32 to 43% of total production
- Increased income and food and nutritional security

Sub axes 1.4: Improving agro-forestry and bio-diversity

- Rate of biodiversity loss, including forest fragmentation and land degradation is considerably reduced by 50%;
- 60% of areas that are suitable for spawning and nursery grounds are protected, while the use of wrong fishing gears reduced by 40%;
- At least 5% of terrestrial and inland water, and 10% of coastal and marine areas are conserved through systems of protected areas.

Strategic axes 2.0: Structuring of the value chains

Sub axes 2.1: Enhancing processing and other value addition operations

- Small to medium scale processing facilities developed countrywide
- Livestock slaughter facilities and retail outlets developed
- Linkages between milk producers and commercial processors established
- Fish processing, storage and marketing facilities provided to enhance fish value addition and also increase its storage and marketing periods

<ul style="list-style-type: none"> Increased employment generated as a result of processing and marketing facilities developed
Sub axes 2.2: Enhancing market access, markets and quality control of products
<ul style="list-style-type: none"> Enhanced market access Contribute to income generation for crop, livestock and fish value chain actors Food safety is ensured due to improved processing and marketing facilities
Sub axes 2.3: Value chain financing
<ul style="list-style-type: none"> Availability of finance enables value chain actors to engage in profitable ventures
Sub axes 2.4: Capacity building of value chain actors
<ul style="list-style-type: none"> Increased value chain actors' performance (output) due to increased capacity
Strategic axes 3.0: Strengthening the resilience of vulnerable populations
Sub axes: 3.1: Enhancing food and nutrition security of households and communities
<ul style="list-style-type: none"> Strengthened household resilience Strengthen food and nutrition security
Sub axes 3.2: Build resilience of farmers and natural resources stakeholders to climate change
<ul style="list-style-type: none"> Strengthened resilience of farmers to climate change Strengthened resilience of natural resources stakeholders to climate change
Sub axes 3.3: Strengthening and expansion of social protection and social safety nets
<ul style="list-style-type: none"> Strengthened and expanded social protection and social safety nets
Strategic axes 4.0: Governance
Sub axes: 4.1: Creating the enabling policy environment
<ul style="list-style-type: none"> Strengthened policies and regulations
Sub axes 4.2: Institutional capacity building Institutional capacity building
<ul style="list-style-type: none"> Enhanced institutional capacity leading to improved effectiveness and efficiency in performing assigned responsibilities
Sub axes 4.3: Human capacity building
<ul style="list-style-type: none"> Enhanced human capacity leading to improved effectiveness and efficiency in performing assigned responsibilities
Sub axes 4.4: Coordination
<ul style="list-style-type: none"> Improved governance of food agriculture food and nutrition security

Part 4: Detailed Description of Priorities and Components for the period 2019 to 2026

4.1 The agricultural, food security and nutrition priorities

4.1.1 Production and value chain promotion on food crops and vegetables sub-sector

Crop production is done in all the two existing ecologies, namely upland and lowlands. The upland, where the soils are generally light sandy loams of low water holding capacity, crop production, with the exception of horticultural garden, is predominantly rain-fed agriculture. The principal crops cultivated (for food and household income) are cereals (maize, millet, sorghum, and upland rice) and groundnuts with draught animals. Vegetable production is generally under irrigation using various watering source ranging from shallow wells to boreholes. With regards to the lowlands, the predominant crop is rice, traditionally a women's crop, currently produced under three categories, namely rain-fed flooded areas, uncontrolled tidally flooded (seasonally saline) and irrigated (feasible for double cropping). Mechanisation level varies from simple hand tools to tractors with the exception of animal traction; deemed unsuitable in the heavy paddy soils with the weak breed of cattle (N'Dama). Generally, crop production and productivity are low and the sector has not significantly contributed to poverty reduction as sited in the NDP (2018-2021; as 91 per cent of the rural poor work as farmers). To reduce poverty and enhance food and nutrition security and household farmer income, the current farmer risk aversion strategy of growing assorted food crops on small-scale subsistence basis has to be revisited with a view to improve crop production and productivity along with upgrading and up scaling value addition. The expected outcome of this target development is in line with the policy objectives of the Gambia NDP (2018-2021), the ANR (2017-2026), Agricultural Extension (July 2018) and Trade (2018-2022) policy objectives, and the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (2015-2025). A review of the national priority value chain crops comprising of rice, coarse grains (maize, millet, sorghum and findi), groundnuts and horticulture (fruits and vegetables) are detailed below.

Rice Value Chain: Rice, the principal staple food, is a traditional crop produced in both lowland and upland ecologies. Other than the developed tidal flood plain in CRR, which revolve around 3000ha in the recent past, production is predominantly rain-fed with the upland constituting the greatest share of land area.

Upland production is constrained by the soil characteristics – low fertility levels, erosion prone, limited organic matter for top soil regeneration and low water holding capacity. Consequently, output levels are very low; yields are generally under 1/ha as opposed to on-farm where the potentials of 1.1/ha to 4/ha within the Sahelian and Sudano-Sahelian sub agro-ecological zone for various NEIRICA strains as noted in the Yield Gap Analysis report (Keita, S; July 2016).

Within the lowlands, cultivation by women, the main actors, is performed in six sub-ecological ecological zones of the lowland, namely, natural depressions, run-off inundated flood plains, back swamps, seasonally saline tidal swamps, pump irrigated schemes and tidal irrigated schemes. Production in the natural depressions, run-off inundated flood plains and back swamps are dependent on localised rainfall and susceptible to siltation as a result of upland erosion. The seasonally saline tidal swamps are also rainfall dependent, however, rain and runoff within the catchment of the River Gambia imparts these areas for downstream movement of the saline front. Productivity of these area is impeded by access and low level of mechanisation. The irrigated areas are provided with improved water control infrastructure has potential for double cropping and yields of 4-5/ha per season upon implementation of the appropriate cultural practices. Generally, the average yields of the lowlands are low indicating a non-optimal use of the land

and water resource. This low productivity is mainly associated with lack of and/or untimely availability of production inputs and services, negative impacts of climate change (degradation of the farmland as a result upland erosion, siltation and inundation of the swamplands, salinization, etc.), drudgery associated with access and production technology and lack of appropriate climate resilience infrastructure amongst others.

Productivity of the post-harvest phase is constrained by the output of the production phase, namely, the low supply of quality produce, poor handling enhancing the risk of aflatoxin contamination further reducing quality, marketability and edge over imported rice. However, the phase is endowed with countless small mills/de-haulers all over the country, though grading is rare and avenue for young entrepreneurs and women.

Intervention geared towards addressing these bottlenecks at both the production and post-harvest phases including women and youth empowerment is a pre-requisite to (i) Increasing the current production (around 20% of the national requirement – see Table 12); and (ii) the realisation of the ANR policy objective of maximization of poverty reduction and enhancement of food, income and nutrition securities.

Table 12: Cropped Area, Production, Milled Volume and Self -Sufficiency Ratio of Rice

Year	2011	2012	2013	2014	2015	2016	2017
Cropped Area(ha)	62,026	63,592	66,380	66,286	79,265	69,561	68,900
Yield (kg/ha)	789	829	681	704	788	701	435
Production of paddy (Mt)	51,136	54,219	69,704	46,674	68,951	48,778	29,967
Equivalent milled rice (Mt)	34,091	36,146	46,469	31,116	45,967	32,519	19,978
Population	1,764,245	1,822,465	1,882,450	1,944,732	1,977,590	2,038,501	2,100,568
Milled rice req. (Mt)	206,417	213,228	220,247	227,534	235,042	242,799	250,811
Sufficiency (%)	17	17	21	14	20	13	8
Shortfall (Mt)	172,326	177,082	173,777	196,418	189,075	210,280	230,833
Rice import (Mt)	143,768	140,672	130,226	140,411	906,894	129,811	159,832

Furthermore, to attain the medium-term goal of 122 thousand Mt annual production (NDP target) the focus would be on enhancing productivity – that is increase yields to the GNAIP target for all ecologies. As indicated in Table 13 below, target will be surpassed whilst further tidal development awaits the outcome of an inventory of the potential areas under the various lowland ecologies.

Table 13: Expected outcome of lowland rice production by end NDP period

Ecology	Target annual yield (Kg/ha)	Target cropped area (ha)	Expected production (Mt)
Lowland swamp - rain fed	2	18,000 ⁵	36,000
Tidal irrigated	8	3,000 ⁶	24,000
Pump irrigated	10	1,000 ⁷	10,000
Upland	2.5	50,000	150,000
Total			220,000

Government, in line with the National Rice Development Strategy, Seed Policy and CIPRiSSA-Gambia investment plan intends to ameliorate production constraint and enhance productivity of the rice sub-sector through development programmes. Thus, positively contributing to the ANR policy objective of maximization of poverty reduction and enhancement of food, income and nutrition securities. Interventions shall include new and the up-scaling of ongoing development programmes and initiative such as:

- Strengthening governance capacity of existing rice farmer cooperatives and other farmer organizations;
- Supporting upland conservation measures to reduce runoff quantity and flow rate and possible increase in groundwater recharge;
- Provision/rehabilitation of water control infrastructure and facilities for irrigation/drainage and water harvesting/retention;
- Strengthening climate resilience of the provided infrastructure – improved sturdiness of structures and inlet capacity;
- Promotion of GAP including varietal selection, dissemination and adoption of high-quality improved rice varieties and integrated pest management;
- Upscale initiatives in seed quality improvement through establishment and operationalization of seed cleaning and seed processing plants;
- Support the revitalisation of dysfunctional large-scale rice and expansion of private mills;
- Support and promote linkage between value chain actors and the ongoing school feeding programme and other market;
- Creation of affordable loan facilities for acquisition of equipment and machinery for various phases of the rice value chain (matching grant facilities);
- Promoting private sector participation in rice production, processing, marketing and distribution; and
- Promoting specialise extension service delivery – extension field staff focusing explicitly on rice.

Capacity of key actors in the rice value chain shall also be enhanced through training and creation of conducive business environment and timely availability of inputs to direct the medium-term focus on establishing the foundation for a sustained productive sector.

⁵ 17,653ha cropped during the GNAIP 1 period and extra area developed under FASDEP and Nema

⁶ Estimated average area currently cropped per season under tidal irrigation

⁷ Target rehabilitation of the area developed by RIDEP and area to be developed by AVCDP and the planned RVCP

SWOT Analysis of the Rice value chain

Strengths

Long period and tradition of rice production.

Existence of farmer organizations for rice in general and for NERICA in all regions of the country.

Availability of large areas of land suitable for irrigation and for rain-fed production.

Opportunities

High demand for rice-main staple for Gambians.

Unexplored potential of irrigable areas.

Yield increment and reduced post-harvest losses by applying Good Agricultural Practices (GAP) and Good Storage Practices (GSP).

Rural electrification programme with enhanced access to energy for value addition.

Political support through the Vision 2016 for increased production.

Weaknesses

Low productivity particularly of swamp rice with low yields.

Limited promotion and support for locally produced rice.

Inadequate infrastructure and facilities for value addition (processing, packaging).

Limited area under double cropping.

Poor service provision to farmers-land preparation, processing, marketing and other support services.

Threats

Competition of cheap rice imports from Asia.

Climate change culminating in drought and salinity of irrigable areas.

Pests and disease outbreaks.

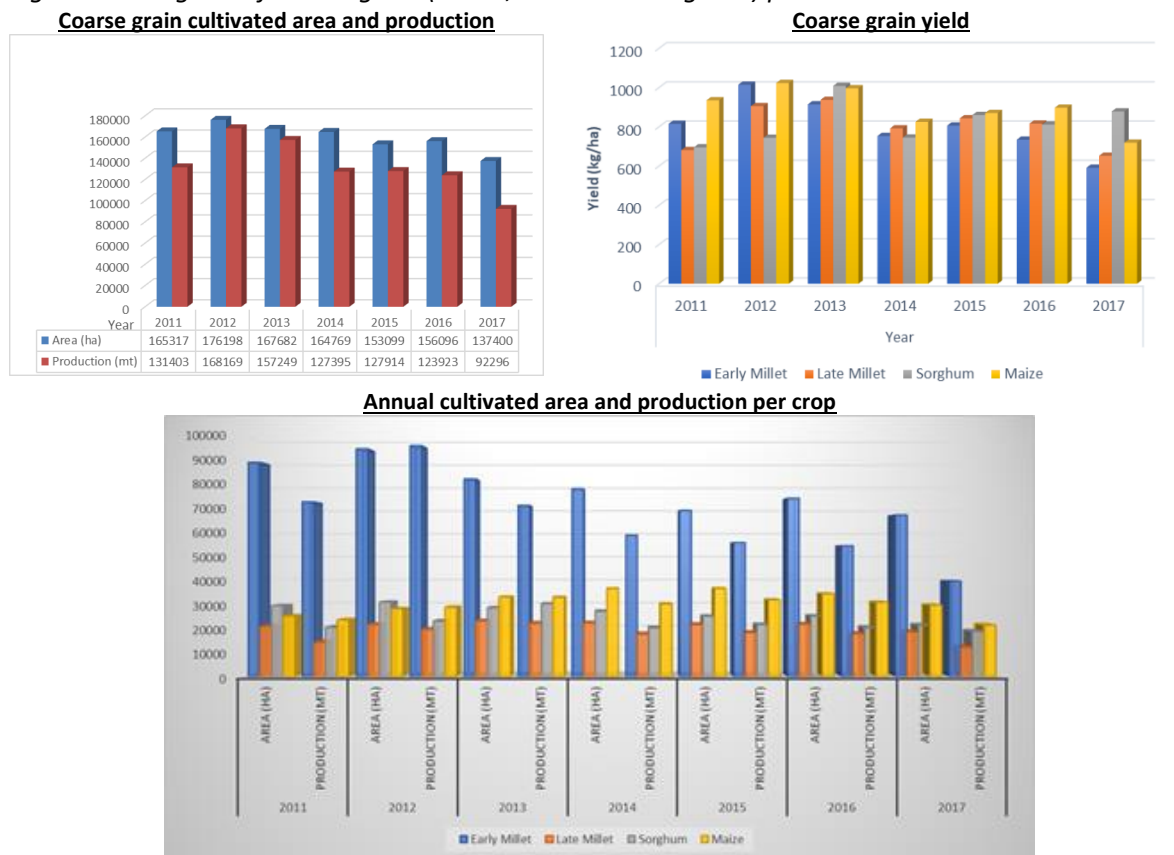
Aflatoxin contamination along the value chain further reducing quality

Coarse grains Value Chains: Coarse grains (maize, millet, sorghum and findi), are consumed as food and for feed and are adaptable to local climatic condition. Though there exist a long tradition and experience in coarse grain production, total cropped area (176,198ha in 2012 declined to a low of 137400ha in 2017) and production (168169 Mt. of grain in 2012 declined to a low of 92,296 Mt. of grain in 2017) varying annually with average yields of less than 1Mt/ha; below the GNAIP target of 1.3Mt/ha. As indicated earlier, the poor fertility state of the upland soils exacerbated by variability of rainfall - negative effects of climate change - along with inappropriate tenorial system dissuade investment at household level to boost productivity. Furthermore, risk of aflatoxin contamination in maize, post-harvest challenges (threshing, de-hauling, milling) and the extra effort in secondary processing limit consumption at household level and promotes shift towards rice-based diets. However, with the advent of motorised threshers, de-haulers and mills the drudgery involved in the first phase of processing has eased. Furthermore, value addition, especially on ready-to-use products, is at its infancy. Therefore, exploration of the niche in value addition (processing, packaging, marketing of ready-to-use products) supported by legislation and regulations on norms and quality will revitalize and promote consumption towards coarse grain-based diets; thus, increased demand for coarse grains. With the appropriate policy support as implied in the ANR, trade policies and the NDP. Productivity can be enhanced through:

- Promotion of climate change adaption measures such as soil and water conservation techniques and climate smart-agriculture in the farming system;
- Disseminate integration of soil fertility management practices and use of *aflasafe* for suppression of aflatoxin contamination in maize;

- Creation of affordable loan facilities to enhance access to production inputs (quality seeds and fertilisers) and services (farm machinery and equipment for reduction of drudgery);
- Promoting private sector participation in input supply, processing, marketing and distribution;
- Adoption of GAP and promote access to affordable, high quality on-farm storage systems to improve quality of raw products for processors;
- The institutionalisation of upland conservation and fertility restoration strategies in the farming system;
- Encourage and promote development of coarse grain processing and packaging into ready-to-use products and support the actors along the value chain;
- Capacity development for key actors in the coarse grain value chain (specifically, smallholder producers, traders in the weekly and regular markets, local millers, Service providers (NARI, DoA and Service units, FSQA, etc.) and Gambia Food Processors Association);
- Strengthen capacity of other farmer groups, to ensure sufficient, aggregated quantities for processing/value addition; and
- Promote investment in main and feeder roads, electricity access for processing and cold chains/storage, and improvement of overall logistics.

Figure 13: Progress of coarse grain (maize, millet and sorghum) production – 2011 to 2017



Data Source: PSU of DOA

SWOT Analysis of Coarse Grains

Strengths

Long tradition and experience in production of coarse grains.

Adaptable to local climatic conditions-e.g. droughts and shorter maturation period.

Traders have good knowledge of markets and trade.

Opportunities

High demand as food and feed.

Unexplored niche in value addition (processing, packaging, marketing),

Weaknesses

Limited value addition and limited research.

Absence of legislation and regulations on norms and quality of coarse grains.

Limited infrastructure for processing, storage and packaging.

Threats

Consumers shifts towards rice-based diets.

Low productivity and hence low profitability of production.

Aflatoxin contamination along the value chain further reducing quality

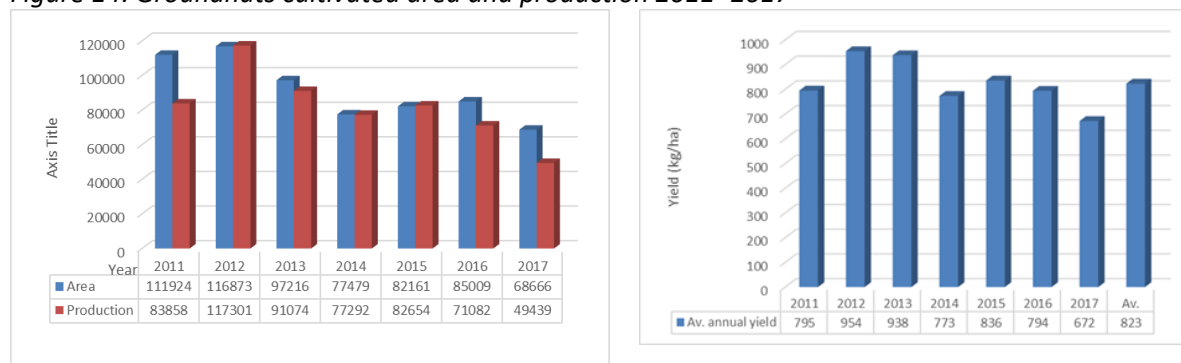
Groundnut value chain: Groundnut, a leguminous oil seed grown in the uplands serves as food and main export crop in the Gambia. Despite the long tradition and practical knowledge of groundnut farming, favourable climatic conditions and suitable land, contribution to poverty reduction and food security has been a challenge. Total cropped area (116,873 ha in 2012 to a low of 68,666 ha in 2017) and production (117,301 Mt. of groundnuts in 2012 to a low of 49,439 Mt. of groundnuts in 2017) varies annually (figure 16) with average yields of about 1 Mt/ha; below the GNAIP target of 1.2Mt/ha. The major impediments include (i) the low soil fertility compounded by untimely availability of chemical fertilisers, inappropriate agricultural practices and climatic factors; (ii) inadequate exposure and access to proven modern agriculture-based technologies; (iii) aflatoxin contamination which has a negative impact on marketing, human and animal health and trade (low quality of exports-HPS); (iv) dysfunctional producer organizations/cooperatives and disorganised marketing structures with no price differential for quality; and (v) inadequate storage and processing infrastructure/facilities - limited access to technology, entrepreneurial and capital resources and organized markets. Recent policy frameworks (ANR, Trade, youth and Women Policies and the NDP) support the value chain development to enhance its contribution poverty reduction, food security and economic growth are in place. Key issues to address as enshrined in the ANR policy include:

- the institutionalisation of upland conservation and fertility restoration strategies in the farming system
- promote seed development and varietal improvement;
- to ensure availability of adequate stocks of groundnut seeds and facilitate access of these through certified seed operators;
- disseminate integration of soil fertility management practices and the use of aflasafe for suppression of aflatoxin contamination in groundnuts;
- supporting private sector input dealers to ensure timely availability of production inputs such as fertilisers and high-quality seed of improved varieties;
- promoting GAP including dissemination and adoption of appropriate practices, integrated pest management and aflatoxin control measures (introduction, promotion and dissemination aflasafe);
- up scaling and promotion of climate smart agriculture techniques;
- improving post-harvest handling and storage to reduce quality losses due to aflatoxin contamination;

- up scaling community base processing initiated and used of by-product (cake) as feed supplement and composting;
- supporting private sector development in processing (value addition) and marketing; and
- capacity development for key actors in the groundnut value chain (particularly, input provider, service providers such as NARI, DoA, FSQA, farmer organisation).

Furthermore, effective participation of these principal actors in the groundnut value chain development will maximise sub-sector contribution to poverty reduction and increased returns to the farm family.

Figure 14: Groundnuts cultivated area and production 2011 -2017



Data Source: PSU of DOA

SWORT Analysis of Groundnuts

Strengths

- Tradition and practical knowledge of groundnut farming*
- Availability of labour supply.*
- Favourable climatic conditions for production.*
- Ready availability of suitable land.*

Opportunities

- High demand in both domestic and international markets for HPS, oil and cake.*
- Proximity to western Europe and other markets.*
- River Transport for timely evacuation of nuts to the processing facilities.*
- Support for private sector development of the value chain.*
- Availability of proven aflatoxin resistant seed varieties and soil preparation inputs*

Weaknesses

- Low quality of exports-HPS due to high level of aflatoxin contamination.*
- Marketing bottlenecks.*
- Inadequate storage and processing infrastructure/facilities.*
- Poor organization of producer organizations/cooperatives.*
- No price differential among different qualities*
- Inadequate extension services on GAP*
- Inadequate exposure and access to proven modern agriculture-based technologies*

Threats

- Competition with other oil seeds and alternative crops e.g. cashew and sesame.*
- Climate change e.g. drought, floods, winds*
- Price volatility in the international market.*
- Rural-urban migration of the active workforce away from farming*
- Increasing negative impact of uncontrolled aflatoxin contamination on food security, health and trade.*
- Loss of traditional markets to competitors*

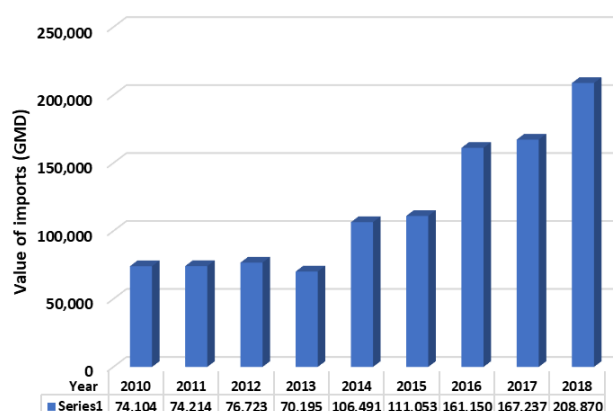
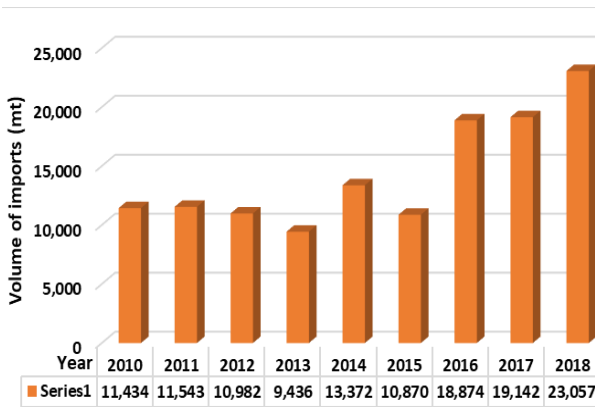
Vegetable Value Chain: The vegetable sub-sector is mainly dominated by female farmers who traditionally crop on smallholder plots within communal gardens established in low lying areas tapping groundwater for irrigation through shallow hand-dug wells. Exotic and/or improved varieties are mainly

grown during the dry season (October—March) and indigenous/traditional vegetables predominates during the rains. With public sector intervention, expanded schemes (up to 5ha) gardens are developed or being developed for women and youth farmers (GALDEP - 20; LHDP - 20, EU MDG 1c – 8; FASDEP -27; GCAV – 21; *Nema* - 21; FAO - 26 ongoing (i.e. AACC – 10, EU EDF 11 Envelope B – 7, EU EDF 11 Envelope A – 9)). These schemes are fenced and provided with watering facilities (lined wells, boreholes and solar powered water lifting devices, field reservoirs, pressurised distribution networks), nursery sheds and post-harvest infrastructure and facilities. Few medium to large firms operates in the production and export of fruits and few vegetables, namely GHE, RADVILLE and M. Kharafi and sons. With the favourable climatic condition, especially within the Western regions, availability of land and quality water resource (underground and surface water) and growing demand and market opportunities at national (tourism industry and growing urban population), regional and international levels, the sub-sector is primed to be modernized for sustained economic growth, food and nutritional security and poverty reduction as envisaged in the NHSMP. However, despite this potential and country’s proximity to the Western markets the vegetable industry, is yet to be fully developed. Sub-sector contribution to GDP stood at 4.2% despite the phenomenal growth potential (ANR policy 2017-2026). Constraints currently limiting the transformation of the sub-sector to a sustainable, modernized, diversified and export oriented include:

- Tenurial issues hindering access to land by women and youth;
- Limited skills and knowledge on production, processing and preservation (limited value addition);
- Low level of improved cultural practices (modern agricultural practice) enhancing crop susceptibility to pest and disease;
- Poor infrastructure - a result of limited skilled manpower for efficient operations and maintenance of infrastructure and facilities;
- Limited market access - disorganised marketing arrangement and the unavailability of appropriate storage and transport facilities;
- Seasonality of production due to poor production organization and weak farmer organisation;
- Limited access to micro-credit for financing for medium and small-scale farms and acquisition of production inputs;
- Weak extension support and limited skilled manpower for efficient operations and maintenance of infrastructure and facilities;
- High post-harvest losses and inadequate storage, processing and value addition facilities;
- Limited access to financing for medium scale and commercial producers;
- Limited information on horticultural data for effective planning;
- Low level of private sector investment; and
- Low economy of scale in production and limited mechanization.

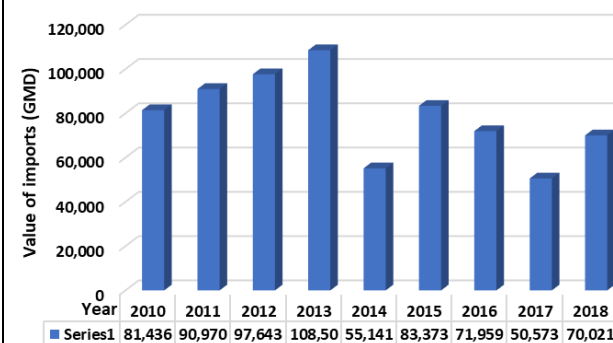
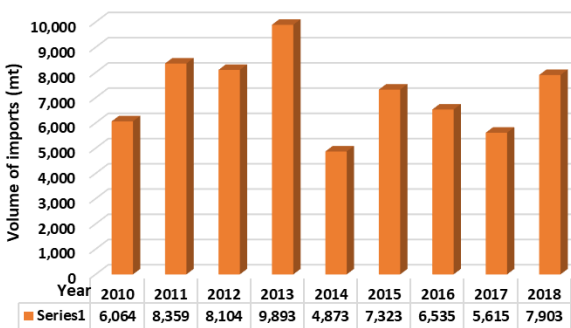
With production area revolving around 1000 ha (NIP draft NEAPAP/CAADP TCP/GAM/2906; 2015) and most being seasonal small-scale community village vegetable garden schemes producing mainly for the local market. The main vegetable priority crops include onion, pepper and tomato; however, okra, bitter tomato, aubergine and leafy vegetables are also grown by women the main actors in the vegetable industry. In the recent past complimentary schemes with potential for year-round production are being developed; these improved schemes will be targeted for the realisation of the NDP annual target of 19,000 Mt of Onion and 15,000 Mt of Tomatoes and subsequent reduction of the import bill (figures 15 and 16) on these commodities.

Figure 15: Volume and value of Onions and shallots imports 2010 to 2018



Data source: GBOS

Figure 16: Volume and value of tomato paste imports 2010 to 2018



Data source: GBOS

Cognisant of the shortfall and potential niche (high demand for onion and the existence of a certified tomato processing plant of 120 Mt input capacity per day and output capacity of 5 Mt paste) in the vegetable value chain industry. The medium-term interventions will focus on upgrading and up scaling improved development activities geared toward an all-inclusive sector. Key activities include:

- Assess and upgrade the watering facilities and security (fencing) of existing improved women and youth gardens, especially the 200ha developed by the erstwhile GALDEP and LHDP;
- Upscale the development of improved communal gardens for youth and women groups
- Provide linkage between research (NARI), producers and processors (such as GHE and GACH) to enhance value chain development and productivity;
- Upscale matching grant facility (commercial, medium level farmers/processors) to value chain actors more so women and youth entrepreneurs in the post-harvest handling, processing and marketing sector;
- Replicate the provision of improved processing and marketing facilities to women and youth groups in strategic locations (e.g. the Old Jeshwang facility provided by erstwhile LHDP);
- Upgrade/provide post-harvest processing and marketing facilities within improved communal gardens nationwide;
- Conduct training on fruit and vegetables processing and preservation techniques to reduce post-harvest losses;

- Enhance availability and access of production inputs and services (improved seeds, fertilisers – organic and inorganic, land preparation services and access to other labour-saving devices); and,
- Enhance capacity of service providers.

<i>SWOT Analysis of the horticulture value analysis</i>	
Strengths	Weaknesses
Availability of land and sufficient underground and surface water for irrigation	Limited data available for effective planning.
Proximity to western European markets particularly for the winter	Limited availability of skilled manpower for efficient operations and maintenance of infrastructure and facilities.
Long tradition and experience in production with ready availability of labour	High post-harvest losses and inadequacy of facilities for storage, processing and value addition.
Ideal climatic conditions	Limited investment by the private sector and dominated by smallholders
	Low economy of scale in production and limited mechanization
Opportunities	Threats
Substantial demand in both domestic, regional and domestic markets	Competition from imports from the region and beyond
Value addition and commercialization potential	Major outbreak of pests and diseases
Linkage with other sectors e.g. tourism and the manufacturing industry	Climate change and drops in the water table
	Non-tariff barriers e.g. SPS
	Price volatilities in the domestic and international markets

CONCLUSION: With the implementation of the aforesaid interventions geared towards the promoting value chains of food crops and vegetable, the sub-sector will effectively contribute towards improving the living standard of the value chain actors, inclusive of women and other marginalized groups and economic growth. This will be realised through the created employment opportunities and income generating capacity for the various value chains and subsequent poverty reduction. Furthermore, the promotion these value chain developments will enhance: -

- Economic viability/sustainability of the family farms and funding of private (as well as public) services out of the value chains;
- Creation of linkages between various actors (systemic competitiveness) along the value chain;
- Coordination of public and private roles in entrepreneurial development at the micro level with institutional change at the meso- and macro levels; and
- Self-reliant development - economic development process building on own initiatives.

The programme production and value chain promotion on food crops and vegetables sub sector will be implemented through the following strategic pillars elaborated in the GNAIP II: -

Strategy 1: To improve production infrastructure for priority food crops and vegetables;

Strategy 2: To enhance sustainable intensification production of priority food crops and vegetables; and

Strategy 3: To develop and promote post-harvest handling, produce transformation and marketing chains of food crops and vegetables.

4.1.2 Production and value chain promotion of the livestock husbandry and pastoralist sub-sector

One of the strategic priorities in the NDP is to modernize the agriculture and fisheries sectors for sustained economic growth, food and nutritional security and poverty reduction. This will be achieved through creating an enabling policy environment, to promote private sector led and pro-poor public investment initiatives. The goal for agriculture under the NDP is *a modern, sustainable and market oriented agriculture and livestock for increased food and nutrition security, income and employment generation, poverty reduction and economic transformation*. To realize Outcome 3.2, *Value chains enhanced for Agriculture and Livestock Transformation*, the Plan proposes the following measures to be undertaken to: identify priority value chains in agriculture (crop and Livestock), identify and strengthen the capacities of value chain actors; promote agribusiness and agro-processing, including access to finance; promote a viable agricultural marketing system, including cooperatives and commodities exchange; and adopt and implement quality assurances framework in line with National, Regional, and International standards. The key intervention for the livestock sub-sector include increased support through promotion of value chains; development of feed resources; and disease control. The NDP prioritises the development of poultry and small ruminant value chains and three livestock commodities namely, milk, eggs and meat. The ANR Policy (2017-2026) adds honey in the priority list.

To achieve the goal for agriculture under the NDP, the principal livestock commodity value chains targeted in GNAIP II are: milk, beef, mutton, goat meat, chicken meat and eggs, pork and honey.

Analysis of livestock value chains

Livestock is a key element in the mixed farming systems and plays a key role in the socio-economic development of The Gambia. The sub-sector is the second largest employer next to crops contributing 40% to agricultural GDP and 10% to national GDP. The livestock species kept in The Gambia are cattle, sheep and goats (small ruminants), chickens, pigs, horses and donkeys (Table 14). Cattle, sheep, goats, horses and donkeys, which depend largely on natural grazing and browse, account for 95% of the livestock unit (LU) population. Livestock is part of the farming systems and a means to accumulate assets, earn cash income, and provide draught power as well as manure for crops. Beekeeping is common in most villages; the activity is undertaken by rural populations for income generation. The use of equines as draught animals is well established in The Gambia. Equines are used for a variety of purposes such as land preparation, planting, weeding, harvesting, and transportation of goods, harvest and people. Donkeys are increasing being used in urban areas to transport goods and for household garbage collection. The benefits from livestock can extend beyond livestock producers, through the creation of employment in processing and marketing of livestock and their products, and in supply of livestock inputs.

Table 14. Livestock populations by region

LGA / Regions	Ruminants			Draught Animals		Pigs	Chickens	
	Cattle	Sheep	Goats	Horses	Donkeys		Traditional	Commercial
Banjul	0	409	166	0	0	0	1,452	91
Kanifing Municipality	5	4,922	3,920	10	40	2,064	38,485	10,489
West Coast	37,643	23,325	66,667	504	5,916	9,904	305,302	26,114
Lower River	26,371	11,852	26,462	787	5,263	102	58,560	1,975
North Bank	64,483	21,771	60,306	5,443	13,715	2,444	162,242	7,145
Central River-North	44,541	18,912	46,588	3,908	7,969	49	74,732	1,587
Central River-South	44,211	29,461	38,294	3,119	8,563	73	104,440	2,807
Upper River	75,583	62,010	85,933	8,299	25,184	194	141,567	963
Total population	292,837	172,662	328,336	22,070	66,650	14,830	886,780	51,171

Source: National Livestock Census, 2016

Cattle milk and beef value chains

Milk and meat produced in The Gambia originate from the N'Dama cattle herds raised by farmers operating mixed farming/agro-pastoral⁸ systems; the production system is characteristically extensive and low input. The N'Dama cattle is the predominant cattle breed in The Gambia. The national cattle herd was estimated at 392,287 in 2011; the 2016 National Livestock Census (NLC, 2016) estimated the population at 292,837 head (equivalent to 146,419 LUs) or 62% of total LUs) comprising 98% N'Dama; less trypanotolerant Zebu/Gobra and 'other breeds' of cattle accounted for the remaining 2%. From 2011 to 2016, the cattle population declined at an annual rate of 5%. Various diseases normally have negative effects on the numeric growth of cattle; the 2016 NLC revealed that diseases accounted for 53% of all exits from the national cattle herd. Average herd size is estimated at 56 head, 67% of which are female. The NLC (2016) reported a higher men cattle ownership, 85%. Ownership of cattle by women is very important at the household level given that the women are responsible for the management of the milk derived from the herds. Cattle are present in all the regions, but CRR-N (44,541) and CRR-S (44,211) combined have the highest cattle population at 88,752, followed by URR (75,583), NBR (64,483); WCR (37,643) and LRR has the least (26,371).

The N'Dama raised by agro-pastoralist are well-adapted to the local environment, but under the current management systems, reproductive and productive performances are low. The parameters that impact on cattle productivity include age at first calving, calving rate and calving interval; these were estimated at 5 to 6 years, 47 to 52% and 23 to 25 months (Jeannin et. al., 1987); calf mortality (at first year of life) was estimated at 14 to 24%. Surviving calves grow very slowly, weighing 70 kg at one year of age. Calving patterns show marked seasonal variations with peak calving occurring between August and December; conception period is thus between November and March, the early part of the dry season which coincides with the availability of crop residues.

Dairy value chain

The five main categories of actors in dairy value chain are the producers, collectors, processors and vendors, suppliers and service providers and consumers. The inputs of the dairy value chain include the live animal, feeds and water, drugs and vaccines; and the service providers are mainly from the public and private sectors.

⁸ The mixed farming systems are characterised by diversity in crop and livestock production with the crop production systems comprising cereals, leguminous crops, vegetables and fruit, trees whilst the livestock systems comprise cattle, small ruminant and poultry.

Traditional smallholder producers / agro-pastoralist are the main milk producers. Milk production is largely seasonal with more milk being available during the rainy season when more quality feeds are available. Most cows are milked twice per day during the rainy season; once in the morning and once in the evening. The average length of lactation for N'Dama cow is 375 days. Average milk production is estimated at 1.2 litres per day. The quantity of milk off-take is either self-consumed, or sold.

There are two distribution channels for milk, the informal and formal channels. Milk from the traditional herds are marketed as raw or naturally ferment milk through the informal channel. The main actors in the informal channel are the producers, the collectors and the vendors. The linkages among key actors ensure a ready market for milk. The milk vendors, who are mostly women, get their milk either from the collectors or directly from the producers. Milk, which is locally produced and offered as raw or fermented milk, poses a public health risk for consumers as the products are highly contaminated with coliform bacteria as well as other potentially pathogenic bacteria (Hempen, et al 2003). Post-harvest losses along the value chain are high due to the high ambient temperature and lack of cooling facilities. Small-scale milk processing technologies to improve the quality of milk and the production of a range of products that have been promoted in The Gambia were however not sustained. Locally produced yoghurt is one of the milk products commonly purchased, especially in peri-urban areas, but only small quantities are produced from locally produced whole milk; the vast majority of the yoghurt found in the market is produced from imported powdered milk. This is an opportunity to establish business linkages between yoghurt producers and milk producers. The formal marketing channel comprise super- and mini-markets and other local outlets.

The key challenges associated with the traditional milk production system are limited milk production potential of the N'Dama cow; lack of year-round good feed supply accentuated by recurrent bush fires; high prevalence of diseases, high calf mortality (at first year of life) estimated at 14 to 24% which limits milk let down and represents a loss of replacement stock; poor milk handling techniques / food safety and quality; and inadequate availability of extension / advisory services. The operations of the milk collectors are hampered by limited access to appropriate means of transportation to enable them collect milk from remote areas, lack of finance to purchase milk in large quantities, and cooling facilities to keep the milk fresh until it reaches the market. The milk vendors in the informal market also lack appropriate storage and marketing facilities; milk marketing is usually conducted in open areas with the products exposed to direct sunlight which could lead to rapid deterioration posing a potential health risk to consumers.

The growing demand for milk and milk products due to population growth and urbanization has presented opportunities for the development of commercial peri-urban milk production systems. In 1994, the International Trypanotolerance Centre (ITC), now known as West African Livestock Innovation Centre (WALIC), initiated an on-station crossbreeding program using imported Jersey, Holstein-Friesian and Holstein semen. Following on-station testing of the First Generation (F1) crosses, the programme was initiated on-farm in the low trypanosomiasis risk areas in Western Region. Daily milk production for the Friesian F1s was estimated at 4.6 kg per day and for the Jersey F1s, the estimate was 3.5 kg. However, the number of these improved cattle are limited. The challenges faced by commercial peri-urban milk producers raising crossbreds include non-availability F1s, low AI success rates leading to low calving percentages, restricted availability of low-cost feed sources, and high cost of purchased feed inputs, prevalence of diseases and poor support services. Potential commercial dairy development will require strong public and private sector investments in the provision of efficient AI services and animal health.

SWOT analysis of the dairy value chain

Strengthens

- Inclusion of milk as a priority commodity in the NDP (2018-2021)
- Livestock breeds are adapted to the environment
- Production system extensive with low production costs
- Availability of quality feeds in wet season and post-harvest.
- Experience and culture in livestock and milk production
- Involvement of women in milk processing and marketing

Opportunities

- High demand for milk and milk products
- Available technologies to improve production traits through selection within the existing population and cross-breeding with exotics.
- Availability of technologies to conserve feeds – hay, crop residues
- Availability of milk processing technologies
- Increase income, food security and welfare of producers/processors/marketers, particularly women and youth
- Opportunity for private investment in the processing sector

Weaknesses

- Low genetic potential of the N'Dama for milk production
- Prevalence of diseases
- Inadequate animal health delivery and extension services
- Deficiencies in animal feed both in quality and quantity due to degraded rangelands,
- Inadequate watering facilities
- Seasonal variation in milk output
- Poor milk handling techniques / food safety and quality
- Lack of storage and processing facilities; milk is highly perishable
- Non-existence of livestock breeding policy and strategy
- **Threats**
- Dwindling grazing resources as a result of expansion of cropping areas
- Climate change – low rainfall/drought leading to poor feed production
- Disease outbreaks, including zoonotic diseases
- Low private sector involvement

Beef value chain

There is general consensus that Gambian farmers do not raise cattle primarily for meat, however, surplus males, old female cattle and draught oxen are sold when there is a need for cash. Cattle raised under the mixed farming/agro-pastoral system are not fattened before they are offered for sale. Annual off-take rates for village herds are estimated at 9.1% but this could be lower following years of drought or disease outbreaks when mortalities are high. Average body weight of cattle sold by farmers was estimated at 208 kg. Pre-slaughter live weights of cattle are on average 279 kg; this suggests that cattle dealers may fatten the animals before slaughter. There are no commercial farms producing beef in The Gambia. The main constraints to beef production are low growth rates with mature animals losing between 10 to 25 % of their body weight in the dry season, prevalence of diseases, inadequate feeding and scarcity of watering points.

Sale of live animals mainly takes place at farm gate or at the *loumos* or weekly markets. The middlemen or livestock dealers, who operate in the *loumos* are the main links between the producers and the market. The animals bought at the *loumos* are transported to terminal markets (Abuko and Brikama) where they are sold or loaned to butchers. Urban butchers may also buy animals on-farm or at the *loumos*. The sub-regional markets of Senegal, Mali, and Mauritania also serve as sources of live animals.

Slaughtering of cattle are conducted at the abattoirs and slaughter slabs. These facilities do not operate under internationally compliant standards for food safety and animal welfare. The retailing of beef is conducted by butchers in the municipal markets, butcher shops and kiosks in both urban and rural areas.

Whilst the neighbourhood butcher shops are protected by screens, the infrastructure in the municipal markets are exposed, which can lead to contamination. There are also a number of modern butcher shops and super markets, including the Butcher Shop, Kairaba Shopping Centre, Safeway Supermarket and Central Butchers with facilities to process and retail beef. The livestock trade is dominated by traditional dealers and butchers who do not have adequate resources and capacity.

The livestock dealers are faced with a number of challenges including inadequate working capital, high cost of transportation, inadequate or absence of basic facilities like shade, feeding and watering facilities at the *luomos*. The major constraints besetting the marketing of livestock and its products are insufficient capital to purchase live animals for slaughter; sub-standard nature of the marketing infrastructure including slaughtering, processing and handling facilities (e.g., lack of water and, cold storage facilities); lack of training in meat handling, hygiene, cutting techniques and grading.

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SWOT analysis of the beef value chain

<p>Strengthens</p> <ul style="list-style-type: none"> • Inclusion of beef as a priority commodity in the NDP (2018-2021) • Livestock breeds are adapted to the environment • Production system extensive with low production costs • Availability of quality feeds in wet season and post-harvest <p>Opportunities</p> <ul style="list-style-type: none"> • High demand for meat and meat products • Available technologies to improve production traits through selection within the existing population and cross-breeding with exotics. • Availability of technologies to conserve feeds – hay, crop residues. • Opportunity for private investment in the processing sector 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Slow growth rates of cattle • Prevalence of diseases • Inadequate animal health delivery and extension services • Deficiencies in animal feed both in quality and quantity due to degraded rangelands • Inadequate watering facilities • Inadequate marketing and processing facilities <p>Threats</p> <ul style="list-style-type: none"> • Dwindling grazing resources as a result of expansion of cropping areas • Climate change – low rainfall/drought leading to poor feed production • Disease outbreaks, including zoonotic diseases • Low private sector involvement
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Small ruminant value chain

The small ruminant population comprises trypanotolerant *Djallonke* sheep and the West African Dwarf (WAD) goats. The *Djallonke* constitutes 97% of the sheep population, followed by Sahelian breeds (2%) and crosses between the *Djallonke* and Sahelian (1%). The WAD goat breed constitutes 99% of the goat population. The NLC (2016) estimated the sheep and goat populations at 172,662 (equivalent to 17,266 or 7% of the total LUs) and 328,336 (equivalent to 32,834 or 14% of total LUs), respectively. From 2011 to 2016, the sheep population declined by an annual rate of 0.8%, but the goat population grew by an annual rate of 1.6%. The 2016 Livestock census reported that diseases accounted for 47 and 50% of all exits from the sheep and goat flocks, respectively. Women own 51% of the sheep (NLC, 2016), 67% of the goats (ILRI, 2010). The regional distribution of sheep is as follows: URR 62,010; CRR-S 29,461; WCR 23,325; NBR 21,771; CRR-N 18,912; LRR 11,852; KMC 4,922; and Banjul 409.

Two small ruminant production systems are practiced in The Gambia, the traditional village production system and the commercial system; the commercial system can be intensive or semi-intensive.

The traditional sheep and goat production system is extensive, low input and is characterized by free roaming during the dry season and herding and/or tethering to avoid the destruction of crops during the growing season. Sheep and goats are normally housed off the ground at night, particularly in the wet season, for security and to reduce the incidence of foot rot. The animals are provided with water twice a day - in

the morning before they are released for grazing and also in the evening when they return. The small ruminants raised by agro-pastoralist are well-adapted to the local environment. Reproductive parameter for sheep are as follows: age at first parturition, lambing rate and parturition interval are estimated at 12 to 18 months, 31% and 19 to 28 months. With regards to goats, the estimated reproductive parameters are: age at first age at first parturition, kidding rate and parturition interval are estimated at 12 to 18 months, 52% and 22 to 25 months; lamb mortality (at first year of life) was estimated at 14 to 24%.

Current off-take rates for sheep and goats are estimated at 22.3 and 25.1%, respective. *Djallonke* sheep have an average weight of 20 to 30 kg for females and 25 to 35 kg for males with an average carcass weight of 14kg. WAD goats weigh about 18 to 20 kg and carcass yields 13 kg.

Two main types of commercial small ruminant production systems are practiced in The Gambia: the intensive and semi-intensive. Sheep fattening is an intensive market-oriented activity aimed mainly at satisfying ceremonial demand for rams and is undertaken by rural, urban, and peri-urban farmers, including women and youths. The semi-intensive system, which is limited to sheep, is a market-oriented breeding and fattening enterprise based on grazing natural vegetation during the rainy season and confinement, collection and feeding of crop residues (groundnut hay) during the dry season. Other investments in the system include feeding purchased inputs such as concentrates and adequate health care.

Small ruminant breeding is not controlled due to the management system of free roaming during the dry season. Small ruminants improvement programmes based on crossbreeding are being implemented in The Gambia. Because of the *Djallonke's* small size, farmers have resorted to crossing the *Djallonke* ewes with Sahelian breeds (*Touabire* or *Peul Peul*) in order to produce offspring with high growth rate, big format and white coat colour as these rams fetch a premium price at *Eid-al-Kibr* or *Tabaski*. A pure breeding programme similar to that of cattle was initiated in 1995 and promoted by PROGEBE.

Small ruminants are marketed at farm gate, *loumos* and terminal markets. The demand and price of small ruminants, especially sheep, dramatically increases around *Idul Adha/Tobaski* celebration. Prices drop when the farmers have urgent cash needs to buy food, pay school fees and in the event of crop failures. Slaughtering is conducted in the abattoirs and slaughter slabs. Meat retailing is conducted by butchers in the municipal markets, butcher shops and kiosks in both urban and rural areas. The majority of the small ruminants slaughtered in the country are sold as *afra* or roast meat.

The main constraints to small ruminant production are frequent diseases outbreaks (PPR) and inadequate supply of feeds. The livestock dealers are faced with a number of challenges including inadequate working capital, high cost of transportation, inadequate or absence of basic facilities like shade, feeding and watering facilities at the *lumos*. The major constraints besetting the marketing of livestock and its products are inadequate marketing and processing infrastructure.

SWOT analysis of the small ruminant value chain

Strengthens

- Inclusion of small ruminants in the NDP (2018-2021) as a priority value chain to be promoted
- Small ruminant breeds are adapted to the environment
- Small ruminants are less affected by drought; utilise browse and marginal land effectively
- Source of survival, asset accumulation, food and nutritional security for poor
- Low initial investment cost
- Production system extensive with low production costs
- Availability of quality feeds in wet season and post-harvest

Opportunities

- High demand for small ruminant meat
- Available technologies to improve production traits through selection within the existing population and cross-breeding with exotics.
- Availability of technologies to conserve feeds – hay, crop residues.
- Increase income, food security and welfare of producers/processors/marketers, particularly women and youth

Weaknesses

- Prevalence of diseases
- Inadequate animal health delivery and extension services
- Deficiencies in animal feed both in quality and quantity due to degraded rangelands
- Inadequate watering facilities
- Inadequate marketing and processing facilities

Threats

- Dwindling grazing resources as a result of expansion of cropping areas
- Climate change – low rainfall/drought leading poor feed production
- Disease outbreaks

Poultry

The national poultry flocks comprise local and exotic chickens, ducks and guinea fowls. The commercial poultry producers use exotic breeds for egg and meat production. The number of local and exotic chickens were estimated at 886,780 and 51,171, respectively; and the number of ducks and guinea fowls were estimated at 43,726 and 17,015, respectively. The number of local chickens declined at annual rate of 2.3%, from 2011 to 2016. Regional distribution of local chickens is as follows: WCR 305,302; NBR 162,242; URR 141,567; CRR-S 104,440; CRR-N 74,732; LRR 58,560; LRR 58,560; KMC 38,485; and Banjul 1,452.

Poultry value chains

Village or backyard poultry value chain

The village or backyard production system (the low in-pu system) is the most prevalent in the country. Management is the domain of women and children and is characterised by scavenging with some husbandry practices including supplementary feeding, provision of water, housing and occasional vaccination, primarily against NCD. Average flock sizes, described in terms of flock structure, is on average 4 hens, 2 cocks, 6 growers and 5 chicks. Annual egg production is estimated at 23 per hen weighing 36 grams. Productivity of village chicken production systems is low due to low egg production (23 eggs per hen), production of small sized eggs (36 grams), slow growth rate resulting in late maturity, and high mortality of chicks. In spite of the low productivity, poultry are an important subsidiary source of nutrition, food security and a valuable source of income for poor households. Indigenous poultry meat is highly valued for its taste, both in rural and urban markets, and prices are higher than commercially produced birds.

Crossbreeding programmes have been implemented in order to increase live weight and egg production in local chickens. Development projects and NGOs have been facilitating commercial poultry production

using exotic chicken breeds. They provide in-kind support such as day old chicks, feeds, construction of housing, vaccination, management and identifying markets.

Marketing of local chickens is conducted at the household level (farm gate), on road sides, in primary markets (*loumos*) and in municipal markets. The middlemen, who are live bird collectors and distributors, play a crucial role in the marketing of live birds originating from the village backyard production systems. The collectors sell their birds at the *loumos* or transport them to urban centres where they are kept in cages. The birds are either sold live, or slaughtered and defeathered at the request of the buyer. These facilities in the urban markets lack basic hygiene and sanitary facilities.

The key challenges facing the traditional sector are: high mortality; NCD is the major cause of mortality in village chicken production. The occurrence of the disease is seasonal with the outbreaks starting around April through July coinciding with the beginning of the rainy season (June/July). The peak of the outbreaks occur between April and May when the highest death rates are recorded. Most producers are aware of the challenge and means of control but the availability of vaccines and service support are generally inadequate. Control of NCD is critical to the improvement of the traditional poultry sector. Predators such as birds of prey, cats and dogs and wild animals are also major causes of mortality; improved housing could alleviate the problem.

Commercial poultry value chain (Broilers and layers)

Commercial poultry production is mostly practiced in the Kanifing Municipality and Western Region where markets and infrastructure exist. The system is characterised by high input utilization and is dependent on imported day-old-chicks (DOC) and feed. Cost of feeding accounts for about 60% of production costs, which makes the sector less competitive vis-à-vis imported poultry products. The birds are kept indoors on deep litter and provided with compounded feed. The producers generally follow recommended vaccination programmes. Levels of biosecurity measures vary from moderate to low, depending on location, ability and willingness of the proprietor to maintain standard operating procedures.

Most of the marketing of broilers by commercial poultry growers in the GBA area is conducted at the production sites and involve the selling of live birds and culled layer birds to individual consumers, or middlemen. Some producers in the GBA slaughter, process and package on-farm. Their facilities are mainly inadequate in terms of meeting Good Hygienic norms. Eggs from commercial farms are sold at farm gate to consumers, or retailers and supermarkets.

The challenges faced by layer and broiler producers include inadequate supply of day old chicks, irregular access to and high cost of quality feed, fluctuations in the prices of eggs and inadequate market outlets which lead to glut and egg spoilage, inadequate or absence of broiler processing facilities, inadequate technical skills and entrepreneurship. The sector requires strong private sector investments in production of day-old-chicks and feed milling; and public sector investment in animal health systems.

SWOT analysis of the poultry value chain

Strengthens

- Inclusion of small ruminants in the NDP (2018-2021) as a priority value chain to be promoted
- Local poultry breeds are adapted to the environment
- Traditional production system extensive with low production costs
- Involvement of women in production
- Trained extension agents to support producers
- Availability of basic infrastructure for feed production and for hatching within the private sector for sustainability of the industry.

Opportunities

- High demand for poultry products
- Available technologies to improve production traits through selection within the existing population and cross-breeding with exotic.
- Increase income, food security and welfare of producers/processors/marketers

Weaknesses

- Low genetic potential of the indigenous breeds/slow growth rates
- Prevalence of diseases
- Low level of biosecurity in traditional production systems
- Inadequate animal health delivery and extension services
- Inadequacy of infrastructure for slaughtering, processing, preservation, cold storage, and distribution
- Non-existence of breeding policy and strategy
- Absence of regulation on processing

Threats

- Outbreak of diseases with huge mortalities
- Low levels of biosecurity in traditional production systems and municipal markets leading to potential major disease transmission and municipal markets leading to potential major disease transmission
- Cheap imports of poultry meat and eggs.
- Poor quality standard of the major input of commercial poultry production, feed, supplied by commercial plants: lack of mandatory quality control regulations

Pig value chain

The main breed of pigs reared in The Gambia are the West African Dwarf which constitute 88% of the population, crossbreeds 9% and other breeds make up the remaining 3%. The population, estimated at 14,830, declined by an annual rate of 0.2%, from 2011 to 2016. Frequent outbreaks African Swine Fever (ASF) has implications for pig production. In 2016, 51% of the pigs were owned by women. The main pig production systems can be classified into three: (i) intensive, (ii) semi-intensive and (iii) extensive system (free-range); 63, 28 and 8% of the producers practice intensive, semi-intensive and free range systems. The free-range system is characterized by scavenging on garbage in the streets, feeding of swill and confinement at night in simple sheds. Under the intensive and semi-intensive system, farmers use swill as well as groundnut cake and bran as feed; the animals are housed in suitable pens. There is lack of productivity data regarding pigs. The constraints encountered by producers are disease outbreaks, notably ASF, high cost of drugs and vaccines and inadequate feed. Attention should be focused on interventions aimed at controlling the major factors limiting sustainable improvements in the pig production systems. Putting in place biosecurity measures to prevent and control ASF could have a positive impact on household food security and income generation for pig farmers.

Marketing of pigs is at farm gate through individual consumers or butchers. Christmas is the most active marketing period. Currently there are no public facilities for marketing or slaughtering for pigs in any of the municipal markets, consequently, marketing of live pigs and slaughtering are conducted on farm. The major constraints encountered in marketing revolve around inadequacy of processing and cold storage facilities, absence of live pig markets, absence of slaughtering facilities and lack of stalls in municipal market.

SWOT analysis of pig value chain

Strengthens

- Pig breeds are adapted to the environment
- Involvement of women in production

Opportunities

- Available technologies to improve production
- Increase income, food security and welfare of producers/processors/marketers
- Opportunity for private investment in the processing sector

Weaknesses

- Outbreak of diseases (ASF) with high mortalities
- Inadequate animal health delivery and extension services
- Low awareness of biosecurity measures
- Inadequate marketing and processing facilities

Threats

- Disease outbreaks (ASF), including zoonotic diseases
- Inadequate feeds

Apiculture value chain

The actors in the apiculture value chain include producers, handlers, processors, distributors to end markets. Beekeeping is common in most villages and is characterized by a large number of smallholder farmers using locally made or modern hives. Farmers using local hives, produce about 1 to 2 litres of honey per year, whilst those using modern hives produce 5 to 8 litres per year. The major constraints at the production level are frequent bush fires, the burning practices contribute to destroying all or some of the bee colonies; fragile vegetation cover or woodlands which serve as sources of pollen and nectar, the two major ingredients for honey production; limited access to appropriate beekeeping equipment; limited skills in beekeeping; inadequate supply of honey, processing materials, poor packaging, market linkages and networks; and the existence of numerous competing beekeeping organizations; and lack of a policy framework.

Demand and supply of livestock products

The population of The Gambia is projected to grow from 1,857,181 in 2013 to 2,635,738 in 2025. Over 50 % of the population live in urban centres; the rate of migration from rural to urban centres is expected to continue. These demographic trends, i.e. population growth rate of 3.3% per annum and urbanisation, will further increase the demand for animal source foods in urban areas. Based on the 2016 livestock populations and current offtake rates, domestic supply of meat is as follows: beef: 27,714 .; mutton: 539 .; goat meat: 1,071 .; pork: 408 .; poultry meat: 388 . During the same year, 251, 203 and 617 of beef, mutton and poultry meat were imported. Thus, the total demand for meat was 31,191 and the estimated per capita consumption was 14kg per annum.

With regards to milk, there were 43,925 milking cows in the national herd and domestic production was estimated at 19.8 million litres; 19.4 million litres were imported. Thus, the total demand for milk was 39.19 million litres and the estimated per capita consumption was 18 litres per annum. In 2016, commercial egg producers produced about 2.88 million eggs and imports were equivalent to 60.56 million. Total egg demand was estimated at 63.44 million and the estimated per capita consumption was 29 eggs or 1.5 kg per annum.

Climate change

Climate change affects livestock production both directly through impacts on livestock performance, and indirectly through impacts on the environment. The direct effects of climate change on animal health and production are the result of increased ambient temperature. The indigenous livestock breeds are able to

adapt to higher ambient temperatures but production losses in terms of growth, reproduction and milk production will occur. However, exotic breeds and their crosses are less heat tolerant. Higher temperatures and humidity have a negative effect on food intake of birds, thus reducing the productivity of poultry.

Decline in rainfall; shorter rainy season; and, increased inter-annual rainfall variability are the most important climate risks faced by farmers. Increased frequency and severity of drought events directly impacts livestock production; the impact is manifested in changes in the quality and quantity of rangeland vegetation on which the ruminant livestock depend for their sustenance, and loss of productivity in croplands which reduces the quantity of crop residues. Water and heat stress in particular are expected to take a heavy toll on perennials and shallow-rooted forage species in rangelands. The decline in feed quantity and quality leads to nutritional stress; reduction in milk production; slow growth rates; decreased reproductive rates; loss of disease resistance; and increased mortality rates.

Notable adverse climate that indirectly impacts animal production include the rapid spread of animal diseases. Movement of animal (transhumance), and congregations and sharing of water and food resources contribute substantially to the spread of important trans-boundary diseases, such as FMD, PPR and CBPP. Increase in rainfall and floods leads to increases in the prevalence of skin diseases, anthrax and foot rot. Lumpy skin disease is an economically important cattle disease causing severe losses, such as damage to hides, mortality and losses in production and reproduction.

In cognisance of the adverse impacts of climate change, the following measures and opportunities for building resilience to climate change have been identified: promote the use of resilient livestock breeds e.g. N'Dama, Djallonke, local poultry; consolidate the genetic improvement programmes of locally adapted breeds; improve animal health services; increase fodder production; improve feed conservation techniques and access to supplements; demarcate and rehabilitate rangelands; promote intensive livestock production in certain agro-ecological zones.

Inputs and support service providers

The inputs needed to sustain the livestock value chains include feed (both grazed and purchased), animal health/veterinary services, research and extension, breeding and artificial insemination, and finance and credit.

Ruminant feeds

The feed resources available for the ruminant meat and milk production include forages from rangelands – the main sources of forage for most of the year; crop residues (maize, millet, sorghum stovers; rice straw and groundnuts) and crop by-products (millet, sorghum and rice bran, groundnut cake). About 40% or 371,200 ha of the total land area are regarded as rangeland. Rangeland productivity and species composition vary according to agro-ecological zone. Quality and quantity of the natural pasture vary with season subjecting animals to nutritional stress in the dry season when feed resources are senesced and in short supply leading to decreased animal productivity. Currently there are no lands reserved for grazing; reserved grazing areas can provide needed fodder when other sources of feed are limited towards the end of the dry season.

Rangelands are under pressure due to climate change and the loss of traditional grazing areas to the encroachment of agriculture. Lack of proper identification of the tracks and the current expansion of crop production are contributory factors to encroachment. Conflicts do occur between crop farmers and livestock herders as traditional grazing areas have declined. Other factors determining the availability of feeds on rangelands include the occurrence of bush fires. Past government interventions to improve management of

pastoral infrastructure and transhumance include establishment of deferred grazing areas⁹, establishment of livestock watering points and stock routes, and introduction of local conventions¹⁰. These successful interventions would be promoted under GNAIP II.

Animals also have access to crop residues after the harvest. The quantities of the different crop residues produced depends on the total area cultivated, the crop variety, inputs (such as fertilizers) as well as the amount of rainfall received. The cereal crop residues are normally grazed *in situ*. Groundnut hay is the only crop residue collected because of its high feeding value and thriving market. The expansion of cropping lands leads to increased production of crop residues. The strategies adopted by cattle owners to alleviate feed shortage include storage of crop residues and hay collection. Transhumance¹¹ is also practiced (both during the cropping and dry seasons) to cope with feed shortages.

Non-ruminant feeds

Access to feed (availability and affordability) is the most prohibitive constraint to poultry production. Commercial poultry producers rely on imports of compounded feed rations from neighbouring Senegal. The difficulties experienced by feed millers is the sourcing maize which constitutes 60% of poultry compound feed. This presents an opportunity for women and youth farmers to be supported to embark on maize farming. Fish meal and groundnut cake, important sources of protein, are available in the country. The locally produced groundnut cake could however be contaminated with aflatoxin; feeding of aflatoxin contaminated feed to poultry leads to reduced feed intake, reduced growth rate and poor feed conversion efficiency. Commercial poultry farmers have raised concerns about the feed quality therefore, the supply of poultry feeds need to be regulated to ensure compliance with feed quality and safety standards including Hazard Analysis Critical Control Points (HACCP), Good Manufacturing Practice (GMP), and monitoring of contaminants. Under the traditional poultry production systems practiced in rural areas, feeds consist of locally available resources like household food waste, agricultural by-products. Pig farmers use swill as well as groundnut cake and bran as feed. There is limited knowledge of feed ration formulations using local resources.

Animal Health and veterinary services

Animal health is a key element in the productivity and profitability of livestock production enterprises, and, in certain cases, impacts human health. The most common diseases to which cattle are vulnerable to include Anthrax, Haemorrhagic septicaemia (HS), Blackquarters (BQ), foot-and-mouth disease and ecto- and endo-parasites. After forty-one years of absence, Contagious Bovine Pleuropneumonia (CBPP) re-emerged in the Gambia in 2012. With regards to small ruminants and pigs, PPR, Pasteurellosis and gastro-intestinal parasites, and ASF, respectively, are of major importance. The high prevalence of diseases in the country presents a big challenge to the livestock industry. Animal diseases cause major economic losses through mortality, reduced productivity, lower fertility, condemned products and restricted access to potential markets. Diseases and parasites also limit the animal's ability to express its genetic potential. Calf mortality is of paramount importance as it implies a loss of future breeding stock, milk production and slaughter stock. Mortalities due to PPR and NCD could reach 12% to 20% in small ruminants and 90% in rural

⁹ Deferred rangelands are protected forage reserves, often reseeded to improve productivity, and managed for optimum livestock grazing during a specific season of the year.

¹⁰ A local convention is an Agreement document obtained by general consensus on sets of rules, roles and responsibilities to be used by communities and local authorities, as a management tool for the sustainable use and management of their natural resources.

¹¹ Transhumance can be defined as "a system of animal production characterised by seasonal and cyclical migration of varying degrees between complementary ecological areas and supervised by a few people, with most of the group remaining sedentary".

poultry, respectively. ASF is ranked first as cause of disease-related pig mortality, with epidemics characterized by a high case fatality rate, often up to 100%.

One of the core mandates of DLS is to control and eradicate livestock diseases and safeguard public health. Efforts to control diseases have suffered major setbacks as no routine countrywide mass vaccination campaigns have been conducted primarily due to inadequate funding. However, since 2012, the government has been conducting mass vaccination campaigns to control CBPP. The issues related to disease control are: weak national veterinary services, inadequate livestock disease surveillance, control and early warning systems; low vaccination coverage, inadequate preparedness and emergency response plans for disease control and prevention.

The main sources of veterinary drugs and vaccines are DLS and private veterinary service providers (professional veterinarians and para-vets). DLS provides animal health services that have public good characteristics (disease control measures, such as disease surveillance, eradication campaigns, quarantine and movement controls). The Department has put in place an epidemiological surveillance system (passive and active surveillance) for the detection and reporting of Trans-boundary Animal Diseases (TADs). The Epidemiology and Information Unit is responsible for the coordination of the surveillance system. Sanitary Defence Committees have been established at regional and district level for timely detection and reporting of suspected disease outbreaks. The Central Veterinary Laboratory offers services for disease diagnosis and testing of food samples. DLS also conducts meat inspection services at the abattoirs and slaughter slabs on behalf of the Food Safety and Quality Authority (FSQA). Private veterinarians are involved in providing clinical services and sale of drugs in the urban areas. Shortage of veterinarians in the public sector (there are only two public veterinarians), absence of policies to foster the development of private sector veterinarians are considered as challenges.

Institutions in the livestock value chains

Livestock research

National Agricultural Research Institute (NARI) and West Africa Livestock Innovation Centre (WALIC) are the principal centres that conduct livestock research in The Gambia. NARI conducts adaptive and applied research on crops, livestock, forestry, fisheries, and other natural resources to provide technological solutions for producers and to inform policymakers on options for sustainably increasing agricultural productivity, while protecting the environment and natural resource base. The capacity of NARI to conduct livestock research is however limited as it currently has only one livestock researcher, inadequate infrastructure and equipment, and limited funding. The current research infrastructure, equipment, mobility and human resource capacities need to be upgraded to support the generation and transfer of livestock technologies.

West Africa Livestock Innovation Centre (formerly International Trypanotolerance Centre) has identified four strategic thematic areas for implementation: genetic improvement, conservation and enhanced use of West African livestock, capacity development of actors along livestock value chains, knowledge management and advocacy and partnership brokerage. Currently, WALIC is implementing the following activities: the cattle and small ruminant pure breeding programmes in collaboration with the DLS and the Gambia Indigenous Livestock Multipliers Association (GILMA), capacity building of value chain actors, cross breeding in cattle and disease assessment. The Centre has trained and equipped ten AI technician and has a stock of Holstein semen previously imported from Senegal. The Centre produces and disseminates selected breeding bulls, rams and bucks to breeders and provides AI services. Future development of a crossbreeding programme should take into account previous experiences, the availability and accessibility

of reliable feed supply and veterinary care, the environment and the management capacity of the targeted farmers.

The centre is still in its transitional phase; a broad-based and representative Board comprising The Government of The Gambia as the host country; civil society organizations (farmers organizations, NGOs); the private sector; regional (ECOWAS) and sub-regional (CORAF/WECARD) organizations; development partners; NARS from participating ECOWAS member states; and experts with qualification and experience relevant to the Centre. However, the Board has not met since its creation. In addition, the Chief Executive Officer is yet to be appointed. The Centre is currently being managed by a Gambian Officer-in-Charge assisted by a core of technical and ancillary staff. The challenges facing the Centre include lack of adequate resources – manpower and budgetary support (no external funding at the moment).

Under the plan, WALIC will be supported to continue the cattle and small ruminant pure breeding programmes aimed at increasing animal output per head among trypanotolerant N'Dama cattle, Djallonke sheep and West African Dwarf goats while retaining their resistance to diseases. Breeding goals have been set to increase milk and meat production for cattle and goats, and to increase meat production in sheep. DLS, in close collaboration with GILMA, will play the major role in disseminating the achieved genetic progress from the nucleus into village herds.

Livestock extension

The Department of Livestock Services plays a key role in knowledge and technology transfer. The functions of DLS are the implementation of government policies on livestock; control and eradication of endemic, epizootic and other diseases; provision of laboratory diagnosis services; promote the development of appropriate technologies on management, breeding, nutrition and housing of livestock; meat inspection (on behalf of FSQA). The Gap Analysis conducted by OIE in The Gambia in June 2012 indicates the need for an additional 18 veterinarians and 74 veterinary technicians to make the official veterinary service compliant with OIE recommended standards. The department will be supported to strengthen its capacity to control animal diseases and provide extension and advisory services to livestock value chain actors. The provided support will include staff training and provision of infrastructure and mobility.

Gambia Livestock Marketing Agency: The Gambia Livestock Marketing Agency (GLMA) was established to promote the commercialization and marketing of livestock and to facilitate the participation of Gambians in livestock marketing. Over the years, GLMA has made significant strides to strengthen the livestock marketing systems through the establishment and maintenance of abattoirs and slaughter facilities, building the capacity of butchers, producer associations and associated value chain actors. Under the plan, GLMA, working closely with DLS and the local government authorities (LGAs), will facilitate the upgrading of livestock marketing outlets, establish a Livestock Marketing Information System (LMIS) and build the capacities of value chain actors in the meat supply chain.

The Gambia Veterinary Council (GVC): The Gambia Veterinary Council is mandated by the Veterinary Council Act 2000 to regulate and uphold the standards of veterinary practice, ensuring that competent veterinarians and para-veterinarians are registered and their knowledge and skills updated. The Council lacks sufficient funds and capacity to enforce the Act.

The National Livestock Policy Hub: The National Livestock Policy Hub, comprising various stakeholders, was established in 2014 and is mandated to lobby, advocate and create awareness for the development of the livestock sub-sector. Limitations for its operations are funding, organizational framework, and capacity.

The National Livestock Owners Association (NaLOA): The National Livestock Owners Association (NaLOA) was established in 2014 as the umbrella livestock producer organization comprising the Poultry Farmers Association, Apiculture Platform, Small Ruminants Producer Association, Pig Breeders Association, etc. NaLOA's mandate includes, among other things, lobbying for its member associations, and promoting the sub-sector.

Financial services

The availability of credit enables value chain actors to purchase inputs or to invest in processing activities. The principal providers of finance to value chain actors are commercial banks, who because of their high interest rates, are not preferential sources for the livestock sub-sector. While a number of micro finance institutions exist in both urban and rural areas, their interest rates are similarly high and the amounts disbursed are relatively small. Farmers are therefore not using these financial services to expand their operations. In view of the importance of the livestock and to exploit its untapped potential, banks should be encouraged to provide needed working capital and term finance which will support large scale commercial and small- scale farmers to adopt modern and efficient production techniques to increase livestock products, particularly poultry meat and eggs and milk for local consumption and export.

Gender and youth perspectives

The 2013 Population and Housing Census, indicated that women constitute about 50.5% of the population and 52% of them live in rural areas. The National Youth Policy (2009-2018) defines youth as being within the age bracket of 15-30. Agriculture, forestry and fishing employs 148,780 persons out of which 78,395 and 9,412 are women residing in the rural and urban areas, respectively. Women's livestock activities are mainly focussed on poultry, small ruminants, and milk processing and marketing. Ownership patterns of small ruminants and poultry are more equitable than that of other livestock assets (cattle). Gender targeted interventions are a good entry point to improve food security and nutrition as women have a key interest in investing in household consumption needs. As such, livestock value chain development efforts have integrated gender-related goals and supported action towards improving the participation of and access to benefits by women. The creation of employment along value chains, especially for women and young people in the rural areas, is critical in light of rural-urban drift. Small scale improved poultry production and sheep fattening are becoming more popular among rural and urban women and youths. The promotion of back yard (using local birds) and improved poultry production provides income within a short time through the sale of eggs and live birds, and contributes to the generation of employment. Women have a key role in informal milk markets, participating directly in the collection, processing and marketing of milk; these activities provide a regular year-round cash income. The primary need is support in milk collection, processing, commercial activities and capacity building.

Past and current value chain interventions

A number of initiatives targeting livestock value chains were executed during the implementation of the GNAIP. Programme 3 (Development of Agricultural Chains and Market Promotion), promoted increased production of small ruminants, pigs and poultry to improve producers' income and diet; increased local dairy production to meet 25% of the national demand; strengthening value chain support services and

structures, i.e. communication network; (ii) financial services; (iii) information services; (iv) training services, etc.; and development of domestic, regional and international markets.

Projects implemented during the GNAIP period included the AfDB/IFAD sponsored Livestock and Horticulture Development Project (LHDP) with development goal to reduce rural poverty sustainably by raising rural incomes through improved production and marketing of livestock and horticultural products; sub-regional Endemic Ruminant Livestock in West Africa (PROGEBE) with the immediate objective of establishing effective models for community-based management of endemic ruminant livestock and their habitat at project pilot sites, and strengthen production, market, and policy environments in support of these breeds; the Food and Agriculture Sector Development Project (FASDEP) seeks to reduce rural household poverty, food insecurity and malnutrition (stakeholders resilience), through increased agricultural production and productivity and commercialisation; and FAO financed Technical Cooperation Projects (TCP) and TELEFOOD.

4.1.3 Production and value chain promotion on fishery and aquaculture sub-sector

Value Chain Promotion

GNAIP II's implementation strategy will be modelled on the value chain approach consistent with the fisheries and aquaculture strategic development objectives. These strategic development objectives include: enhancing sustainable fish production; reducing post-harvest losses; increasing market access for fishery products; increasing aquaculture production; increasing youth involvement in the fisheries subsector and strengthening the Fisheries Department in terms of institutional management and staff capacity building for effective service delivery. Key activities of the fisheries and aquaculture component of GNAIP II focus on fish capture (production), processing, storage, marketing and consumption. Adequate emphasis would be placed on processing, cold storage, transportation and marketing facilities that exist in the fishing industry. To maintain the requisite nutritional intake of most Gambians, fishing supplies about 40% of the animal protein consumed in the country with annual fish consumption estimated at 29 kg per capita, higher than the world average of 20 kg.¹² The fisheries sector provides a vital source of food, employment, recreation, trade and economic well-being for an estimated number of 300,000 people with both direct and indirect contribution to reducing unemployment.

Sector Production and Productivity

With a continental shelf area of about 4,000 km² and approximately 10,500 km² of Exclusive Economic Zone (EEZ) plus 500 marine fish species, the Gambia is believed to be endowed particularly with one of the richest marine and riverine fish resources (The Fisheries Sector in the Gambia, 2014 Report) in terms of abundance and diversity in the world. Conducive to which is the freshwater flows of the River Gambia that supplement the marine fish resources with substantial nutrients that attract marine fish species for feeding and spawning purposes. The Maximum Sustainable Yield (MSY) of Gambian waters estimated at about 80,000 Mt for pelagic and demersal species, while the current exploitation rate is between 35,000 Mt and 40,000 Mt. An overall assessment of the fishery resources suggests that high value demersal species reached full exploitation, while the less valuable small pelagic stocks are under-exploited. At national level,

¹² Republic of The Gambia, Ministry of Environment, Climate Change, Water Resources, Parks and Wildlife, *National Water Resources Assessment And Management Strategy*, March 2015; and FAO (2016), *The State of World Fisheries and Aquaculture 2016 Contributing to food security and nutrition for all*.

the total fish production averaged 55,931.6 Mt between 2011 and 2017 with the lowest and highest productions of 39,822.0 and 68,333.6 Mt registered in 2012 and 2017 respectively.

One of the principal findings of the 2004 study of fish resources in the River Gambia revealed the identification of about 70 fish species within the river system and several of them, especially those belonging to *Carangidae*, *Drepaneidae*, *Clupidae*, *Haemulidae*, *Polynemidae*, *Cichlidae*, *Scianidae*, *Cynoglossidae*, etc., are of commercial significance (ANR Policy 2017-2026). The fish species are broadly categorized into demersals (bottom dwelling) and pelagics (surface dwelling).

SWOT Analysis on Fisheries and Aquaculture Value Chain

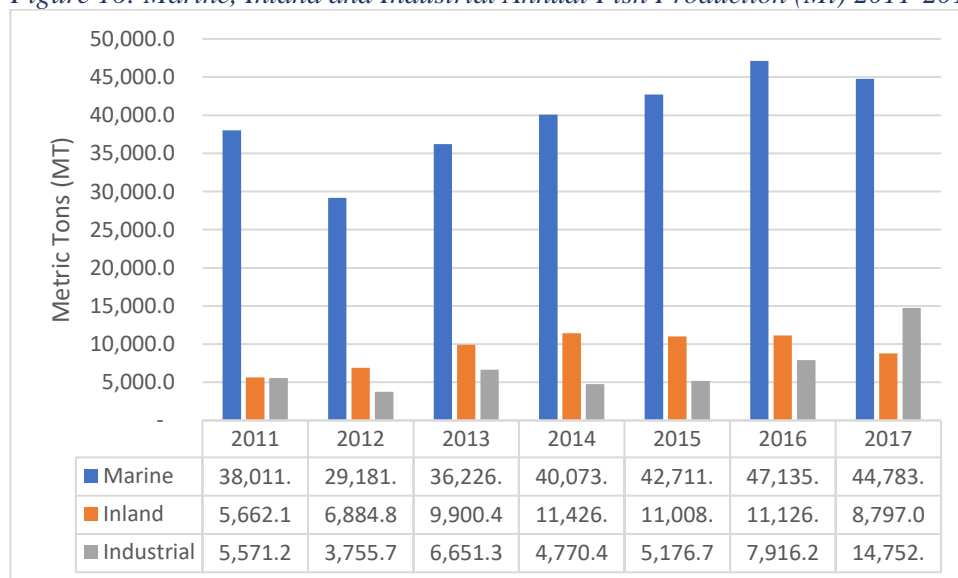
<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> • Existence of institutions in public sector for extension and research; • Strong political will from government for greater involvement and support to the industry • Existence of community fisheries centres established at 15 fish landing sites around the country and in the inland sub-sector are very important as they offer enormous opportunities to the various communities • Existence of the fisheries jetty in Banjul and the rehabilitation of the dock yard facility provide some opportunity and enhance onshore landings and ancillary businesses. • Existence of Fisher folk associations (National Association of Fish Operators (NAFO), Association of Fishing Companies (AFC), National Association of Sole Fish (NASCOM)). 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • Limited post-harvest processing facilities - (cold storage and cooling facilities) • Limited access to market information • Low enforcement of legal and policy measures • Inadequate landing site infrastructure; • Overfishing of some stocks (ground species, pink shrimps and the sardines) • Weak Gambian ownership and participation in both artisanal and industrial fisheries sub-sectors. Benefits accrue to vessel owners with increased capital flight • Weak Aquaculture infrastructure and value chain services (hatchery and fish feeds) • Very infrequent stock assessment especially in the industrial sector • Inadequate stock assessment in inland fisheries/lack of capacity to conduct biomass estimates;
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • Growing demand for domestic fresh water and cured fish with a per capita consumption of 27.7 kg/capita in 2013 (FAOSTAT) the highest in West Africa. Same demand trend seen in the export markets particularly the country's proximity to western European markets • Good geographic location for exportation to neighbouring countries and the EU • Low labour cost • Government and donor support for sector development; willingness of stakeholders and CBOs to adopt innovations; • Inland water bodies and Gambia River wetlands supporting Aquaculture growth; • Increased private sector investment in industrial fish processing and storage facilities exist; • Abundant and diverse fisheries and aquatic resources 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> • Habitat degradation due to climate change (salinization, sedimentation, mangrove dieback and drought). • Restricted entry into the EU market • High vulnerability of the fisheries sector to climate change and other natural disasters. • Increased pressure on marine resources due to over exploitation and population growth factors • Growing IUU fishing from both artisanal and industrial fishing • High cost of energy and fuel, poor access to and high cost of capital investment

The artisanal fisheries subsector: This subsector is sub-divided into two strata: the Atlantic Coastline (also known as marine) and inland. The subsector is primarily engaged in relatively extensive low-input fishing and related practices where majority of artisanal fishers (both nationals and foreigners) use traditional fishing crafts/canoes ($\approx 40\%$ motorized) and employ diverse fishing gears and techniques. These fishing practices include: entangling gill nets, and bottom gill nets, hand and long lines, cast nets and traps, and stow nets mainly used for shrimping operations in the tributaries. Figure 16 shows the annual fish capture (production) in the artisanal (marine and inland) and industrial subsectors from 2011 to 2017. This period coincided with the GNAIP implementation period and two years later. During this period, the artisanal fisheries production averaged 48,989.6 Mt comprising production averages of 39,731.8 Mt and 9,257.8 Mt in the Atlantic Coastline (marine) and inland (riverine) areas with an annual growth rate of 3.5%. Furthermore, artisanal fisheries catches increased from 43,673.3 Mt in 2011 to 53,719.2 Mt in 2015 representing an increase of 23% during GNAIP I implementation period with further increases of 33.4% and 22.7% in 2016 and 2017 respectively (i.e. two years after GNAIP I implementation).

In 2014, a greater proportion 91.5% of the total fish catches came from the artisanal fisheries subsector while only 8.5% recorded for the industrial subsector. However, this share of artisanal fisheries catches in total fish capture over the years (2011-2017) has been fluctuating for instance in 2017, it declined to 78.4% with further decline expected in 2018.

Of the total artisanal fisheries catches recorded in 2014, Atlantic coastline fisheries catches constituted 77.8% and only 22.2% from the inland fisheries. At this level of national artisanal fisheries production coupled with an annual growth rate of 3.5%, the sector continues to immensely contribute to GDP by 6.5% and also provide for sustainable food, dietary needs and income security of the general population and in particular operators in the sector. It was estimated that annual artisanal fish production was 58,261.6 Mt in 2016 with Shads (Bonga) (*Ethmalosa fimbriata*) constituting most of the catches. There are over 500 fish species in the country grouped into demersals (bottom dwelling) and small pelagic (surface dwelling). Demersals comprise shrimps, groupers, sea breams, grunts, lobsters, catfish, croakers, shad/bonga and snappers and others. The small pelagic species consist of the two sardinellas (*Sardinella aurita* and *Sardinella maderensis*), shad/bonga (*Ethmalosa fimbriata*), horse mackerels (*Trachurus trecae*, *Trachurus trachurus* and *Caranx rhoncus*) and mackerel (*Scomber japonicus*).

Figure 16: Marine, Inland and Industrial Annual Fish Production (Mt) 2011-2017



Source: Department of Fisheries

In tandem with these achievements registered in the artisanal fisheries subsector, its resource base has greater potentials for further rational and sustainable exploitation.

Aquaculture Subsector: in the Gambia, fish aquaculture refers to the breeding, rearing, and harvesting of fish in a fresh water environment mainly in ponds. It is mainly carried out as a commercial enterprise and the main fish species commonly raised in ponds are catfish and tilapia to increase and supplement households' fish production for improved food and nutrition, dietary needs and income security. In the past, very little attention paid to aquaculture development in the Gambia despite being well-endowed with areas suitable for the industry. According to FAO statistics, aquaculture production in The Gambia remained at a very low level, representing only 0.1% of total fish production.¹³ Much needed attention recently accorded to its expansion and development. This situation emerged due to the excessive demand-pull on the fisheries resource base exerted by the teeming population together with climate change and the industrial subsector's urge to increase export volumes. As a result, government aims at pursuing aquaculture development for a variety of reasons including: gainful employment particularly for the vulnerable group (women and youth), increase dietary intake of animal protein for improved nutrition and reduce demand pressure on the fishery resources mainly around the Atlantic coastline. This gave rise to aquaculture promotion, expansion and development for both commercialization and household sustenance through provision of supplementary rural food, nutrition and income security. During GNAIP I implementation period, increased agriculture production through the establishment of commercial aquaculture farms was expected to complement national fish production. At GNAIP I design, 300 fish ponds were expected to be built with annual production of 55.5 Mt. By 2017, 103 ponds have been constructed by various donor agencies representing 34% achievement. During the same period, constructed were 68 ponds that indicated an achievement of 23% of the GNAIP I target. Of the 68 ponds, the FAO's Technical Cooperation Programmes (TCPs) built 33 ponds (49%) with 20 ponds constructed in 2010.

In addition, other fish ponds constructed include: 14 ponds by the Taiwanese Agricultural Technical Mission (TATM) all located in the Sapu rice fields; 10 extra ponds out of which 2 were established by the Livestock and Horticulture Development Project (LHDP) in 2013 located in WCR and 11 ponds by the Food and Agriculture Sector Development Project (FASDEP, 4 for Janjangburay, 3 for Pakaliba, Barro Kunda 2 and Sukuta 2) in 2015.

Despite the increasing potential and economic gains usually accrued from the sale of aquaculture production, the subsector suffered from unavailability of reliable production and financial statistics to properly assess the performance of the sub-sector during GNAIP implementation period. In this regard, only 508 kgs were recorded in 2011, 117.7 kgs in 2013 and 134 kgs in 2014 as productions from the 33 ponds. No known production figures are available for the TATM ponds whereas FASDEP funded ponds were stocked with 4,500 tilapia fingerlings in 2015. Aquaculture experts reported that the fingerlings when matured could yield 1,125 Mt at a survival rate of 75%. By the end of FASDEP, about 100 fish ponds were constructed covering 4 regions (WCR, LRR, CRR and NBR) of the country.

Industrial Fisheries Subsector: Industrial fishing was and still mainly carried out by foreign vessels in Gambian waters principally for exports to regional and international markets. In 2017, there were 15 vessels (trawlers) licensed to operate in Gambian waters, of which 6 are Gambian registered but not owned by Gambians. The nine (9) foreign fishing vessels fishing in the Gambian waters obtained fishing licenses through a reciprocal agreement with Senegal, but not necessarily owned by Senegalese nationals.

In 1982, Gambia entered into fisheries agreement with Senegal and recently renewed in March 2017. Under the agreement, reciprocal access to fishing resources was agreed upon based on tonnage and agreed fishing licence fees. All local and foreign vessels require (non-transferable) licences, valid for 1 year for artisanal

¹³ FAO Stat. Viewed at: <http://www.fao.org/fishery/topic/16140/en> [April 2017].

fisheries; for industrial fishing vessels the Minister of Fisheries decides the validity period of the fishing licence (currently 3 months). Licensing is subject to conditions such as the type and method of fishing, authorized areas, use of minimum mesh size, employment of Gambian nationals, landings, among others. Licensing requires that 20% of the vessel crew must be Gambian. Licence fees are determined by several elements: target fish species; market value of the species; gross tonnage of the vessel; and the period of fishing. Foreign industrial operators are required to land 10% of their catch in The Gambia, or pay the equivalent of 10% of the value of the landed catch to the Government.

The most targeted fish species under the industrial fishing industry mainly include: high value demersal fish species (e.g. sole fish, snappers, and cephalopods). These fish species are usually transformed by fish processing establishments operating in the country for export or sold in tourist markets. According to the fish capture (production) estimates from the Department of Fisheries, industrial fisheries capture has generally been fluctuating but increasing quantities were also landed in the country between 2011 and 2017 as shown in Figure 17. For instance, in 2011 industrial fish capture was estimated at 5,571.2 Mt which and declined to 3,755.7 Mt in 2012 indicating a reduction of about 33%. This was followed by a production increase of about 77% in 2013 and another decline of 28% in 2014. Since 2015, industrial fish production has been on the increase and steadily reached a maximum production level of 14,752.9 Mt in 2017. Despite the small-scale nature of its operation, the artisanal sector provides 90 percent of the total national fish consumption, and is the main source of raw material for the industrial sector. Artisanal fisheries also supplies about 80 percent of throughput in the industrial fisheries processing plants. The bonga, round and flat sardinella and other small pelagics are the main species landed by the artisanal fishermen. These species are mainly consumed locally in fresh or traditionally processed form. Anecdotal evidence has shown that most of the industrial fish catches are not landed in the country instead in foreign countries where they are processed, packaged and exported under those countries' purview. Therefore, any increases in official fish exports may be a reflection of increases from the artisanal fisheries subsector. In this regard, the increased quantum of industrial fish catches could be grossly under-estimated with high economic losses in terms of foreign exchange earnings to the country. The new Banjul Jetty was built to ameliorate the situation but with limited capacity to attract foreign companies' fishing trawlers to dock at the site. Therefore, government's fisheries policy stance during GNAIP II's implementation will be to assist in building more jetties to attract more foreign trawlers to dock at these jetties with their catches for processing and exports to sub-regional, regional and international markets. This will encourage the rational and sustainable economic growth of the country. With this available infrastructure together with the strict surveillance mounted by the MoECCNR and Gambia Navy, increased fish landings have been received in the country between 2015 and 2017 (see Figure 17 above). Consequently, this desirable situation may lead to employment creation (particularly for youth and women as the licence agreement requires that 20% of the crew of foreign fishing vessels must be Gambians) and export expansion of fisheries products which would be a step in the right direction as enshrined in both the fisheries policy and component of the NDP (2018-2021).

Processing of Fishery Resources

Women in The Gambia play a very active and important role in the fisheries sector in that about 80% of fish processors and 50% of small-scale fish traders are women. To this end, they are engaged in fresh fish processing, distribution and marketing of cured fish products. Cured fish products refer to sundried and/or salted and smoked fish with women predominant in fish sun drying. They usually produce salted sun dried fish for urban and inland markets or for regional export dealers. Women also tend to dominate the Diaspora trade in cured fish products.

- ***Industrial Processing***

Past and on-going national policies such as PAGE 2012-2015, ANR 2017-2026 and NDP 2018-2021 all attached great importance and priority to reducing post-harvest losses of fishery resources and increasing

employment opportunities in the sector. To address this challenge in the fisheries industry, GNAIP II will support the industrial processing of fish to curb the continuous challenges the industry faces. It will also focus on minimizing fish offal, excessive landings of bonga and other pelagics as well as post-harvest losses and waste. Given the diminishing trend of the demersal fish stocks, particular emphasis will be placed on avoiding its irrational exploitation by industrial vessels which, in turn will be put under strict monitoring and surveillance. In the Gambia, fish processing mainly covers two distinct areas: i) the industrial processing which involves washing, sorting, cleaning, processing, packaging and freezing of fresh fish and or fishery resources mainly for export to the European Union (EU) but also to other international destinations (e.g. US markets) and ii) artisanal processing that involves traditional smoking and drying of fishery products commonly known as cured products. These processed products are mainly for the domestic, sub-regional and regional markets coupled with some smoked fish for the European and other international niche markets.

The key operators in the industrial processing are: domestic and foreign companies, intermediary traders (“bana-banas”), factory workers, women and youth. Industrial processing of fishery resources is relatively capital intensive with energy being one of the key utilities either using cold storage and or processing facilities (factories). Unfortunately, the Gambia suffers from intermittent power supply almost daily thus rendering processing difficult and time consuming which may lead to unprofitability of businesses involved in the venture. The cost of electricity (unit cost/KWH) is a great cause of concern in that it is one of the highest in West Africa. According to GIEPA Report on Industrial Fishing in The Gambia, the cost of electricity in Gambia has been estimated at US\$0.27/KWH higher than both Nigeria US\$0.10/KWH and South Africa US\$0.22/KWH.

The techniques involved in fish handling and processing are generally inadequate and result in major fish losses. Therefore, these techniques need to be improved and expanded to cover strategic landing sites. This will improve the quality of cured products, increase availability and nutritional values of the fish to consumers and profitability for the producers. For the cured fish industry to experience growth and gain better access to lucrative markets, there is a need for an organized and structured cured fish industry with a reliable information network. The industry needs to abolish the individual operational strategy and adopts a more amalgamated approach to sustainably tap opportunities existing in the industry. This re-organization should result in better co-operation between companies and individuals and thus improving the rate of value change from fishing to marketing.

- ***Traditional Processing***

Traditional processing of fishery resources comprises of two artisanal techniques: a) sun drying and b) smoking. These techniques are tedious, time consuming, and unhygienic and primarily carried out by artisans (men and women) who are the main operators. These key operators mainly constitute small family or women-owned business enterprises with rudimentary processing technologies, often located close to the beaches or areas of towns around the landing sites. Women represent the majority of fish processors and about half of fish traders. Improving the overall efficiency of operations will largely depend on ensuring that women processors and traders as well as men have sufficient access to quality supplies, upgraded facilities, and credit and support services. Cured fish products are mainly sundried and or salted and smoked. Fish dryers tend to be women and they produce salted sun-dried fish for urban and rural markets (including weekly markets locally known as lumos), or for regional export dealers. A large proportion of women who process the fish often market it as small-scale traders. This traditional processing involves women laying the split fish on raised platforms made from sticks and poles where the fish dries out under the sun over a period of 5-7 days. These fish resources are often exposed to unhealthy conditions characterized by dust contamination and infestation by maggots thus leading to a shorter shelf-life and economic losses due to maggot infestation. These cured fish products are transported to market centres through commercial vehicles. During this process, recognizable portions of the products could be lost due to spoilage with accompanying financial losses for the processors.

Fish smoking is usually executed by both men and women with the latter dominating the subsector. For sundried and smoked fish products, Shad/bonga and catfish are the two main species used by traditional processors and to a lesser extent, sharks, barracuda and long neck croaker are also used. Smoked fish product can be stored for only 3 days after which it may get rotten and cause economic loss to the owner.

Unlike the sun-dried fish market, the smoked fish market is highly segregated with men and women traders tended to operate in different market segments. For instance, a distinction is made between smoked-dry products with lower moisture content and longer shelf-life (3-9 months depending on storage conditions) compared with hot-smoked fish typically characterized by higher moisture content and shorter shelf-life. The durability of the latter cured fish largely depends on a number of factors including: the type of fish; the desired shelf-life of the smoked product and available technology. It is important to recognize that male fish smokers tend to operate in the long-distance trade of smoked-dry products with longer shelf-life. In this regard, their operations are considered more capital intensive and their products are marketed in rural and sub-regional markets, where the profit margins are higher.

In contrast, women smokers are mainly engaged in the domestic marketing of hot-smoked products. They generally produce smoked fish (mainly shad/bonga and catfish), of relatively short shelf-life destined for both urban and rural markets. Comparatively, such operations are often labour-intensive characterized by small-scale direct marketing (on a daily basis) with low profit margins. Like others, women usually smoke the small pelagic shad/bonga and the catfish, over open fires in pans covered with jute bags. Owing to the high cost of fuel wood, these women processors use empty cartons, coconut husks, groundnut shells, or any other combustible material to smoke the fish. The duration of smoking varies but invariably lasts for two to four hours and allows for cooling before packed in woven baskets for marketing the following morning. Unlike the fish smoked by the men, women smoked products soon deteriorate if not properly cooled due to high moisture content which, may increase spoilage if the smoked products do not sell fast enough. Owing to the inefficient smoking techniques used, the products are easily lost due to spoilage and this is particularly true with prolonged transportation and storage duration.

- ***Fish Handling***

At the arrival of the fresh fish catches on the landing sites, the landed fresh fish catches are usually scooped out of the boats and put in all sorts of containers, such as boxes, metallic/plastic pans and buckets. This method of unloading the catches by hand takes considerable time during which the temperature of the fish immensely rises. This handling method can cause damage to the fish such as looseness in flesh and bruising of the skin that may result in micro-organism contamination. As soon as the landed fish catches are off-loaded from the boats, they are put into pans/buckets and or boxes ready for sale in the open auction markets. Since most of the fish are usually not properly iced, the quality of the fish deteriorates before the end of the sales. This shows that there are low awareness level among processors regarding basic sensitization on the importance of hygienic and usage of ice. On the contrary, industrial fresh fish catches are better handled and hygienically preserved for processing and exports to mainly EU and US markets.

Fresh fish is either sold directly to consumers and or sold to intermediary agents. These fresh fish catches are often loaded in plastic pans and buckets ready for the markets in and around the landing sites put in dysfunctional fridges with ice awaiting clients or be sold in subsequent days. It is important to note that the existing ice production facilities serve only a portion of the Gambian fishing and processing communities. Fishermen do carry ice to sea but the lack of ice production facilities close to the major coastal fishing centres increases the cost of ice for operators who have to transport it long distances. This means that the fishermen often do not carry enough ice on their fishing trips. Inadequate ice cubes may result in loss of freshness or, at times, spoilage of fish. Fish catches are not gutted prior to landing, because customers will doubt the freshness of gutted fish.

- ***Storage***

Fresh fish catches from the landing sites may be either sold directly to petty traders (bana-banas), middlemen and other operators (including consumers) or stored in containers (usually dysfunctional fridges) often stocked with ice cubes for preservation. These fridges are mainly located at the fish landing sites along the Atlantic coastline and also inland, at market places and even at homes for storage. Fresh fish dealers purchase ice cubes from ice plants and individual fridge owners at various prices dictated by the regularity of power supply and proximity to the landing sites or individual fish dealers. Plastic buckets are also used for fish storage with ice cubes en-route mainly to urban markets and though rarely to rural markets not far from landing sites. At industrial level, the fresh fish catches are also better stored through freezing and stored in containers prior to exports. For such products to take a niche in the international markets, they must be well preserved to meet international sanitary and phyto-sanitary standards.

- ***Transportation and Distribution***

Most of the fish landing centres along the coastal areas are not easily accessible to consumers. Therefore, the transportation, collection and distribution of fresh fish catches usually involve a chain of traders or middlemen. In this regard, there are different transportation systems used in distributing iced fresh fish to the urban and peri-urban (also rural) markets. This transportation network involves mainly commercial vehicles which comprise of four to seven setter taxis and ten to twenty-two setter vans. Private vehicles are also involved in the transportation and distribution of fish products throughout the country. These vehicles can carry only a limited quantity of fresh fish. Fares paid for these services vary according to the distance of the destinations and weight of the loads.

Fish distribution is mainly carried out by fish brokers, retailers and wholesalers. Fish petty traders (fish brokers) buy smaller quantities of small pelagic fish (usually shad/bonga and other pelagics) from artisanal fishermen at the landing beaches and transport it on donkey carts, bicycles, motorcycles, small taxis and vans. Usually the distance covered during this operation is between 3.2 to 16.1 km radius from the landing sites with less than 200 kg of fish (carried in baskets, pans and buckets with ice) per trip. Most often, these brokers supply fresh fish to the immediate environment and satellite village markets while retailers normally buy 2-3 Mt of fish from artisanal fishermen at the landing centres. Similarly, the fish (with ice) is then distributed to neighbouring markets within the urban areas in hired insulated vans. Relatively, some quantities may be transported to inland markets not too far from landing centres where retailers normally sell their fish directly to the consumers in market places or at times to other retailers who operate on a small scale. Wholesale traders usually buy 5-10 Mt of fish at a time, mainly shad/bonga from artisanal fishermen at the landing centres and with ice is also distributed in insulated vans to central points in townships and inland markets. The fish is sold mainly to private traders dealing primarily in the selling of fresh fish, or to processors for smoking or drying of fish. Processors also buy directly from artisanal fishermen for smoking or drying.

It is important to note that hot-smoked fish is mainly marketed in the urban areas and transported by hired vans to markets. To better preserve the fish, they are usually wrapped in paper and packed in locally weaved baskets. The hot-smoked fish to be exported by air to ethnic markets in Europe and USA is chilled and wrapped in plastic films packed in polystyrene boxes. Unlike hot-smoked fish, smoked-dry fish is transported in trucks to inland markets or to the port for export to neighbouring countries by sea. It is also wrapped in paper and packed in locally weaved baskets or wooden crates. Recent studies have shown that traditional packaging materials are generally not moisture, insects and microorganisms proof and also offer little protection from physical damage. Therefore, there is urgent need to conduct research on proper packaging materials for smoked fish.

- ***Fish Marketing***

Fish marketing can be broadly divided into domestic and international (export) market segments. While domestic marketing deals with fish products in the local markets, international marketing concerns exports of fishery products to destination markets. International marketing can also be subdivided into sub-regional, regional and exports markets for the sale of fishery products.

- ***Domestic Marketing of Fish***

Results of studies have shown that fish trade has been expanding in the country, in terms of quantities of products, fish species traded, the number of people engaged and the markets served. Despite these achievements in the industry, cured fish trade is still challenged by several factors that limit its efficiency and quality. For instance, many fish processors and traders often complained about the unavailability of markets which, is highly attributed to the absence of reliable market information which resulted in prolonged storage of fish products. Evidently, given these poor conditions of storage for long periods at high temperatures and humidity, mould attacks can be rampant and result in fish losses. The provision of good market information network for traders may alleviate these problems (Sirra Njai, 2000).

The domestic marketing of fish depends on its condition after harvest and whether processed or not. For instance, fish dealers have every intension to quickly market fresh fish than frozen and processed fish. Fresh fish marketing starts from the landing centres where operators directly purchase fresh fish from fishermen. Consumers also directly buy from fishermen purposely for home consumption while fish bought from fishermen by operators is usually used for domestic marketing. Although the fisheries sector expected donor support during GNAIP implementation, no such funds were made available for infrastructure development (markets and cool storage facilities). In lieu of this financial shortfall, the Gambia Artisanal Fisheries Development Project (GAFDP) which operated between 2004 and 2009 (outside GNAIP I period) constructed infrastructure facilities such as the central fish market with cool storage facilities at Bakoteh, Wharf Njaggo fisheries jetty, 12km access road to the inland fishing ports of Bintang and Tendaba which were fully operationalized and used during GNAIP I period. The provision of these marketing facilities eased marketing problems in and around the concerned landing sites. In addition, a window of micro credit facility for the fisher folks was opened and being used by beneficiaries.

Owing to the limited buying power of consumers, smoked fish product variety is limited mainly to shad/bonga and catfish. Bonga is relatively cheaper and abundant. Smoked catfish is a higher priced product than shad. The product is a favourite to the more affluent consumers in the urban markets and is often in short supply. There is evidence that smoked shark and other smoked fish products such as barracuda are mainly destined for export or for the more affluent domestic consumers. Prices of catfish, sharks and barracuda vary according to size and quality. For instance, a bigger smoked catfish or barracuda of high quality commands a better price than a small fish product. Overall, it is important to note that there is effective demand for high quality smoked fish products which is an essential contributing factor to the profitability of fish marketing. Fish is widely consumed due to its affordability and availability to consumers with annual per capita fish consumption estimated at 25 kg in 2016.

- ***Customs, Tariff Barriers and Incentives***

With its export potentials, the custom duties and other charges levied on fish and fishery products are considered very high and disincentive to exporters. These duties are sometimes increased without adequate notice, making business trips more expensive and less profitable for operators. Thus these unannounced

and high tariffs may serve as barriers to the export trade in fishery products which will be a deterrent to financial gains that emanated from loss of foreign exchange earnings.

Despite these trade barriers, there are substantial incentives available to investors in the aquaculture sector, on condition that certain criteria related to the fulfillment of investment value and job creation. To access these incentives, a new investment must be worth at least US\$250,000 and lead to the creation of at least five jobs in the aquaculture sector. The key incentives include: tax holiday: tax breaks on corporate and turnover tax, withholding tax on dividends and for a period of 5-8 years, depending on the project's location. For licensed operations in Export Processing Zones, tax holidays are for 10 years Import Tax Incentives: Exemption from payment of import sales tax on direct inputs for the project, or customs duty and import sales tax if the investment is located in a zone.

- ***Imports/Export Marketing of Fishery Products***

Fish bought from fishermen may also be processed into hot-smoked and or sundried fish in order to increase its shelf-life (not more than 3 days for smoked fish) and subsequently marketed. Observatory evidence from Gambian fish dealers remarked that women dominated the marketing of smoked fish within the larger Diaspora trade in the EU (mainly the UK and Netherlands) and in the USA with the involvement of only a few men exporters. Smoked fish trade to the Diaspora is mainly small-scale and is the principal export trade for women in fisheries in The Gambia. This trade covers a wide range of fish species with products such as smoked shad/bonga, catfish, shrimps, sole fish, sardinella, croakers and barracuda. During the period between 2004 and 2010, these exports constituted 3-18% of all fish exports from the Gambia. Women gathered these smoked fish until they get enough products to export which are loaded on to 20- or 40-foot reefer containers for shipment to EU. With their individual shipping documents (including consignment certificates), the women entrepreneurs travelled by airplane to EU countries mainly UK and Netherlands where they await the arrival of their consignments. Upon arrival of the shipment, women entrepreneurs collect their consignments and retail the smoked fish themselves or sell it to their UK-based business partners. After the business transactions, the entrepreneurs will return to the Gambia for more consignments. To effectively and efficiently realize economic gains out of this trade, the Second Generation GNAIP should concentrate on harmonizing and coordinating it for expansion with the primary objective of transforming the business from small-scale subsistence (200-500kg/woman) to a large-scale commercially-oriented business enterprise that is accompanied by training in hygiene, fish handling and marketing. This training of women entrepreneurs is intended to improve the quality of the processed products, food safety concerns as well as capacity building for them to meet EU trade requirements.

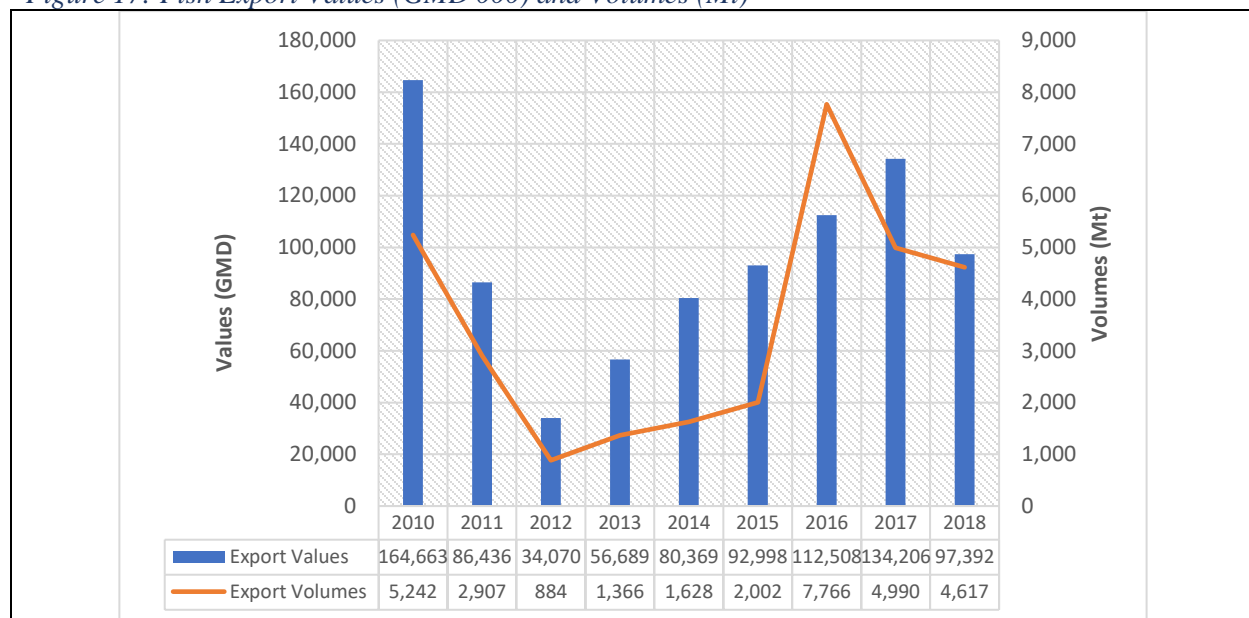
In addition, both men and women entrepreneurs of foreign countries in the sub region (including Senegalese, Guineans, Malians, Ghanaians, etc.) travel to the country (Gambia) to buy fish products, process them and export to their countries of origin for marketing.

Transportation within and outside the country of fresh, hot-smoked and sundried fish is costly which may crowd out the profitability of the business. Traders in some cases have to accumulate sufficient quantities of smoked fish before they can sell profitable consignments. Inter-alia, this is practiced to avoid the relatively high cost of transport for instance to domestic markets to sell small volumes (Sirra Njie, 2000). To minimize the crowding out effect on fish exports, operators involved in the trade therefore have to accumulate sufficient quantities of cured fish before marketing. Sub-regional and regional fish marketing using road transportation is rather challenging due to the poor conditions of some roads. For instance, road transportation of smoked fish to Guinea Conakry may take at most four days accompanied by frequent breakdowns and delays which, may warrant change of vehicles thus increasing the business transaction costs.

Anecdotal evidence has shown that rapidly changing economic and political climate in the sub-region has destabilizing effects on such markets. With slowing down of the economy in the past years, the export of

smoked fish to Nigeria was relatively low. For the past three to five years, the exports of smoked fish to Nigeria is increasing again (Essuman 1992). Ivory Coast, with its stable economy, has evolved into a major market for smoked fish from The Gambia, both in volume and value. The markets in Cameroon, Guinea Bissau and Guinea Conakry which, also constitute important markets for smoked fish exports from The Gambia are expanding (Ndow 1997). Ghana is the single most important market for dried shark and to a lesser extent of smoked fish. All products to these markets are transported either by sea or air.

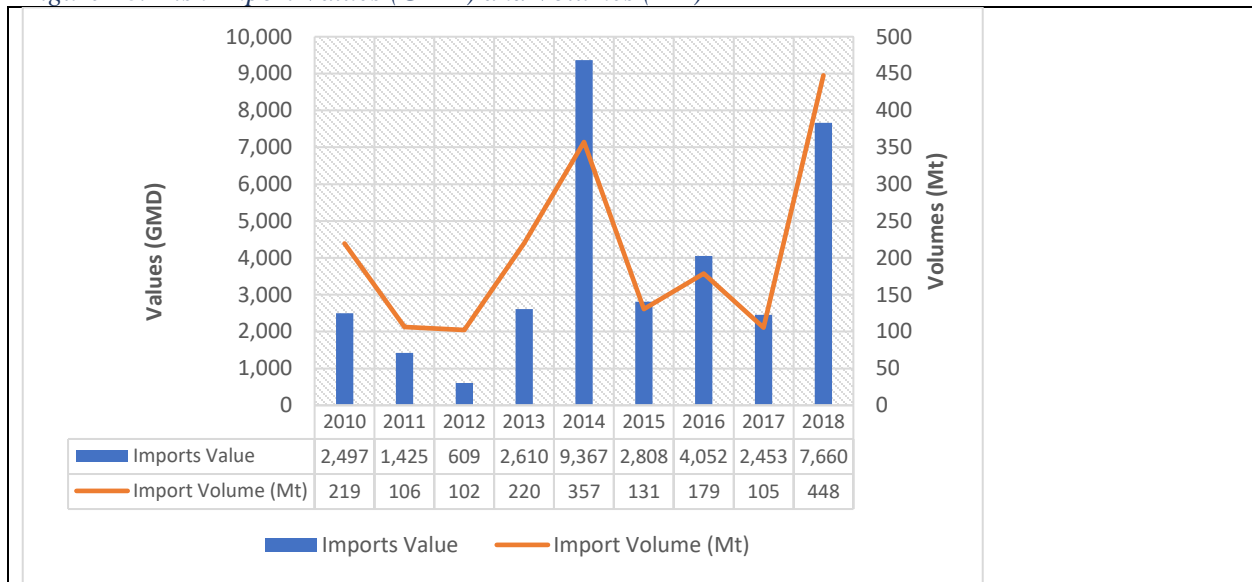
Figure 17: Fish Export Values (GMD'000) and Volumes (Mt)



Source: Gambia Bureau of Statistics (GBOS)

Figures 17 and 18 show the imports and exports statistics of fishery products in and out of the country from 2010 to 2018 period that coincided with GNAIP I implementation (2011-2015). For exports, the volumes and values averaged at 3,489 Mt and GMD95,481,000 respectively. Correspondingly, the averages of fish import volumes and values were also recorded at 207 Mt and GMD3,720,000 respectively. Computation of the trade difference is roughly indicating a net trade balance of 'GMD91,761,000 suggesting that not only is the country having a comparative advantage in fish trade but it's also a lucrative business and foreign exchange earner for operators on condition that the stated challenges (already mentioned above) encountered by the industry are ameliorated. Therefore, consistent with NDP's strategic objective of the fisheries sector, the Second Generation GNAIP will focus on measures that will sustainably increase fish exports with minimum damage to its resource base. Over the period (2010-2018), export volumes of fishery products nosedived from 5,242 Mt in 2010 to 884 Mt in 2012 representing a decline of 494%. A similar trend can be seen from the export values (Figure 18) denoting a reduction of 383% over the same period. These declines may be associated with the EU's embargo on fish imports from the Gambia for lack of fulfilling the EU requirements. The suspension of Gambian exports to EU markets took only four months (October, 2010 to February, 2011) and the trade has since resumed. The volumes of imports of fishery products have been stabilized around the average of 207 Mt with annual imports (Figure 18) invariably not exceeding 500 Mt during the corresponding period. This quantum decline in import volumes can be attributed to the limited effective demand for fish products as imports of these products come in tins (mainly sardines) which may not be preferred by consumers particularly if close substitutes are available such as small bonga as well as reduction in the purchasing power of most consumers due to poverty menace. In addition, on a weekly basis, refrigerated trucks loaded with small fresh fish ply the north and south banks of the river Gambia to sell to consumers at a cheaper price than a tin of sardine.

Figure 18: Fish Import Values (GMD) and Volumes (MT)



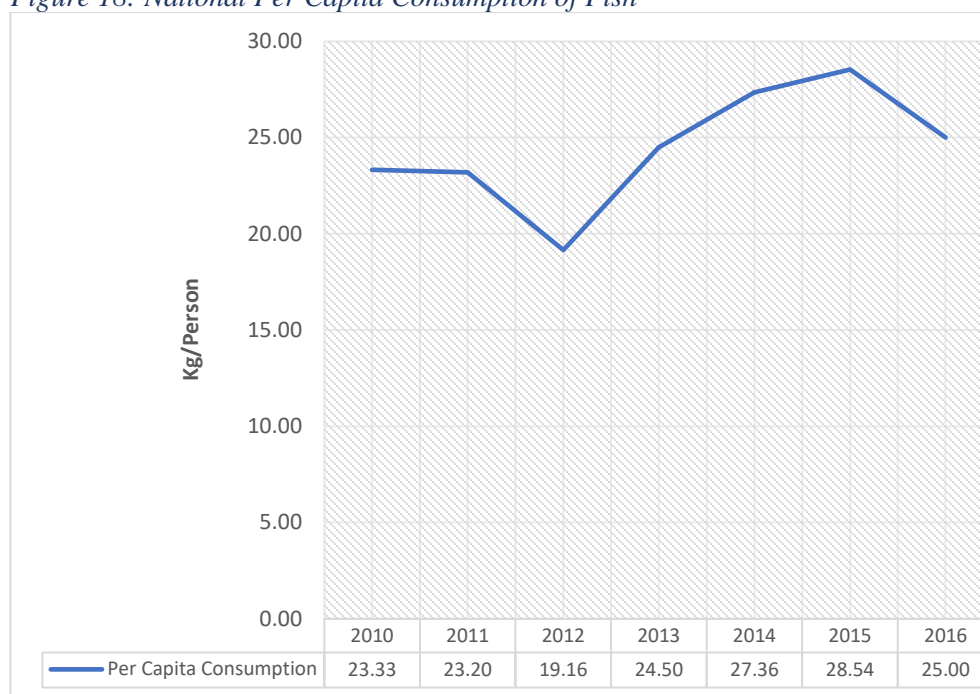
Source: Gambia Bureau of Statistics (GBOS)

Consumptions

In 2005, 107 million Mt of fish were available globally for human consumption. Undoubtedly, consumption was lowest in Africa (7.6 million Mt indicating 7.1% of the global total, with 8.3 kg per capita). In comparison, Asia accounted for 66.7% of total consumption, of which 36.9 million Mt (34.5%) were consumed outside China (13.9 kg per capita), with 33.6 million Mt (31.4%) in China alone (26.1 kg per capita). The corresponding per capita consumption figures for Oceania, North America, Europe, Central America, the Caribbean, and South America were 24.5kg, 24.1kg, 20.8kg, 9.5kg and 8.4 kg, respectively (Green Facts, 2005)

At the country level, fish is the primary source of animal protein in the diet of vast majority of Gambians with an estimated national per capita consumption of 25kg, one of the highest in West Africa in 2016 (The Point News Paper, Tuesday, May 23, 2017). This per capita consumption is 23.2% (20.3kg) and 180% (8.9kg) over the global and Sub-Saharan Africa’s per capita consumption respectively. Figure 20 presents the per capita consumption of fish in the Gambia from 2010 to 2016 which, covered GNAIP implementation period. Fish consumption varies greatly between the urban and rural dwellers. Earlier production figures in Figure 18 show that there is huge difference between urban (marine) and rural fish production.

Figure 18: National Per Capita Consumption of Fish



Source: Department of Fisheries, 2015 and Green Facts 2017

levels and so is the per capita consumption. For instance in 2016, the national per capita consumption of fish was estimated at 25kg while 9kg was used for the rural areas. However, with the advent and increased aquaculture production particularly in the rural areas, the per capita consumption of fish is expected to rise significantly. Taking into account the national per capita consumption of 25kg, the total annual consumption of fish was estimated at 50,962.5 Mt in 2016 and with the total production of 58,259.6 Mt the surplus was 9,296.1 Mt. However, if about 32% of the total production of 58,259.6 Mt is destined for exports, the consumption deficit was estimated at 11,336 Mt in 2016 as presented in Figure 20. This fish consumption deficit is corroborated by frequent lack of fish in the domestic markets due to shortages particularly at the approach, during and after religious feasts. Associated with this shortage is: the “non-Gambianization” of the fishing industry largely dominated by foreigners who travel to various home destinations for the celebrations accompanied by capital flight that inflicts a substantial drain on the Gambian economy through shortage of foreign exchange.

4.1.4 Production and value chain promotion on forestry and environment sub- sector

Barely a century ago, most of the country comprised dense forest cover. However, since the late 1960’s it has been significantly degraded in quality with deterioration in both density and species composition. The deterioration was such that the once, closed forest cover of 1968 degraded to open woodlands and further to tree and savannah vegetation classes. Results of the National Forestry Assessment (NFA, 2010) indicate that regardless of the type, the great majority of the forest is secondary young (more than 50%), while a smaller proportion (around 30%, but more than 40% for semi-deciduous) is secondary mature. Primary forest constitutes about 11% of the area of evergreen/gallery forests found in valleys and hydromorphic areas in smaller percentages of other forest types. The assessment (NFA, 2010) showed a total forest area of 423,000 ha in 2010 compared to 520,400 ha in 1998- a loss of 97,000 ha.

This has been attributed to increased population pressure; increasing demand for fuel wood, charcoal, timber and non-timber products; recurrent bush fires; overgrazing; unsustainable forest resource exploitation practices; extensive cultivation and poor farming practices (farm burning and tree felling) exacerbated by increasingly frequent cyclic droughts.

Forest resources play a key role in the socioeconomic development of The Gambia contributing 1.2 % to the GDP, providing 927,000 m³ of fuel wood per annum and constituting 80% of domestic cooking energy¹⁴ requirements. Some of the main tree species of economic importance in both the energy and the construction sectors, are African mahogany (*Khaya Senegalensis*), *Pterocarpus erinaceus*, *Erythrophleum guanine*, *Terminalia* spp., *Borassus aethiopum*, *Elapids guineensis*, *Cordyla pinnata*, *prosopis Africana*, and *Daniella oliveri*. There are also a large number of forest trees that produce valuable non-wood products of economic importance such as wild edible fruits, incense, medicines, etc. These include *Detarium Senegalese*, *Spondias mombin*, *Perkier biglobosa* and *Dialium guineense*. Most of these trees also have use as firewood.

The Department of Forestry (DOF) has over the years introduced a number of programme guidelines and concepts to address the challenges of forest degradation, deforestation and desertification. Key among these are the Gambia Forest Management Concept (GFMC) of 2000, the blue print for participatory forest management and the community-based forest enterprise development using the Market Analysis and Development (MA&D) approach. The Participatory Forest Management Programme, which engages communities in management and benefit sharing of forest resources has been gaining momentum with 36, 963 ha in the various phases¹⁵ as presented in Table 15. The annual tree planting exercise Gambia also promoted by the Department of Forestry culminated in the transplanting of about 834,940 seedlings in 73 ha for Woodlots between 2011-2015¹⁶.

Table 15: Updated Summary of the National CF Overview

Regions	Start up		PCFMA		CFMA		Total	
	no.	ha.	no.	ha.	no.	ha.	no.	ha.
West Coast	10	00	19	3109.1	46	5040.95	81	8150.05
Lower River	31	1152.3	22	2286.39	17	4021.03	70	7459.72
North Bank	11	00	65	3865.37	7	357.5	83	4222.87
Upper River	35	331	8	609.5	27	3267.13	70	4207.63
Central River South	40	1177.45	17	1238.5	58	4678.12	115	7094.07
Central River North	26	237.7	23	1682.5	65	3908.99	114	5829.19
Total	151	2,898.45	154	12,791.36	220	21,273.72	533	36,963.53

Source: Department of Forestry

¹⁴ According to GBOs Fuel wood usage =94.5% rural and 48.1% urban while for charcoal 1% rural and 35.1% urban

¹⁵ Start-up, Preliminary Community Forest Management Agreement (PCFMA) and Community Forest Management Agreement(CFMA)

¹⁶ Another 28,447 seedlings were transplanted in 2015

Forestry SWOT Analysis

Strengths

- Existence of updated policy and strategy to guide development of the sector
- Existence of the institutional framework for the development of the sector
- Existence of forest management development models
- Good working relationship with local people in community forest areas
- Good experience in community forestry

Opportunities

- Appropriate framework and approach for the development of the sector – the Gambia Joint Community Forest Management Concept
- Environment conducive for international support for forest regeneration and sequestration of carbon e.g. GEF, Green Climate Fund, etc
- Positive relationship with many donors
- Good regeneration potential of forests
- High demand on forest products

Weaknesses

- Limited number of staff (200) and insufficient capacity (mostly at certificate level) for the optimal development of the sector
- Absence of advanced training institutions on forestry and related subject matter.
- Limited budgetary and other resources that hinder adequate monitoring of resources
- Insufficient in-service training
- Insufficient research work

Threats

- Recurrent bush fires
- Climate change phenomenon including more frequent drought
- Rising and rapid demand for biomass energy, timber and non-timber products
- Rapid expansion of real estate agencies and commercial farming
- Unwillingness of local communities to participate in in protection of non-community forests
- High population pressure on forests (high demographic growth and urbanization)

Biodiversity, Wildlife and Parks

The Gambia comprises three major ecological systems¹⁷ endowed with a significant wealth in biodiversity comprising a wide variety of fauna and flora. The fauna comprised 117 mammals species, 576 bird species from 75 families, 67 reptiles, 30 amphibians and 114 fish species. There are 22 registered wildlife protected areas covering 76,064 Ha or 6.4% of the country's area. Eight of the protected areas are national parks and nature reserves which are complemented by 14 community-based conservation reserves and parks under the mandate of the Department of Parks and Wildlife Management (DPWM). The protected area network provides important habitats for rare and endangered species of global importance, as well as spawning and nursery grounds for fish. The Gambia has three protected areas¹⁸ recognized under the RAMSAR Convention as wetlands of international importance.

However, given the current rate of ecosystem and habitat destruction, these numbers could rapidly decline. In this regard, efforts need to be made to conserve the biodiversity through mangrove regeneration, control of hunting especially by tourists.

Biodiversity, Wildlife and Parks SWOT Analysis	
Strength	Weakness
<ul style="list-style-type: none">• Existence of updated strategy (NBSAP 2015-2020) to guide development of the sector• Existence of an appropriate institutional framework for the development of the sector• Availability of qualified personnel at HQ and field staff at key sites.	<ul style="list-style-type: none">• Limited number of staff and insufficient capacity for the optimal development of the protected areas• Limited budgetary and other resources available for the requisite development of the protected areas• Low public awareness on biodiversity issues• Limited private sector involvement in biodiversity resources management.
Opportunity	Threat
<ul style="list-style-type: none">• Existence of ratified conventions to guide national, regional and international exploitation of the resources• Availability of technical support organizations e.g IUCN• Existence of habitats for rare and endangered species of global importance.	<ul style="list-style-type: none">• Habitat destruction particularly of fauna due to manmade and natural factors• Climate change phenomena and salinization leading species extinction.

¹⁷ 1. The marine and coastal zone along the western coast; the area along the River Gambia and related fresh water and estuarian ecosystems; and the territorial ecosystems behind the coastline and to the north and south of the river.

¹⁸

4.1.5 Food and nutrition security, resilience, social protection

In line with the National Nutrition Policy, the vision is that of a Gambia free of malnutrition. In this regard, the priority interventions hinge on the following:

- **Improving maternal nutrition with the aim to (i)** improve the Nutritional Status of women before, during and after pregnancies; and, (ii) to reduce the prevalence of malnutrition among women of child bearing age.
- **Promoting optimal infant and young child feeding**, interventions will hinge on: (i) Improve the nutritional status of children; (ii) promote optimal infant and young child feeding practices; (iii) promotion of nutritious safe and locally available complimentary foods; (iv) support communities to implement community-based programs, which protect and support infant and young child feeding practices; (v) Strengthen and expand the Baby Friendly Community Initiative (BFICI) strategy to all communities; and, (vi) Support capacity building of community-based extension workers on infant and young child feeding.

- **Improving food and nutrition security at national, community and household levels**

Interventions under the theme will aim to: (i) improve household nutritional knowledge; (ii) develop nutritional awareness/education programs integrated into curricular throughout the basic cycle; (iii) promote nutrition sensitive agricultural practices (diversification, food fortification, food safety) through methodological and technical support; (iv) support SBCC campaigns on the management of agricultural waste, food hygiene and safety; (v) promote inter-sectoral collaboration on addressing food and nutrition security; and, (vi) mainstream nutrition into investment policies and plans at national level

- **Prevent and control micronutrient malnutrition among the population, especially women and children**

Key interventions will aim to : (i) increase household consumption of iodized salt; (ii) eliminate Vitamin A Deficiency and its consequences; (iii) promote fortification of food with micronutrients; (iv) increase awareness through SBCC on the importance of micronutrients and their consumption; and, (v) support linkages among government, NGOs and private sector.

- **Improve Food Standards, Quality and Safety**

In view of the significance of imported and marketed food in domestic consumption, it is crucial to improve food safety through standards and regulations of the market. Interventions aim to: (i) improve the food control system; (ii) support the development of standards; and (iii) Support function of national laboratories for food testing.

- **Prevention and management of food and nutrition cyclical crises are ensured**

In the bid to improve vulnerability and resilience of households, the interventions aim to: (i) support and strengthen the information and early warning systems on crisis risks and developing the harmonized framework analysis; (ii) support and Strengthen capacity in community food reserves, establish a national food reserves and link the latter with the regional management; and, (iii) prevent food crisis, strengthen alerts systems, mitigate them and prepare responses that are dependent on quality information systems.

- **Improving access to food, nutrition and resilience of vulnerable populations**

Priority interventions aim to: (i) ensure that household resilience is strengthened and their vulnerability to chronic and nutrition insecurity is reduced; (ii) Governance of food and nutrition security is strengthened

with the capacity of civil society actors (NGOs and producers) strengthened in the governance of resilience; and (iii) national information systems are fully functional and provide relevant decision support .

Social Protection and Food Safety Nets

The NSPP proposes a set of priority actions to guide the establishment of a comprehensive social protection system in the country, key amongst these are:

- Safeguard the welfare of the poorest and most vulnerable populations, for example through unconditional cash transfers and in-kind transfers;
- Protect vulnerable populations from transitory shocks;
- Promote livelihoods and income of the poorest and most vulnerable, economically active population
- Establish and promote weather-based insurance system for farmers
- Design, implement/expand social safety net for example unconditional cash transfers and public infrastructure works, for example land conservation works

Improve the care and nutritional status of the socio-economically deprived vulnerable groups

- Establish an effective nutritional care and support system for the socioeconomically deprived and nutritionally vulnerable population
- Capacity building on the provision of nutritional care and support to socioeconomically deprived and vulnerable
- Advocacy for food and nutritional programs directed at the vulnerable
- Capacity building of community service care providers and PLHIV

Nutrition During Emergencies

- Prevent malnutrition among the vulnerable during emergencies
- Nutrition education

Integrating nutrition into agric. and food programmes contributes to the implementation of comprehensive strategies to malnutrition control

- Build capacity in HF for accurate and reliable (vulnerability assessment) information on FSN -need strong analytical + information processing skills for key stakeholders in FSN
- Build analytical capacity of key national agencies in FSN (PSU, NaNA, etc.)
- Provide support (equipment and training)

SOCIAL PROTECTION

In cognizance of the pervasive nature of poverty and multi-dimensional vulnerability in The Gambia, the Government approved the National Social Protection Policy (NSPP 2015-2025). It has the vision to establish by 2035, an inclusive, integrated and comprehensive social protection system that will effectively provide preventive, protective, promotive and transformational measures to safeguard the lives of all poor and vulnerable groups in The Gambia and contribute to broader human development, greater economic productivity and economic growth.

The social protection system in The Gambia is marred by a multiplicity of challenges including: inadequate human and financial resources; limited coverage of services and sizes that are generally inadequate for the attainment of basic needs; fragmented programmes that are often short-term or emergency related; absence of any weather-related crop insurance cover for farmers; and, limited coordination of programmes and M&E.

The NSPP proposes a set of priority actions to guide the establishment of a comprehensive social protection system in the country, key amongst these are:

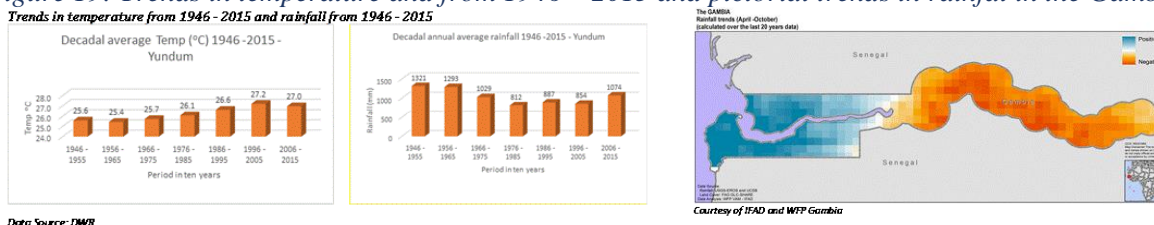
- Safeguard the welfare of the poorest and most vulnerable populations, for example through unconditional cash transfers and in-kind transfers;
- Protect vulnerable populations from transitory shocks;
- Promote livelihoods and income of the poorest and most vulnerable, economically active population
- Establish and promote weather-based insurance system for farmers
- Design, implement/expand social safety net, for example unconditional cash transfers and public infrastructure works, for example land conservation works

CLIMATE CHANGE ADAPTATION

Climate and climate change

The Gambia's climate is characterized by a short rainy season (June to October) and a long-dry season (November to May). Mean annual rainfall varies from 900mm in the Southwest to 500mm in the Northeast and average temperatures, increasing inland from the Atlantic Ocean, ranges from 18 – 30°C during the rainy season and 23-33°C during the dry season. Trends in climatic data (rainfall, temperature) over the past manifest climate change phenomena; an upwards trend in temperatures and a downwards trend in rainfall which (see figure 19 below) are erratic and variable in nature. The resulting intermittent droughts and floods has, in the recent past become a common phenomenon impacting on the length of the rainy season. Severity of the rainfall pattern, as indicated in figure 21 below, is more pronounced in the eastern part of the country. Over the last decades, this have resulted to a considerable reduction in quantity and quality of surface water (water scarcity); dried up springs and streams, and upwards/inland movement of the saline front into originally perennial water bodies – dry season saline front moved from Carrols Wharf to Kuntaur (250Km Upstream). Droughts, floods, extreme temperatures and rise in sea level is, as elaborated in the Gambia NAPA, expected to impact negatively on agricultural production and productivity. Thus, a decline in the purchasing power of the poor rural farmer and subsequent food insecurity and health risk due to unaffordability of medications. To mitigate the impacts of these climatic extremities, Government, in line with the ANR policy and NCCP, is mainstreaming and integrating climate change issues into sectors development priorities. Ongoing interventions includes the: IFAD funded *Nema-CHOSSO*; AfDB funded Programme for building resilience against food and nutritional insecurity in the Sahel (P2RS); FASDEP, GCAV, Adapting Agriculture to Climate Change (FAO/GEF/LDCF/GOTG); Community based Sustainable Dry land Forest Management Project (FAO/GOTG); EU funded Post-Crisis Response to Food and Nutrition Insecurity in The Gambia (EU EDF 11 Envelope B) and Agriculture for Economic Growth (EU EDF 11 Envelope A); Strengthening climate services and early warning systems in The Gambia for climate resilient development and adaptation to climate change – 2nd Phase of the Early Warning Project (GEF/UNEP/UNDP); Large-scale Ecosystem-based Adaptation in The Gambia: developing a climate-resilient, natural resource-based economy (Green Climate Fund) and Enhancing Coastal resilience project: “Enhancing Resilience of Coastal and Estuarine/riverine economies and livelihoods of the districts of Serrekunda, Jokadu and Upper Baddibu to Climate Change. These programmes/projects along with other pipe line project such as (ROOTS) are expected to enhance farmer resilience to climate change whilst boasting the production and productivity of the arable land.

Figure 19: Trends in temperature and from 1946 – 2015 and pictorial trends in rainfall in the Gambia



Data Source: DWR

4.2 Detailed presentation of components of the 2019-2026 plan

4.2.1 Food crops and vegetables value chains

The thrust of this programme is to enhance food crop and vegetable value chains through a number of measures/strategies including production intensification; improving productivity on a sustainable basis along the value chain of the commodity products and reducing post-harvest losses through processing and marketing. Consequently, Government will scale-up and/or introduce development programmes to optimize the use of soil, water, labour and capital resources to expand food production, reduce poverty, improve food and nutrition security and enhance economic growth.

Cognisant of the economic strength of the main actors in the commodity value chain, Government and partners have to continue bearing most of the costs whilst engendering effective participation of the farmer beneficiaries and in operation and maintenance for the realisation of the desired pro-poor growth. Essentially, for a guaranteed sustainable pro-poor growth, intensification of production and productivity of the commodity value chains will, in addition to infrastructural development for sustainable natural resource utilisation, foster (i) timely availability of and access to production inputs and services; (ii) access and adherence to Good Agricultural Practices (GAP) including climate smart agriculture techniques; (iv) post-harvest handling including cold storage; (v) and processing, packaging and marketing. The programme will endeavour to optimise use of the existing arable land (440,000ha <https://tradingeconomics.com/> and about 550,000 ha according to LRS 22) water (surface and groundwater - about 650 billion m³, recharge is sensitive to rainfall and susceptible to Climate Change), and human capital resources

The programme envisaged to spearhead the development agenda through the following strategies: -

Strategy 1: To improve production infrastructure for priority food crops and vegetables;

Strategy 2: To enhance sustainable intensification production of priority food crops and vegetables; and

Strategy 3: To develop and promote post-harvest handling, produce transformation and marketing chains of food crops and vegetables.

Strategy 1: PIC1 - To improve production infrastructure for priority food crops and vegetables

The component comprises of three sub-components, namely: (i) Lowland Development for Rice Production; (ii) Upland development for improved sustainable crop production; and (iii) Vegetable Garden development - Irrigation for Horticulture. In view of the need to instil sense of ownership and enhance sustenance, full participation of beneficiaries will be promoted all through the construction process. The structures will be designed and constructed to withstand extremity of the variable climatic conditions – droughts and floods. This climate change adaptation measures, when complemented with suitable agronomic practises, will increase water availability for crop production and pave the way to **improve producer resilience to climate**. The development agenda will be an up-scale of the participatory demand-driven approaches employed in the first generation GNAIP projects (SLMP, PIWAMP, *Nema*, FASDEP, GCAV, EU-funded FAO managed EU-MDG1c, Envelope A and Envelop B, and the GEF funded FAO-managed AACC and CBSFMP). Furthermore, to avert potential ejection of the landless, all development of irrigation schemes will be preceded by addressing the land tenure security for the producers, notably women, youth and commercial farmers. Local Government Authorities will be engaged in identifying conditions required to strengthen tenure security especially for the most vulnerable groups including youths and women.

PIC1S1: Lowland Development for sustainable Rice Production: Expanded development for irrigated rice production is constrained by the potential upstream movement of the saline front and area under tidal command. With the current **climatic trends**, there is a felt need to conduct a suitability assessment of the lowlands under GNAIP 2.0. to determine the appropriate intervention including the delineation of the exact irrigable area (location and hectarage) under tidal and pump. This will help avoid mistakes made in the

Niaminas (Dankunku, Jareng and Kudang tidal developments) under the erstwhile Small-Scale Water Control Project (1991-1997). The results will inform on the appropriate development strategy to adopt in the vast potential rice production areas to augment the food and income security status of the under privileged rural farmers. The outcome of the lowland interventions subsequent to infrastructural development activities include: -

- a) lowland suitability classification developed and map produce and disseminated;
- b) lowland production and productivity enhanced through improved climate resilience of water control and management infrastructure and facilities for: -
 - i. access to fertile difficult to access riverine seasonally saline and run-off inundated flood plains;
 - ii. water retention on valleys and back-swamps; and
 - iii. irrigated areas (tidal and pump).

Detailed works for each sub-ecological zone under the sub-component are as discerned below.

- **Seasonally saline and runoff inundated flood plains:** this difficult to access rice-fields will be opened through improved access provision/rehabilitation by constructing (i) surfaced roads/causeways wide enough for animals drawn carts; (ii) side ditches to improve tidal flow; (iii) footpaths to improve accessibility to individual fields; and (iv) bridges across main courses
- **Water retention:** cascaded water retention dikes equipped with spillways will be constructed on contours to slow the process of upland runoff evacuation to the river are arrest land degradation and optimise water availability for crop growth. Along shorelines, anti-saline dikes with spillways of crest above tidal level will be constructed to facilitate drainage of excess rain water whilst averting salt water intrusion.
- **irrigated areas:** these areas within the year-round fresh water zone of the Gambia river has potential of 200% cropping intensity. Interventions include (i) to construct and equip low-lift pumping stations; (ii) land levelling for improve water management; (ii) construction of earthen structures (flood and run-off protection dikes, field and plot bunds, irrigation and drainage canal networks); (iii) provision of access and field roads with culverts and/or bridges; (iv) establishment of in-field water control/regulating structures/gates; (v) construction and installation of tidal inlet/outlet gates; and (vi) provision of run-off evacuation drains.

Initial targets under infrastructural development to enhance climate resilience for the lowlands	
Ecology	Area (ha)
Consolidation of lowland cropped under GNAIP 1 **	17,000
Seasonally saline & run-off inundated flood plains – new	1,000
Water retention/back swamp	1,000
Tidal irrigated- consolidation	2,600
Tidal -new development	1,000
Pump irrigated – consolidation	750
Pump irrigated – new development	650
** Seasonally saline & run-off inundated flood plains, Water retention/back swamp	24,000

PICIS2: Upland development for improved sustainable crop production: Complimenting the ongoing watershed development programmes, this intervention will focus on the uplands with the aim of minimising upland run-off and associated farmland degradation resulting from the effects of climate change. The structures will further enhance ground water recharge, and fertility restoration and soil water retention within the food crop production site, subsequently enhance land productivity. Activities includes construction of contour bunds, contour strips, diversion structures, gully plugs and grass water ways amongst others. Farmers will be trained up-keep of the structures and on bund stabilisation strategies such as planting of vetivera and elephant grasses. This will subsequently pave the way for sustained crop production especially, upland rice, coarse grains, groundnuts, findi, etc. Target area to be improved under GNAIP II is 3,000 hectares to enhance climate resilience of some 3,000 households.

PICIS3: To Establish year-round vegetable production schemes: the outcome of the sub-component includes (i) rehabilitation and upgrading the watering facilities for 200ha of gardens developed by erstwhile

projects (GALDEP and LHDP) to ensure year-round production of vegetables; and (ii) establishment and operationalise an additional 1500ha new gardens (300 schemes of 5-ha fenced schemes provided with modern irrigation facilities and production associated infrastructure) as commercial farms, and women and youth group vegetable production site. Activities under this intervention include: (i) fencing of garden perimeter with chain link; (ii) provision of watering facilities and equipment (boreholes, solar power generators and water lifting devices, overhead tank and necessary fittings, complete drip irrigation network including fertigation kits, ground reservoir with taps for distribution and shallow wells); and (iii) nursery shed, farm store and sorting room. This climate change impact mitigation measure targets 1,500 young farmers and 3,000 women across the seven Agricultural Regions.

As part of the infrastructural development programme, land tenure issues constraining development of the horticultural industry will be addressed. At the end of the exercise, it is expected that land tenure will be secured, notably for women, youth and commercial farmers in the vegetable production industry. Activities to be performed will include: (i) undertake identification and analyses of major constraints to land tenure security for producers (particularly women and youth) and to development of commercial farming; (ii) determination of required conditions to strengthen tenure security especially for the most vulnerable groups; (iii) resolve on measures and steps for improvement of the national land policy through participatory processes; (iv) sensitizing and engaging all land users, notably youth, women and commercial farmers in the land tenure policy review process; and (v) supporting women and youth in particular, in eventually securing land rights.

PIC1S4: Capacity Building: Capacity development will be addressed at two levels, namely institutional and organisational (farmer beneficiary level).

At institutional level: the outcome would be that service provider institutions will be capacities to (i) undertake design of infrastructures and facilities required for the establishment of lowland rice production schemes, upland soil and water conservation and vegetable gardens; (ii) supervise construction and engineering consulting firms hired for design and construction supervision; (iii) preparation and review of tender documents; (iv) monitor and analyse surface and ground water characteristics as it affects the various irrigation system; and (v) conduct EIAs and implement ESMPs. Activities will include (i) provision of professional training and development of technical staff of service providers; and (ii) provide machinery/equipment and upgrade facilities for timely climate information and data collection/generation of hydrological data to enhance effective disaster risk management. The target institutions are the SWMS of DoA, AES of DoA and AEU of NARI, DWR, NEA and the NRA of the MoWI.

Farmer Organisation level: the outcome will be a farmer organisation capable to conduct participatory monitoring of development works and undertake operation and maintenance of infrastructure/facilities provided. Activities includes, (i) establishing farmers into product interest groups/organisation, (ii) train farmer groups/organisations on scheme assessment and maintenance of infrastructure and (iii) conduct simple on-farm land development and preparation activities.

Strategy 1: PIC2-To enhance sustainable intensification production of priority food crops and vegetables

This component comprises of three sub-components, namely (i) Skills development for production intensification and productivity enhancement; (ii) Production support - input and services; and (iii) Institutional capacity building.

PIC2S1: Skills development for production intensification and productivity enhancement: the outcome of the sub-component is an increased production and productivity of the farm family on sustainable basis as a result of an intensified adoption of improved and appropriate farming practice.

The sub-component implemented through farmer field schools will provide the farmers, through participatory interactive learning process, the pre-requisite knowledge in: (i) improved soil fertility and land

husbandry; (ii) conservation agriculture; and (iii) Integrated Plant and Pest Management (IPPM). Horticulture farmers will be trained on organic farming, basic operation and maintenance of facilities (nursery sheds, storage facilities and equipment/machinery) and organizational, financial and business management skills. Groups will be supported by linking them to private sectors through contract farming to address marketing constraints, boost production and increase specialization. Irrigated rice farmer will also acquire special training on basic principles of tidal cycle and tidal irrigation system; on-farm water management including irrigation scheduling, rotational irrigation and handling and operation water control gates; and repair and maintenance of irrigation facilities and equipment/machinery. The avenue will be used to disseminate relevant technologies, practices (such as adaptive natural resources management -especially land and water resources management) and processes develop to improve national and local capacities to maintain and increase resilience of agricultural systems to climate change. Activities will include *inter alia*: development of training curriculum, sensitization and organization of farmers into learning groups, establishment of FFS, training/equipping extension workers/facilitators and farmer group leaders, training sessions for farmers and horticulturalists, and monitoring and evaluation. Extension workers and NGOs are expected to implement much of the sub-component activities. The extension services and training unit will be supported to tailor their training programmes to the needs of specific groups, such as men and women farmers. The sub-component will include mechanisms for securing resources to farmers (loan or grant). Coverage will be countrywide, targeting an estimate of 6000 irrigated rice farmers (1100 rice farmer families), 1500ha new and about 1000ha existing community gardens and 24,000 rain-fed farmers.

GNAIP 2.0 Production and yield target

Much emphasis will be placed on production intensification and productivity enhancement. Subsequently, use of the available land and water resource will be optimized. The table below provides a synopsis of GNAIP (2011-2015) achievement and the targets for GNAIP 2.0 (2019-2023), a productivity enhancement focused strategy.

Crops	GNAIP 1 achieved ¹		GNAIP 2.0 minimum target		
	Area (ha)	Yield (/ha/yr.)	Area (ha)	Yield (/ha/yr.)	Production (t)
Rice - Upland rainfed	60,262	0.850	60,000	2.5	150,000
Rice - Water Retention & Back Swamp	17,653	0.933	10,500	2.0	21,000
Rice - Seasonally Saline & inundated flood plains			8,500	2.0	17,000
Rice - tidal irrigated	1200	6	3,600	8	28,800
Rice - pump irrigated	150	4	1,400	10	14,000
Total rice	79,265		84,000		230,800
Millet	109,077	0.876	110,000	1.4	154,000
Maize	30,057	0.995	30,000	1.6	80,000
Sorghum	29,334	0.827	30,000	1.0	30,000
Total Coarse grain	168,468		170,000		264,000
Total cereal	247,733		254,000		494,800
Groundnuts	106,157	0.897	110,000	1.2	132,000
	353,890		364,000		

Source: Review of the NAFSIPS and determine implementation capacity gaps

At a population growth rate of 3.3%, expected population in 2023 will be 2,604,730 persons and milled rice requirement at 117kg per capita will be 304,753 (equivalent to 455,828 of paddy); therefore, target national production will be about 50.6% of requirement. With the promotion of value addition on cereals, processing of ready-to-use coarse products, the shortfall could be partially met by coarse grain.

PIC2S2: Production support - input and service: the sub-component concerns the assurance of timely availability of farm inputs (seed, agro-chemicals and implement) at affordable price. The outcome includes an increased: (i) use of improved seeds/planting material adopted; (ii) timely use of fertiliser and other agro-chemicals (e.g. aflasafe) at the recommended rates adopted; (iii) cropping intensity (almost 200%) in rice irrigated schemes; and (iv) year-round vegetable production on at least 2500ha. Investment actions will include *inter alia*: development of input financing schemes and agro dealer networks - seasonal revolving loan schemes with NGOs (GWFA, WISDOM – exclusively women NGOs) encouraged and support to assist female farmers; support establishment of facility for on-farm mechanisation leasing/hiring through private sector equipment hiring entities; complementary repair workshop through concessional financing of equipment hiring and purchase, service schemes through farmer organisation, youth groups, village development communities, and private entrepreneurs; facilitate creation of e-registration schemes for input distribution (improved seeds, fertiliser and other agro-chemical) to enhance timely availability. Government will act as facilitator and not directly responsible for financial dealings.

PIC2S3: Capacity building

Producer organisations: Under this sub-component the producers will be organised in crop specific farmer (e.g. rice farmer, maize grower's, etc.) organisation with due consideration to any existing traditional groups. The body will be developed, strengthened financially and technically with environment specific and dynamic governing rules. The organisations will further have its leadership trained in areas of decision making, resource mobilisation, accounting and management, communication and conflict resolution to facilitate the coordination and operationalisation of the production system on sustainable bases.

Service providers: skills and knowledge will be enhanced through human resource development to improve extension service delivery, including irrigation water management, climate smart agriculture and organisational development. Research will be supported to upscale varietal trials and dissemination of results through on-farm trial and field days. Seeds programme of NARI will be further strengthened with equipment/machinery to improve seed production, cleaning and distribution. The sub-component will further facilitate extension farmer contact through mobility support. Key institution to benefit include DoA Regional Directorates and Service Units, NARI and NGOs such as AAITG, NAWFA, FP

Strategy 3: PIC3 - To develop and promote post-harvest handling, produce transformation and marketing chains of food crops and vegetables

The thrust of the component is to transform the food crop and vegetable sub-sector from subsistence base economy to modern market-oriented commercial sector with a view to increase incomes of the value chain actors. Performance of key stakeholder in the food chains will be strengthened for optimal operation and access to markets improved. Private sector investment in the agro-processing industry will be promoted and linkage with producers established through contract farming. Product differentiation will be a key strategy in the partnership between the value chain actors; Government will be obliged to support promotion of local produce on the domestic market to stimulate marketing opportunities for the value chain actor.

The component comprises of five sub-components, namely (i) Support for Development of Storage Infrastructure;(ii) Support for Value Addition and Quality Management; (iii) Support for Market Development and Linkage Facilitation; (iv) Support and Promote Consumption of local food crops; and (v) Support for Access to Agricultural Financing

PIC3S1: Support for Development of Storage Infrastructure: the outcome is that storage facilities for priority food crops and vegetables promoted and established with a view to reduce the post-harvest losses, sustain quality and assure availability for consumers and/or secondary processors. Activities to be supported include: (i) the refurbishment of all the NAFSIP warehouse at strategic location (Tendaba, Bansang, Kuntaur) within the country for bulk handling of groundnut before evacuation to the main depot in Banjul (Sarro -Denton Bridge); (ii) support establishment of silos/grain stores at strategic locations (major weekly market sites) nationwide for the coarse grains, this intervention will be initially performed by VDCs/LGA/NDMA/NGO supported farmer group/organisation; (iii) construction of stores and drying floors newly for established irrigated rice perimeters; (iv) establish multipurpose storage facilities and collection centres for horticulture produce, and (v) facilitate acquisition and operation of refrigerated vans in strategic horticulture crop producing districts.

PIC4S2: Support for Value Addition and Quality Management: the outcome of the sub-component is that Agro-based industries/enterprises on priority food crops and vegetables are developed and sustainable supply of quality products, improved. Furthermore, the resulting quality product will increase competitiveness of and demand for local products thereby improve market access and enhance returns. Main investment action includes: to promote agro-industrial development through skills development for both service provider and value chain actors in appropriate agro-processing technologies; to establish, equip and operationalise a national food testing laboratory Accredited (to ISO 17025) to certify food products; to up-scale and upgrade value addition initiatives such as the women hot pepper processors at Nyagen CRR/N

and the groundnut paste and oil producers at Chilla in NBR; to improve sorting/grading, packaging and labelling of products including onions.

PIC4S3: Support for Market Development and Linkage Facilitation: the outcome is that the small-scale producer and processors (especially youth and women) will associate into Agricultural (Value chain) Cooperatives and explore linkages with National (e.g. tomato producers and GACH Global), Regional and International Markets thus enhance income generation and Poverty Reduction. Investment action includes: establish/reactivate and strengthen producer and processor (especially women and youth) cooperatives; improve market access through improvement of rural road networks including access roads to production sites; promote contract farming; to promote access to improved market information system to stakeholders and support enforcement of ECOWAS trade protocols; promote Gambian products in target markets through supporting participation in national, regional and international trade fairs.

PIC3S4: Support and Promote Consumption of local food crops: to revert the growing trend of consumer shift to rice-based diets and increase demand for coarse grain-based diet, development of ready-to-use products of coarse grains will up-scaled and promoted. Investment action will be training of agro-processors on the preparation, packaging and labelling of the coarse grains; Facilitate access to the processing equipment and train operators in operation and maintenance; sensitisation of consumers through cooking demonstrations and the media (radio and television programmes); and support participation to trade fair. Furthermore, the increased demand will foster an increase in coarse grain production and processing, thus, positive Employment creation and income generation opportunity.

PIC3S5: Support for Access to Agricultural Financing: the outcomes include (i) finance accessed by priority value chain actors especially women and youth and (ii) risk related to the value chains mitigated. Investment action will include (i) provision of long-term financing and a technical assistance facility to producers and retailers of proven, culturally appropriate post-harvest loss solutions; (ii) creation of leasing window for post-harvest loss control equipment by value chain actor (producer/processor/trader) organisation/cooperatives via on-lending; and provision of direct funding, technical assistance and capacity-building to SME funds as well as surrounding ecosystem players (e.g. credit bureaus and data analytics providers).

Direct beneficiaries of the development and promotion of the transformation and marketing of food crops and vegetables include Government agencies, value chain stakeholder and Post-harvest equipment trader, repairers and fabricators. Thus, positively contribute to the realisation of the national goal of poverty reduction and economic growth.

4.2.2 Livestock value chains

The livestock programme targets the cattle milk and beef, small ruminant meat, poultry meat and eggs, and honey value chains. The key production and value chain strategic interventions are aimed at increasing livestock production and productivity, processing and marketing on a sustainable basis. The strategic interventions would promote the commercial market-oriented and traditional mixed farming production systems, strengthen the support services, i.e. veterinary, extension and training and marketing infrastructure, and strengthen the policy and regulatory frameworks. The interventions are meant to overcome the critical constraints that reduce output and market value of livestock products.

The goals of the livestock programme are:

- To enhance livestock production and productivity for increased food and nutrition security;
- To enhance livestock value chains for livestock transformation;
- To enhance the capacity of livestock value chain actors; and
- To enhance access to livestock markets, services and value addition.

These goals are consistent with those of the NDP (2018-2021)

The objectives of the livestock programme are:

- To contribute to the attainment of food and nutrition security, income and employment generation through increased livestock production and productivity;
- To develop the livestock commodity value chains;
- To strengthen overall animal health service delivery, research and extension; and
- To create an enabling policy and regulatory environment.

Component 1: Improvement of livestock production and productivity

Sub-component 1.1 Dairy value chain

To enhance the supply of milk and milk products, interventions will target the market-oriented peri-urban commercial dairy production system and the traditional low-input production system. The market-oriented peri-urban commercial dairy production system using crossbred cattle under intensive or semi-intensive systems (compost pens) will be promoted. In this regard, the crossbreeding programme, N'Dama with exotic breeds (Jersey or Friesian) using AI, will be supported. Funding will be provided to purchase sexed semen and participating farmers would be obliged to castrate and fatten bulls. The intervention will take into account previous experiences, the availability and accessibility of reliable feed supply and veterinary care, the environment and the management capacity of the targeted farmers. In this regard, guidelines and incentives for the importation of semen and delivery of AI services, and the selection of participating farmers and the cows to be inseminated should be developed. In addition, public-private partnership arrangements and guidelines to support crossbreeding programmes will be developed. The new commercial milk production system require information on breeding and husbandry of exotic genetic resources; fertility; use of concentrates; hygienic collection, storage and marketing of milk; and marketing of livestock and livestock products.

To improve production and productivity of the traditional low-input production system, animal productivity enhancing technologies will be promoted by DLS and partners. The technologies aimed at increasing milk output and farmer income to be promoted will include, feed production and conservation; feeding and disease control strategies and the use of selected breeding bulls from the nucleus herd at Keneba (Component 5; Activity 5.1). The interventions will target breeding females and young animals, aimed at lowering age at first calving, calving interval and calf mortality. These interventions will be combined with policies changes and improved marketing conditions.

Key activities:

1.1.1: Crossbreeding of N'Dama with exotic dairy breeds: production of F1s cows through AI in the low tsetse challenge areas for market-oriented peri-urban commercial dairy production system.

1.1.2: Establish 25 small holder market-oriented peri-urban commercial dairy production schemes (Linked to 1.1.1).

1.1.3: Promotion of productivity enhancing technologies for the traditional low-input production system.

Sub-component 1.2: Cattle meat production

To enhance the meat production, interventions will target the traditional low-input production system. This activity will involve the promotion of productivity enhancing technologies critical to improved beef

production and will include feed production and conservation; feeding strategies; and disease control strategies and the use of selected breeding bulls from the nucleus herd in Keneba (Component 5; Activity 5.1). The technologies would be promoted by DLS and partners through training and extension. Activities to improve marketing and processing will also be undertaken simultaneously.

Activity 1.2.1: Promotion of productivity enhancing technologies.

Sub-component 1.3: Small Ruminants mutton and goat meat production

Beneficiaries will be supported, through matching grants, to establish small ruminant breeding and fattening schemes. The support will be in the form of provision of improved breeding stock, construction of pens and capacity building. The breeding schemes will be linked to the small ruminant pure breeding programme. Regarding the extensive traditional production system, productivity enhancing technologies, including climate change adaptation measures, genetic improvement, disease control and improved nutrition aimed at lowering age at first kidding/lambing, kidding/lambing intervals and kid/lamb mortalities, will be promoted. The interventions are key to increasing flock growth and faster individual weight gains. In addition, Promote small ruminants crossbreeding improvement programmes – *D'jallonke* sheep/WADG x Sahelian breeds – will be promoted in order to produce offspring with high growth rate, big format and white coat colour as these rams fetch a premium price at *Tabaski*, and regarding goats, higher milk yield. Funding will be provided to purchase breeding rams from neighbouring Senegal. Given widespread ownership of small ruminants by women, the interventions will target women and youth in order to empower them through income generation. Promotional materials in English and the local languages will be developed and used in the outreach activities. The technologies would be promoted by DLS and partners through training and extension.

Key activities:

1.3.1: Establish 400 small ruminants breeding schemes (200 for sheep and 200 for goats) through matching grants.

1.3.2: Establishment of 200 ram fattening schemes through matching grants.

1.3.3: Promotion of productivity enhancing technologies, including climate change adaptation measures.

1.3.4: Promote small ruminants crossbreeding improvement programmes – *D'jallonke* sheep/WADG x Sahelian breeds.

Sub-component 1.4 Pig/pork meat production

The priority interventions to increase pork production will include the establishment of breeding and fattening schemes through matching grants; beneficiaries will be supported through the provision of improved breeding stock (25 sows and one boar), construction of pens, preparation of least cost rations and capacity building. The intervention will include contract farming and out-grower schemes that expand market outlet for small-scale producers. Other interventions will include control of ASF; promotion of improved management practices (biosecurity measures, housing, supplementary feeding); investment in processing and marketing infrastructure (Component 4.0, Activity 4.3); and capacity building for actors in the value chain (producer and butchers). Promotional materials in English and the local languages will be developed and used in the outreach activities.

Activity 1.4.1: Establishment of 50 pig breeding and fattened schemes.

Activity 1.4.2: Promote improved management practices (biosecurity measures, housing, supplementary feeding).

Sub-component 1.5 Poultry production

Under the plan, the commercial (broiler and eggs) and traditional poultry value chains will be targeted to enhance meat and egg production. For the commercial poultry value chains, matching grants and credit will be provided for construction of houses, and the purchase of production inputs. To enhance value addition, private sector investments in small and medium size poultry processing plants and feed mills will be promoted. The intervention for the commercial poultry value chain will include contract farming and out-grower schemes that expand market outlet for small-scale producers. The priority interventions for the traditional village poultry production systems will include the promotion improved management practices (biosecurity measures, housing, supplementary feeding), control of NCD and genetic improvement through crossbreeding to increase live weight and egg production in local chickens.

Key activities:

1.5.1: Establishment of 100 commercial broiler production schemes.

1.5.2: Establishment of commercial egg production schemes.

1.5.3: Promote and support the traditional village poultry production systems; promote improved management practices (biosecurity measures, housing, supplementary feeding).

1.5.4: Promote crossbreeding of the local chickens with exotic breeds.

1.5.5: Facilitate farmer access to credit to expand production.

1.5.6: Support/promote private sector investments in small and medium size poultry processing plants and feed mills.

Sub-component 1.6: Honey production

To exploit the full potentials of the bee industry, there is the need for sensitization, investment, promotion of the use of suitable and standard modern beekeeping materials and to build the capacity of Department of Livestock Services (DLS) to provide the necessary husbandry and veterinary services for the sector.

Key activity:

1.6.1: Establishment of honey production schemes. This will involve provision of modern hives, protective gear, smokers, extractors, strainers and tanks.

Component 2.0: Improved animal health services

The high prevalence of livestock diseases in the country such as trans-boundary, vector borne, zoonosis and emerging diseases present a big challenge to the development of the livestock sub-sector. Increased livestock production and productivity partly depends on the ability of DLS to carry out its mandate. This component aims to improve animal health services in order to improve livestock production and productivity. The priority interventions will include putting in place mandatory annual vaccination programme and control systems for parasites. The epidemio-surveillance system will be strengthened in order to detect changes in diseases occurrence in a timely manner and establish a disease early warning

system and emergency preparedness plan for disease control and prevention. This intervention contributes to addressing climate impact on the livestock sub-sector; it however requires investment in disease reporting systems as well as laboratories capable of confirming diseases. The Central Veterinary and Regional Laboratories will be upgraded for improve disease diagnosis and the capacity of sanitary defence committees and livestock farmers will be trained in early detection of livestock diseases; this will enhance participatory epidemio-surveillance system.

Key activities:

2.1: Put in place mandatory annual vaccination programmes for and vaccinate against endemic diseases - CBPP, PPR and NCD; and measures to control foot-and-mouth and ASF in pigs.

2.2: Strengthen the epidemio-surveillance system and establish early warning system and emergency preparedness plan.

2.3: Establish control system for external and internal parasites and strengthen biosecurity.

2.4: Upgrade the Central Veterinary and Regional Laboratories.

2.5: Build capacity of sanitary defence committees and livestock farmers (linked to Activity 2.2).

Component 3.0: Improvement of feed resources and water supply

Inadequate nutrition is one of the major constraints limiting livestock production and productivity. The livestock feed deficit is aggravated by the effects of climate change on feed quantity and quality. Pasture and water shortages have also led to overgrazing and conflicts between livestock keepers and crop farmers. The key activities to be undertaken will include demarcate of deferred grazing areas to cater for the dry season feed shortages and development of Local Conventions as a management tool for the management of natural resources; this will require institutional and policy support to institutionalise land use planning in the communities. Climate smart interventions will include planting high productivity, drought tolerant and deeper rooted fodder grasses and/or legumes, controlled grazing and adjusting stocking densities to feed availability. Capacities of management committees would be strengthen to ensure sustainability. The establishment of individual pasture and Intensive Feed Gardens - planting of early maturing leguminous tress species with high biomass yield to support the small ruminant breeding and fattening schemes, will also be promoted. With regards to livestock watering points, strategic areas will be identified and watering points - boreholes and reticulation systems and cattle tracts constructed to improve water availability during the dry season and to reduce heat stress from increased temperatures.

Key activities:

3.1: Demarcate and secure 10 deferred grazing areas, including stock routes.

3.2: Develop 30 Local Conventions as a management tool for the management of natural resources.

3.3: Promote establish of individual pasture plots.

3.4: Establish 400 Intensive Feed Gardens.

3.5: Identify strategic areas and construct of 66 livestock watering points.

Component 4.0: Livestock commercialization and marketing

The major constraints besetting the marketing and processing of livestock and its products are insufficient capital to purchase live animals for slaughter; sub-standard nature of the marketing and processing infrastructure including slaughtering, processing and handling facilities (e.g., lack of water and, cold storage facilities); lack of training in meat handling, hygiene, cutting techniques and grading. The objectives of this component is to improve marketing and processing facilities to enhance commercialisation. Under this component, livestock holding grounds at the *loumos* and terminal markets will be upgraded by providing sheds, watering and feeding facilities. Government will provide investment incentives for the private sector to construct a modern abattoir and pig slaughter house in the Greater Banjul Area through public-private partnership, rehabilitate the existing slaughter facilities and construct meat stalls, including processing and storage facilities.

Appropriate sheds for milk handling and marketing of milk and milk products will also be provided to avoid direct exposure to sunlight which could lead to rapid deterioration posing a potential health risk to consumers. To strengthen dairy value chain / business linkages between commercial yoghurt producers and milk producers, will be promoted.

Key activities:

- 4.1: Upgrade holding grounds at the *loumos* and terminal markets.
- 4.2: Provide investment incentives for private sector investment to construct a modern abattoir in the GBA.
- 4.3: Construction of a live pig market, slaughter house and stalls in the GBA.
- 4.4: Rehabilitation of twenty slaughter houses / slabs in both rural and urban communities.
- 4.5: Construction of fifteen meat stalls in growth centres / major towns.
- 4.6: Provide appropriate sheds for milk handling and marketing of milk and milk products.
- 4.7: Promote dairy value chain linkages / business linkages between commercial yoghurt producers and milk producers.
- 4.8: Support market linkages between the small-holder and commercial (semi industrial scale) milk producers to encourage increased production and provision of safety assurance.
- 4.9: Establish a livestock market information system (LMIS).

Component 5.0: Livestock research and development

Livestock research will focus on genetic improvement and feed resources development. Conserving the indigenous livestock breeds that are adapted to the local climatic stress and feed sources is a breeding strategy that is a climate smart option. Therefore, WALIC will be supported to sustain/maintain the N'Dama cattle and small ruminant pure breeding programmes at Keneba to ensure the availability of breeding bulls, rams and bucks for the continuation of the village based pure breeding programme initiated in 2000 with GILMA, and working in close collaboration with DLS. This is aimed at improving the productivity of the N'Dama and small ruminants under the traditional village management system.

NARI will be supported to conduct an assessment of availability and use of livestock feed resources using the Feed Assessment Tool/techfit approach. The approach presents candidate feed technologies or interventions which have potential to mitigate feed constraints such as feed quality and quantity during the

whole year. For village chicken production, research will be conducted to identify locally available feed resources for the formulation of least cost rations for enhanced production and productivity.

5.1 Support the N'Dama cattle and small ruminant pure breeding programmes.

5.2: Conduct assessment of availability and use of livestock feed resources using the Feed Assessment Tool/techfit approach.

5.3: For village chicken production, identify locally available feed resources and formulate least cost rations.

Component 6.0: Capacity building and training

This component is aimed at enhancing the capacities of DLS, NARI and WALIC to carry out their mandates, and the capacities of actors in the various nodes of the livestock value chains in order to increase livestock production and productivity, income generation and food and nutritional security. In line with the public service reform programme, the institutional and human resources capacities of DLS will be developed through staff training and the provision of logistical support to enhance service delivery. The capacities of livestock value chain actors will also be enhanced through training.

Key activities:

6.3 Build the capacity of dairy value chain actors in the milk supply and processing chain (herders, collectors, vendors, food safety inspectors) in hygienic milking practices, handling and processing to avoid contamination and ensure the availability of safe milk.

6.4: Build the capacity of actors in the livestock meat supply chain (livestock dealers and butchers) in group management skills, enterprise development, meat hygiene and processing techniques.

6.5: Build the capacity of actors in the pig value chain (producer and butchers).

6.6: Build the capacity of poultry value chain actors in good production practice (technical), business management, good poultry processing, packaging and storage practices.

6.7: Build the capacity of honey value chain actors (beekeeping, food hygiene, safety and food technology services, group management and entrepreneurship).

6.8: Build the capacities of National Beekeepers Association and National Apiculture Platforms.

6.9: Capacity building of sanitary defence committees and livestock farmers on early detection of livestock diseases.

6.10: Build the capacity of meat inspectors and enforce anti and post mortem inspection at slaughter facilities.

6.11: Build the capacities of DLS staff in honey production.

Component 7.0: Policies, strategies and regulations

Appropriate policies and strategies are required to guide the livestock sub-sector to achieve the goal for agriculture under the NDP (2018-2021). The component will provide technical assistance to review the legislation and regulations that govern the livestock industry. Access to quality poultry feed (availability and affordability) is the most prohibitive constraint to commercial poultry production. To ensure that poultry producers obtain quality feeds that produce desired results, a voluntary or mandatory certification scheme, in line with global practice, will be developed. Under the scheme, feed millers and importers will be required to have quality assurance certification from the regulatory authority to give the poultry producers an informed choice.

Key activities:

7.1: Articulate and adopt a livestock breeding policy and strategies that could respond to attaining the current policy objectives of increasing milk and meat production

7.2: Develop National Strategy and Action Plan for the management of animal genetic resources (AnGR)

7.3: Formulate a National PPR Contingency Plan in line with the Pan African Strategy for the Control and Eradication of Peste des Petits Ruminants.

7.4: Formulate a Strategy for the Control of ASF in line with the Regional Strategy for the Control of ASF in Africa.

7.5: Develop a National Transhumance Policy in line with ECOWAS Framework for Regulation of Transhumance in West Africa to harmonise regulations on the control of Trans-boundary Animal Diseases

7.6: Develop public-private partnership arrangements/guidelines to support crossbreeding programmes using AI

7.7: Develop a National Apiculture policy

7.8: Undertake voluntary or mandatory quality control for poultry feeds

4.2.3 Production and Value Chain Promotion on Fisheries and Aquaculture Sub-sector

Programme Concept and Rationale

The programme will contribute to the Government of the Gambia's National Development Plan's poverty reduction goal. NDP poverty diagnosis indicates that poverty level has remained flat at 48% between 2010 and 2015 and need to still be scaled down. In this regard, the NDP has identified the promotion of artisanal fisheries and aquaculture as the main strategy for increasing food, nutrition and income of the rural poor situated along both coastal and inland areas, employment generation, economic growth and community participation in preserving the natural resources. Artisanal fisheries and aquaculture has been identified as a priority for developing the economies of the Gambia that is full of potential but has not yet been sustainably and rationally developed by the government. This strategy is specifically designed for targeted intervention for rural development, promoting better nutrition amongst the rural population. The estimated average annual consumption of fish in the Gambia has been estimated at 28 kg/capita in 2017.

The most determinant factor for the programme is the vast amount of under-exploited pelagic fish resources. Most importantly, the under-exploited pelagic fish resources in the country (both coastal and inland) give ample scope for developing artisanal fisheries. The development of under-utilized marine and inland fisheries resources by its operators will create the benefits of food security, health and education, and employment. The programme seeks to address the identified constraints by providing a basis for sustainable fish production through provision of improved fishing technologies and promotion of fish marketing. The main thrust of the programme is to enable artisanal fishers to catch fish farther in the continental platform and inland areas where these resources are known to exist. This approach is in line with the new Fisheries and Aquaculture Policy and Action Plan which calls for equipping artisanal fishers with appropriate boats, suitable fishing gears, and training in new methods of fishing, providing ice and fuel as well as back-up services for boats, providing repair and maintenance services, and organizing a comprehensive marketing plan.

The development of fisheries would be undertaken by value chain operators themselves, who would actually catch fish offshore, and by entrepreneurs who would purchase and deliver the final product to the market for consumption. These actors need support from the government, private sector as well as development partners. The design of the programme is based on participatory and value chain approach as it builds on the experience and fishing techniques of the fishermen who are presently engaged in fishing in the coastal and inland riverine areas. At programme formulation wide consultations were undertaken with these fishers, fish traders and processors, boat builders, net makers and suppliers of fishing equipment and materials, NGO community, government officials, as well as donors operating in the sector. The project includes measures to address problems of access roads, potable water, fish landing and preservation in the form of improved roads, rehabilitating and or drilling new boreholes where necessary, and credit for improved boats, gear, fish preservation, transport and marketing.

Eligible beneficiaries will be required to contribute to the equipment and inputs that they will obtain on credit. The project will organize the beneficiary communities into functional committees to enhance their participation in the project. All categories of beneficiaries will be represented in the Co-ordination Committees. Their representatives will be members of the oversight committees that will oversee the implementation of the programme at grass root level and ensure the achievement of the overall programme objective. In addition, training sessions and workshops will be organized during implementation to create for a for exchanging views and incorporating the concerns of the programme beneficiaries and other stakeholders in order to take appropriate corrective measures as necessary during the implementation of the programme. The use of NGOs in mobilizing beneficiary communities has been preferred to any other unknown assistance because of their good knowledge of the local socio-cultural conditions and location in the rural areas.

Project Objectives

The overall objective of this programme is to play a pivotal role in making the artisanal fisheries and aquaculture sector vibrant and elevated to the three most critical contributors to national economic growth, employment creation, foreign exchange earner and building resilience to climate change through adoption of adaptive and mitigation measures. The programme will be implemented along the value chain approach mainly emanating from production through to domestic marketing and export of the fish and fishery products in a sustainable fashion.

Project Area and Beneficiaries

Project Area: The programme area will cover the coastal and inland fishing communities throughout the five regions of the country. Overall, 3 community fishing centres for each region will be chosen for participation in the programme. Programme interventions would be implemented in all the five regions covering the total of 15 community fishing centres. Programme interventions will also be carried out for the development of aquaculture in most of the regions. Aquaculture ponds will be dug in the project area to

ensure increased fish production in order to ensure food, nutrition and income security. In general, the prevailing weather condition is very favourable for most fishing activities with the average yearly temperature ranged between 26^oC and 27^oC and the sea currents generally favourable for fishing. However, most villages are without power (electricity) and have limited water supplies.

Beneficiaries: The target group for the programme is the 3 community fishing centres per region totalling 15 in the programme area. These community fishing centres will include approximately 5,000 direct beneficiaries and about 10,000 indirect beneficiaries. The community fishing centres consists of fisher families, fishing centres and those villages adjacent to and using the fishing centres. Some programme activities would benefit the fishing community as a whole; the rest are directed at fish traders, suppliers of fishing gears and materials. Support services to artisanal fishers in the programme area are limited. For instance, there is concern for assistance regarding safety at sea and rescue services. The Gambia Fire and Ambulance Services carry out mandatory safety checks and conduct rescue services with limited trained staff in the programme area. Therefore, there would be need for much training and fresh recruitment of fire service staff in order to respond to the requirements of the sector. In each of the landing site, there are traffic signs established which indicate that green means the sea is calm and safe for fishing expeditions for a given time, yellow is safety at sea is risky and red indicates that the sea is rough and dangerous.

Inadequate roads have been cited as a major obstacle with many landing sites cut off from the interior spine road during the rainy season (June -September). As is commonly the case, the support needed in fisheries development will be feeder road improvements to connect fishing villages to main roads. The programme management will consult the National Roads Authority (NRA) for joint construction and rehabilitation of new and old feeder roads respectively A feeder road rehabilitation programme is expected to be operationalized by 2020 to cover some access roads to fishing communities. Potable water supplies in the project area are either inadequate or unavailable, and this is recognized as a constraint to fisheries development in the long run. Drilling of boreholes in some of the landing sites will be undertaken by the programme.

Project Description

The programme aims to increase the production and value chain of artisanal fish producers, processors, and traders of the programme area to enhance food, nutrition and income security. The programme components are as stipulated above. The main activities will include provision of short- and medium-term credit for financing improved fishing gears, artisanal fish processing and marketing activities, training of staff, fishers and entrepreneurs including women and youth, and provision of technical assistance and equipment. The programme will also make provision to improve fish landing sites, water supply, access roads and markets. Programme components' descriptions are as follows:

1. Institutional Restructuring, Rearrangement and Capacity Strengthening

The Fisheries Department is under the purview of the MoECCNR which is officially responsible for Fisheries matters. Management and control is exercised by directly or through the Minister, Permanent Secretary (PS), the Director of Fisheries or any other authorized officer.

In order to adequately respond to the changing nature of the sector, institutional reforms and capacity strengthening should be dynamic with a view to creating the enabling environment for the development and effective management of the artisanal and industrial sub-sectors.

The component objective is to improve the effectiveness and efficiency of the MoECCNR responsible for Fisheries and the Fisheries Department in performing their mandates, including planning and implementing national fisheries policies, projects, management measures and statistical reporting and analysis. For the component to realize its objective, it will focus on the following strategic priority interventions:

- Establish a decentralized organizational structure within the purview of the Local Government Decentralization Act such that the MoECCR and the Fisheries Department would be capable of decision making and actions that would relate to the socio-economic environment in which the sector operates, in collaboration with relevant institutions, CBOs and NGOs;
- Review the existing legislations to make adequate provisions for management of industrial, artisanal marine and inland fisheries and aquaculture;
- Promote the establishment of a fisheries training institution affiliated to the University of The Gambia;
- Strengthen the human resources and institutional capacity at the Fisheries Department;
- Upgrade the Aquaculture Unit to a fully functional Department;
- Transform the Department of Fisheries (DoF) into the National Fisheries Commission;
- Introduce and operationalize a phased fisheries and aquaculture programme at the University of The Gambia and Gambia Technical Training Institute (GTTI) from certificate to diploma levels and in the long term, degree level;
- Generate a comprehensive aquaculture investment programme at the CBOs level (species: catfish, tilapia, shrimps, oyster, etc. and techniques and technologies such as rice-cum-fish culture, cage, tank, etc.) in the various appropriate districts of the country, and
- Undertake a staff audit and capacity needs assessment of the Department of Fisheries and Aquaculture;
- Fully operationalize a research and data management function/unit and system in fisheries and aquaculture Department;
- Enter into partnership with MOHSW (food safety laboratory being funded by GoTG and Indian Government), Food Safety and Quality Authority, Gambia Standards Bureau and National Nutrition Agency for the achievement and maintenance of international quality and safety standards for fisheries and aquaculture products;
- Introduce investment incentives for private investors in the areas of fish processing, quality control, packaging, repair and maintenance services for fishing crafts and outboard engines;
- Increase the territorial water policing and monitoring and enforcement capacity of the Department of Fisheries and key partners (Gambian Navy, NASCOM, GMA) by two folds.

2. Post-Harvest and Quality Control

It must be noted that post-harvest activities in sustainable fisheries management are as important as those of production because fresh fish is highly perishable, particularly in tropical regions where fish losses resulting from improper handling, preservation, processing and storage can be so significant that efforts made to catch the fish may appear worthless and less remunerative. Continuous observation of the fisheries personnel based on experience estimated that about 20-30% of losses are incurred in the artisanal fisheries sub-sector due to bacterial and biochemical action on fish tissue or infestation by beetles and maggots or both. Despite the fact that fish losses may not be so high in the industrial sub-sector, there exists a direct link between factories and artisanal operators for supplies of high value fish. Considerable fish losses may occur due to improper handling or insufficient icing and poor transportation facilities which may thereby reduce the quality of raw materials meant for processing and export.

Quality control is a critical and indispensable aspect of management of pre-harvest and post-harvest fisheries and ensures that the wholesomeness of products for local consumption and export is adequately preserved and products meet EU standards. This component will pay special attention to ensuring sustainable reduction in post-harvest losses cum the maintenance of high quality control of fishery resources. Its primary objectives will be as stipulated below:

- Reduce post-harvest losses and increase shelf-life of fisheries products;
- Ensure adequate supply of fish and fish products by applying effective and sustainable preservation, processing and storage methods;

- Ensure prevalence of internationally accepted standards in infrastructure and operations of fish processing establishments;
- Improve the quality of fish and fishery products and ensure compliance with international standards on SPS and quality assurance;

The following priority interventions will be taken and these include:

- Develop and implement a comprehensive fish inspection and quality control system;
- Incorporating HACCP principles in collaboration with the Department of State for Health and other relevant institutions;
- Ban the use of hazardous chemicals in fishery products, artisanal processing facilities and Fish Processing Establishments in collaboration with the Department of State for Health and other relevant institutions;
- Facilitate access to potable water at artisanal fish landing and processing sites;
- Facilitate the adoption of improved smoke houses, ovens and packaging materials for artisanal operators; Enforce regulations, pertaining to international and national quality standards in fish handling and processing, factory operations, transportation, fishery products and export;
- Sensitization on diversification of packaging methods for smoked and dried products;
- Facilitate the establishment of cold stores in inland, coastal fishing communities and the availability of refrigeration trucks for distribution and marketing of fish and fisheries products;
- Facilitate the establishment of fish stores for smoked and dried fish at distant markets in urban and inland centres;
- Promote the establishment of central fish market infrastructure and shore-based facilities for both artisanal and industrial fisheries (ice making plants, cold rooms, etc.) at selected sites;
- Promote the establishment of a fishing harbour for use by artisanal and industrial operators; and,
- Undertake capacity building and institutional reforms at the Fisheries Department and in both the artisanal and industrial sub-sectors.

3. Fish and Fishery Products Marketing

In the Gambia, marketing of fish and fishery products is one of the sources of income for operators involved in the trade. It is estimated that about 80% of value-added fishery products are exported to countries in Europe, until recently. The total value of fish exports between 2010 and 2018 averaged GMD95.481 million with a corresponding volume of 3,489 Mt. Over the period, total export volumes have steadily declined from 5,242 Mt in 2010 to 4,617 Mt in 2018 valued at GMD164.663 million and GMD97.392 million respectively. The highest total export volume was registered in 2016 of 7,766 Mt valued at GMD112.168 million while the lowest export volume was recorded in 2012 of 884 Mt also valued at GMD34.070 million. Market destinations change drastically in 2005 with more focus on exports to the sub-region amounting to 478.4 Mt valued at GMD4.0 million and only 272.0 Mt to EU countries and Asia but valued at GMD5.9 million. It is noteworthy that, out of total exports of 751 Mt in 2005 the amount sold to EU markets generated more financial returns because high value species were transformed into value-added products and exported.

Market diversification of exports should be explored in view of the fact that low-value pelagic fish are in abundance in Gambian waters and investments in the exploitation of this fishery are being encouraged. Local marketing of fish and fishery products is primarily dominated by artisanal operators. Due to the traditional nature of these activities, involving fresh, smoked and dried products sold in dispersed markets countrywide, it is technically difficult to ascertain the amounts being marketed presently. The greater part of artisanal catches is marketed locally, particularly in the urban and peri-urban centres. This programme component will focus on enhancing the efficient and effective marketing of fish and fishery products both in-country and abroad. The primary objectives of this programme component will include:

- Increasing the availability of fish and fishery products countrywide for local consumption;

- Increasing revenue and foreign exchange earnings into the sector; and,
- Increasing employment opportunities by way of creating adequate channels for marketing fish and fishery products locally and internationally.

The component's strategic interventions are to:

- Ensure fish processing establishments adequately comply with international standards for continued exports to lucrative markets in EU countries, U.S.A. and Asia etc.;
- Encourage development of new products for unexplored markets worldwide;
- Encourage and support investments in the pelagic fishery;
- Encourage and support market diversification especially Intra-African trade with particular reference to ECOWAS;
- Create and support linkages with relevant national and international institutions/organizations for access to market information;
- Facilitate the creating of adequate and acceptable channels of marketing all types of fish and fishery products;
- Create incentives for exporters of fish and fishery products in collaboration with relevant institutions;
- Undertake periodic review of Freight on Board (FOB) values of fish and fishery products;
- Ensure that monies accrued from exports through incentive schemes are repatriated into the country via the banking system; and,
- Collaborate with relevant institutions in establishing export and import tariffs for fishery products.

4. Legal, Regulatory and Policy Reforms

In a country like The Gambia with 40% of the population considered illiterate, the legal, regulatory and policy reforms desired in the fisheries and aquaculture sector cannot be fully understood by the vast majority of value chain operators. In the past, fisheries and aquaculture legal, regulatory and policy reforms were hardly implemented due to paucity in enforcement particularly during 22 years of the autocratic regime. This component will seek to operationalize and implement the fisheries laws, acts, regulations and policies to avoid only excessive economic losses to the country but also to reduce the Illegal, Unregulated and Unreported (IUU) state of affairs of the fishing industry. In this regard, widespread awareness creation and sensitization will be the sine qua non for the enforcement of the legal, regulatory and policy reforms prevalent in the sector. It is even proposed to have a "one-stop-shop" to implement the key function of creating awareness, supporting and facilitating business registration of fisheries enterprises. The Gambia Investment and Export Promotion Agency (GIEPA) mandated to implement this function should therefore collaborate closely with the MoECCNR and the Department of Fisheries to operate a welcome desk with trained staff to support the micro and small enterprise sub-sector to register, operate and eventually graduate them into the medium and large enterprise sector. This component will implement the following priority interventions:

- Review, update (including the on-going reforms regarding landing requirements of industrial vessels) and harmonise the legal, policy and regulatory frameworks of the Fisheries and Aquaculture sector;
- The existing legislations will be reviewed to make adequate provisions for management of industrial, artisanal marine and inland fisheries and aquaculture;
- Enforce fisheries legal, regulatory and policy measures to avoid IUU practices which may will lead to increasing economic losses of the country;
- Inter-sectoral linkages and collaboration be encouraged in the fisheries and aquaculture sector for the sustainable and rational exploitation of the fishery resources. Fruitful inter-sectoral linkages between MoECCNR, GIEPA and the Ministries of Justice and Interior will be helpful in the enforcement of fisheries laws and policies.

5. Inter-sectoral Linkages and Optimization of overall Value Chain

The management of fisheries resources is multidimensional directly affiliated with several institutions in other sectors with respect to planning, development, regulations, protection and conservation. Its linkages with other institutions are interdependent, inherent and essential for overall national development. The primary objective of the component is to improve sustainable management of the sector and service delivery to fishing communities and the industry. It will focus on implementing the following priority interventions:

- Facilitate access of fishing communities to basic facilities, such as fishing and fish processing related equipment, machinery (ice plants etc.), means for fish distribution, potable water, health, schools, accessible roads and electricity;
- Collaborate with relevant institutions in establishing criteria for granting incentives to promote private sector investments in the sector;
- Sensitize the fishing communities on HIV/AIDS, malaria, poliomyelitis etc., in collaboration with relevant institutions;
- Promote the integration of fisheries in poverty reduction planning and implementation and in the decentralisation processes in collaboration with relevant institutions;
- Collaborate with relevant institutions in establishing export and import tariffs, sanitary and phytosanitary (SPS) standards for fishery products, fish processing establishments, monitoring exports of fish products and managing fish waste;
- Collaborate with relevant institutions in developing and implementing a strategy for the rational use of fuel-wood, felling of trees for boat building and creation of wood lots for fish smoking and seek alternative materials suitable for fish smoking and boat building activities;
- Participate in management of The Gambia River Basin and coastal zones;
- Participate in the protection and conservation of wetlands, mangrove ecosystems, the marine and inland fishery and bio-diversity in collaboration with other institutions
- Increase Fisheries and Aquaculture sector's budgetary support by 25%;
- Significantly increased the requisite national support infrastructure (quality control, transportation, research, storage, processing, etc.);
- Decentralize the fisheries institutional management structures/framework to ensure conformity with the Local Government Decentralization Act in collaboration with relevant institutions, CBOs and NGOs;
- Institute a platform for regular discussions and resolution of issues of common interest and concern to the fisheries and aquaculture value chain.

6. Collaboration and Partnership

Gambian fisheries can be viewed from a global perspective in that it is a signatory to several sub-regional, regional and international instruments and conventions such as but not limited to, United Nations Convention on the Law of the Seas (UNCLOS), United Nations Fish Stock Assessment (UNFSA), Code of Conduct for Responsible Fisheries (CCRF) and Port State Measures Agreement (PSMA). Historical rhetoric has expressed that the Gambia is one of the founding members of the Economic Community of West African States (ECOWAS) and the Sub-Regional Fisheries Commission (SRFC). Besides its membership of these instruments and conventions, the Gambia is also a member of Food and Agriculture Organization (FAO) of the United Nations (UN), CECAF and ATLAFCO and a signatory to several international conventions mainly: the Convention on Biodiversity, International Union for the Conservation of Nature, and United Nations Convention on Law of the Sea, etc. This component will seek the collaboration, harmonization and operationalization of these instruments and conventions to ensure responsible fishing in accordance with international fisheries principles. It will also focus on the provisions of AU's Policy Framework and Reform Strategy (PFRS) and other global instruments such as FAO-CCRF; UN Sustainable development goals - to ensure coherence and consistency. Albeit conscious of the fact that fisheries are shared resources that are not infinite, regional/sub-regional integration schedule should provide

for harmonization of policies and management measures and strong cooperation and collaboration between Regional Economic Commissions (RECS) and Regional Fisheries Bodies (RFBs). Sustainable management of fisheries resources, especially when a considerable portion of the stocks are shared between neighboring countries (like Gambia and Senegal) can only be implemented through cooperation and harmonization of strategies. It is thus not surprising that the primary objectives of the SRFC include: long term harmonization of policies of member states regarding preservation, conservation and exploitation of their marine living resources; and reinforcement of member states cooperation for the benefit of their respective populations. Consequently, effective machinery must be in place for cooperation between the RECs and RFBs. Reviewing and drafting of international conventions and processes on fisheries and aquaculture should be informed by regional positions on the issues (e.g. AU's Policy Framework and Reform Strategy (PFRS)/AU Aquaculture action plan) - aware of important international instruments for sustainable fisheries management and identifies the need for their internalization. Good governance must be applied in the identification, engagement and participation process of relevant stakeholders in fisheries and aquaculture. Additionally, contemporary principles of fisheries management such as recognition of rights of different fishers and rules to avoid conflicts between different fisheries should be pursued. The following priority interventions will be made to realize the component objective of strengthening sub-regional and international cooperation in the management of fisheries resources especially shared stocks and implementing national management measures within the context of current principles of sub-regional and international conventions regarding fisheries protection, preservation, exploitation and utilization. The component will focus on implementing the following priority interventions:

- identify key national, regional and international strategic constituents of the fisheries and aquaculture sector and establish a strong system of cooperation with them;
- Adopt resolutions made during sub-regional and international meetings, seminars and conferences pertaining to harmonization of fisheries policies and management strategies;
- Support the work of the SRFC, ECOWAS and other organizations to which The Gambia is a member;
- Exchange information and professional visits with countries who are also members of sub-regional and international organizations as The Gambia;
- Disseminate information obtained from sub-regional and international organizations to national stakeholders to increase awareness and participation in fisheries matters;
- Encourage joint surveillance patrols of sub-regional fisheries waters through the SRFC and bi-lateral agreements to enforce regulations and protect the resources;
- Encourage and support joint research between neighbouring countries and international organizations to ascertain the status of sub-regional resources and the marine ecosystem at large;
- Encourage sub-regional, regional and international trade in fish and fishery products; and,
- Seek to acquire appropriate equipment, machinery, materials and transfer of technology for use by national fisheries institutions and operators through sub-regional and international co-operations to enhance capacity building and strengthen cooperation existing between The Gambia and member states of such organizations.

7. Key Stakeholder Capacity Building and Sensitization

Capacity building of staff of any organization is very critical and important particularly in a case where the trainings are organized piecemeal at long-term intervals. For the Gambian fisheries and aquaculture sector, human resources development requires systematic training most constrained by inadequate funding resources. In the past, there have been limited training programmes for both management staff and stakeholders (both industrial and artisanal fisheries value chain operators). To redress the limited training opportunities of the sector, in the 1970s and 1980s many Gambians were trained in different fisheries professional and technical disciplines. Most of these trained personnel either retired or left the profession due to numerous abrupt sackings of public servants encountered during the autocratic rule of the former

regime. This aggravated the skilled manpower shortfall in the sector and the vacuum is difficult to be filled in the short run. However, the situation is now improving in that very few women in the past had the opportunity to be trained or recruited but recently many have been trained in various disciplines under the Sustainable Fisheries Livelihoods Programme (SFLP) pilot project and the Artisanal Fisheries Development Project (AFDP) training component. Fisheries Department officials have also benefited from the AFDP training component in advanced and middle level studies, and opportunities for others will soon be obtained. This component's development objective is to improve the capacity of fisheries administration for planning, developing and implementing policies, projects, research and management plans; and build the capacity of artisanal and industrial operators to better manage their undertakings and participate effectively in co-management systems. This component will implement the following priority interventions:

- Assess the manpower and training needs of the institutions responsible for fisheries and related sectors;
- Train fisheries personnel from vocational to professional levels;
- Facilitate and support the training of auxiliary fisheries extension workers and data collectors to have general knowledge in fisheries value chain management;
- Support and facilitate skills development and improved knowledge of women in the fisheries sector and other related sectors;
- Promote an appropriate incentive scheme in terms of remuneration and other conditions of service for fisheries personnel;
- Promote thematic training workshops and seminars on poverty reduction, fisheries planning, and management and appropriate technologies;
- Promote and support capacity building in the industrial fisheries sub-sector, particularly with regard to improving products quality hygiene and sanitation in fish processing establishments; and,
- Promote fisheries studies in the curricula of Lower Basic, Upper Basic, Secondary and Tertiary institutions.
- Conduct a capacity needs assessment for key stakeholders (trade groups, CBOS, etc.) of the Fisheries and Aquaculture sector
- Develop and commence the implementation of a public sensitization programme
- Increase the active participation of indigenous Gambians in the artisanal and industrial fishing industries by 50% and 25% respectively

4.2.4 Forestry, Biodiversity and Wildlife Management

SUB PROGRAMMS-GOVERNANCE OF FOREST RESOURCES

The effective Governance of forest resources is vital for optimal resource management. In the Gambia forest governance has been characterized by weaknesses including low participation in decision making, inadequate capacity in coordination and management, low level of transparency and accountability culminating in high level of corruption, illegal trade in timber, conflict over ownership and access rights and forest conversions. Improving forest governance will be essential in order to manage the conflicting demands of forest resources.

A number of cardinal interventions will be required to achieve the strategy goals of strengthening governance of forest resources. These include

Building effective and coherent organisation of DoF at national & regional levels

The Department of Forestry has the mandate to reserve, maintain, develop and manage 30% of the area under forest and take charge of forestry administration-ensuring sustainable management, utilization and protection of all forests in The Gambia. In this regard one of the specific tasks is to design and implement participatory forest management approaches for both indigenous forests and forest plantations /agroforestry involving local communities. The DOF works with communities to implement community

forestry and processes the transfer of ownership to them. Key actions to build effective and coherent organization of the DOF at national and regional level include:

1. Develop organizational processes and structures and also build staff capacities;
2. Strengthen policy and institutional capacities;
3. Increase patrolling and monitoring of community managed forests;
4. Support enforcement of regulations, especially on illegal and cross border trade in timber;
5. Equip staff with leadership and technical skills;
6. Enhance capacity of staff in relevant thematic areas;
7. Support the provision of University level training for staff;
8. Recruit highly trained staff; and,
9. Build the capacity of NGOs and CBOs.

Strengthening policy and institutional capacity & institute results-based management

While updated policies and strategies exist for the forestry sector, the capacity for effective analysis policy analysis is inadequate and capacity in result-based management is also minimal. Furthermore, the institutional capacity of agencies engaged in sustainable forest management is inadequate in terms of quality (qualifications and experience) and in numbers of staff to effectively cover the entire country. The following actions are required for enhanced capacity in strengthening policy, institutional capacity and result-based management:

1. Build capacity in forest policy analysis and implementation particularly for senior staff of DOF, NGOs and partners in sustainable forest management;
2. Support and promote national alliance and entry into the REDD mechanism;
3. Support training of senior staff of DOF on results-based management approach; and,
4. Introduce the results-based management approach at DOF and community forest management level

Strengthening institutions involved in sustainable forest management.

A wide variety of agencies comprising public authorities, communities, NGOs and CBOs are engaged in sustainable forest management, however they face challenges in delivering on their mandates and aspiration due to capacity limitations. In the bid to enhance their capacities a number of actions are required:

1. Undertake capacity building on sustainable forestry management systems for stakeholder including on equity approach;
2. Provide technical backstopping to communities, NGOs and CBOs engaged in forest resource management;
3. Provide equipment support to Communities, NGOs and CBOs engaged in sustainable forest management;
4. Undertake joint M&E with communities, private sector, NGOs and CBOs on sustainable forest product utilization; and,
5. Undertake inter-agency sharing and learning workshops and pilot new research and evaluation methods.

Institute strong protection mechanisms to minimise damages to the forest resources

The degradation of forest resources is attributed largely to recurrent bushfires, logging, unsustainable exploitation practices and expansion of agricultural lands. In the bid to institute strong protection mechanisms to minimize damage to forest resources, a number of actions are required:

1. Control/manage recurrent bushfires;
2. Discourage and penalize poor timber and non-timber forest product exploitation practices;
3. Provide effective monitoring with enhanced mobility of forest rangers and volunteers;
4. Establish community groups adequately sensitized to monitor and control bushfires; and,
5. Provide incentives to communities for sustained management of forest resources.

Increase national budgetary allocations for dry land forest management

Public budgetary allocation to the forestry sector has declining over the years with resources increasingly being provided from the National Forestry Fund (NFF) and multilateral sources. The flow of financial resources have been inadequate to meet the expansion envisaged in both the policy and strategy. The DOF therefore needs to pursue fund raising to increase budgetary resources to the sector. Key actions required include:

- Develop and implement a resource mobilization strategy targeting bilateral, multilateral agencies and the private sector; and,
- Develop and implement transparent reporting processes.

Use economic instruments & tax policies to promote sustainable forest management

Rational utilization and management of forest resources can be promoted if economic instruments and tax policies which provide an enabling environment for stakeholders in the sustainable management of forest. The private sector constitute key holders in this regard and the following actions are required:

1. Provide the enabling environment for the private sector investment in forestry, agroforestry and plantation management (e.g. tax incentives, exemption from royalties, etc);
2. Provide incentives to rational users/exploiters of forest resources e.g.;
3. Reform the investment climate and attract/promote quality investment;
4. Penalize illegal timber and charcoal trade; and,
5. Promote alternative energy sources as domestic fuel e.g. butane gas, solar and wind power.

Impact measurement and organisational learning, and develop databases for DoF

DOF impact assessment and organizational learning approaches will be designed to promote development of knowledge and synthesis on the ground learning to inform programme design and practice.

1. Document indigenous knowledge and practices on forestry management and programming;
2. Pilot new research and evaluation technologies;
3. Develop database on best practices in sustainable forest management;
4. Set up M&E cells in DOF to be responsible for the database;
5. Organize training workshops on organizational learning; and,
6. Disseminate innovations, best practices and research and evaluation methods on sustainable forest management.

Discourage overuse, waste, excess and inefficient manufacturing

Forest resources are scarce and need to be optimally utilized with wastage from inefficient manufacturing technologies reduced as much as possible. In this regard, the following actions are required:

1. Promote the use of forest product saving technologies;
2. Conduct capacity workshops for saw mill operators on efficient processing and preservation techniques; and,
3. Promote the alternative use and recycling of forest by-products.

Fund raising, and reinvestment of income from forest goods and services in DoF

Public financing to sustainable forest management is inadequate necessitating the need for fund raising and re-investment of income from forest goods and services. Fund raising including from revenues generated from the regional nurseries, royalties should be lodged with the National Forestry Fund. Key actions in this regard include:

1. Expand and strengthen the regional nurseries to generate funds for sustainable forest management;
2. Re-invest income from royalties and benefit sharing and lodge in the NFF; and,
3. Strengthen service delivery provided by the DOF and generate income from such services.

SUB PROGRAMME- INCLUSIVE PROGRAMME GROWTH AND DIVERSITY

Strategy Goals: Sustainable management of forests and trees

Promote conservation and enhancement programmes of dry land forests

The Department of Forestry embraced an integrated approach whose primary purpose is on dry land forest restoration. It hinges on promoting conservation and enhancement of sustainable forest management. Key actions required to promote conservation and enhancement of programmes of dry land forests include:

1. Expand in-service training including of forest committees;
2. Design and implement training programme on community forests;
3. Organize quarterly training workshops on community forestry in all regions for forest officers, extensionist and NGOs;
4. Build/rehabilitate forest stations;
5. Provide equipment for forestry stations and develop methodology for equipment utilization; and,
6. Develop and implement management plans for forest parks and plantations.

Establish, a coherent ecological network of climax, primary and other special forests to re-establish ecosystems that are threatened, including plantations

A wide range of stakeholders and forest ecosystems exist at various phases of degradations, it is pertinent that a coherent approach is taken to establish a coherent ecological network of climax, primary and other forest to re-establish ecosystems that are threatened including plantations. In this regard, a number of actions need to be taken including:

1. Establish more forest parks in threatened ecosystems particularly in NBR and CRR;
2. Restore natural forests on appropriate sites; and,
3. Manage forests and develop landscapes in areas of high biodiversity.

Raise awareness of the ecological, social, cultural and economic roles of forests, and use planted forests and native species to restore degraded lands and to re-establish native forests

The level of awareness among stakeholders on the ecological, social, cultural and economic roles of forests, and use planted forests and native species to restore degraded lands and to re-establish native forests vary significantly. In the bid to raise the awareness of stakeholders, a number of actions are required which include:

1. Prepare brochures, circulate and update periodically (policies, legislation, concepts);
2. Employ Communication, Education and Public Awareness (CEPA) for enhanced awareness on forest resources issues;
3. Use traditional media e.g. drama groups(kanyeleng) to sensitize the public;
4. Develop extension materials on sensitization;
5. Conduct sensitization campaigns via radio, TV and newspapers; and,
6. Advocate for inclusion of forestry in school curricular.

Develop & implement mechanisms for financing & encouraging forest conservation

Given the inadequacy of financial resources for sustainable forest management, strong and effective mechanisms are required. The availability of adequate financial resources will ensure that forest conservations measures are sustained. Key actions in this regard will include to:

1. Consolidate the National Forestry Fund (NFF);
2. Mobilize resources for financing of forest conservation; and,
3. Undertake joint monitoring of forest conservation expenditure with stakeholders.

Establish additional protected forest areas in balancing the ecosystem

With the expansion of agricultural enterprises and settlements into forest ecologies, there has been a significant loss of quality and area. Efforts need to be made to establish additional protected forest area to ensure some equilibrium in the ecosystem. In this regard, a number of actions are required including to:

1. Promote the establishment of additional protected forests e.g. government managed forest, community managed forests and privately managed forests;
2. Engage private forest owners through Joint Forest Park Management strategies with graduation phases;
3. Support the annual tree planting campaigns;
4. Contribute to the establishment of green belts around urban centres; and,
5. Contribute to maintenance and establishment of trees in urban centres.

SUB PROGRAM-PARTICIPATORY FOREST MANAGEMENT & ALTERNATIVE LIVELIHOODS

Strategy Goals: Communities in sustainable forest management

Enable forest owners, private sector, and local communities to participate in forest conservation initiatives, and in planning and managing protected areas

Stakeholders in sustainable forest management including forest owners and local communities are key actors and need to be actively engaged in forest conservation initiatives and in planning and managing protected areas. In this regard, a number of actions are required including to:

1. Support the participation of private sector interest in sustainable forest programming;
2. Support private firms willing to invest in timber processing mills and forest farms;
3. Provide Support to importers of charcoal; and,
4. Promote CSO participation in forest management (e.g. NACOFAG).

Promote the participation of all stakeholders, including local communities, forest dwellers and women in planning and implementing national forest policies.

In the bid to ensure sustainable forest management, the active participation of stakeholders including local communities, forest dwellers and women in the planning and implementation of national forest policies will be required. Key actions include to:

1. Develop simplified materials and share with communities, NGOs and CBOs on forest policies, plans and projects;
2. Engage communities in the implementation of plans, projects and policies; and,
3. Engage communities in the M&E of plans, projects and policies.

Promote alternative livelihood initiatives in forest communities

The availability to communities of opportunities for alternative income will reduce their dependence on forest resources for livelihood. The promotion of alternative livelihood initiatives in forest communities has been tried and found to be successful in sustainable management of forest resources. Key actions required include:

1. Promote alternative livelihood/income earning opportunities e.g. handicraft, bee keeping, woodlots, animal husbandry, production of non-timber forest products; and,
2. Support the establishment of eco-tourism camps.

Establish public education and awareness programmes emphasising the importance of sustainable forest management and conservation of biodiversity

Stakeholders need to be fully sensitized and aware of the importance of sustainable forest management and conservation of biodiversity. In this regard, public education and awareness programmes are pivotal. Key actions include to:

1. Develop communication strategy for stakeholders on sustainable management of forest resources;

2. Develop and disseminate public sensitization materials for stakeholders-communities, NGOs, CBOs and individuals; and,
3. Carry out mass media campaigns for stakeholders using Radio, TV and print media.

Implement policies and mechanisms to secure land tenure and to promote fair and equitable sharing of benefits from forest goods and services

Security of tenure is critical to ensuring long-term investment and sustainability management of forest resources. In this regard, efforts need to be made to implement policies and mechanisms to secure land tenure and to promote fair and equitable sharing of benefits from forest goods and services. Key actions include to:

1. Secure tenure through registration of lands allocated for use as forest;
2. Develop and implement agreements with stakeholders on benefit sharing; and,
3. Undertake joint monitoring and evaluation of benefit sharing mechanisms.

Encourage urban forestry through establishment of green belts and woodlots in urban and semi-urban areas for landscaping and recreational purposes

In the bid to increase protected area under forest, it is envisaged to encourage urban forestry through establishment of green belts and woodlots in urban and semi-urban areas for landscaping and recreational purposes. Key actions include to:

1. Establish green belts in urban spaces including parks for recreational purposes' and,
2. Establish woodlots in semi urban areas under the joint management of community groups..

Promote management practices and silvi-culture for key indigenous/exotic species

Enhance the involvement of women in forestry

Women are key stakeholders in forest resource management as key players in the collection of forest products such as wood; collection, processing retailing of wild fruits. They thus key in decision-making in sustainable forest management. Key actions required comprise:

1. Sensitize rural women and women groups on sustainable forest management principles;
2. Promote energy saving stoves and alternative cooking fuels/energy sources to reduce pressure on forest resources; and,
3. Engage women/women groups in annual tree planting exercises to maintain transplanted trees.

SUB PROGRAMME- ENHANCING RESEARCH AND DEVELOPMENT

Strategy Goals: Improved Program quality, learning and documentation

Encourage periodic assessment of the effectiveness of protected areas in maintaining forest biodiversity and ecological values

The availability of accurate and timely information particularly on the status and performance of forest resources is essential for effective programming, in this regard the conduct of periodic assessments is essential. Most of the available data on the status of resources is eight years old (NFA, 2010). It will therefore be pertinent to:

1. Carry out periodic forest assessments for effective programming;
2. Document and disseminate local knowledge on indigenous tree species;
3. Carry out mapping of prioritized tree species;
4. Carry out growth and yield studies of priority and potential tree species of the country; and,
5. Support data collection, collation, analysis and dissemination on forest biodiversity from permanent forest plots, inventories and other sources accessible to foresters and other stakeholders.

Adopt education and training systems to secure a highly skilled workforce

The quality of the Human Resources for sustainable management of forest resources has been inadequate, requiring more highly trained staff for effective and efficient service delivery. The recruitment and retention of qualified and skilled staff need to be complemented with providing training at University and other tertiary institutions in the area of sustainable forest resource management. In this regard it will be required to:

1. Provide training opportunities for staff in Universities and tertiary institutions for staff in the area of sustainable forest management;
2. Provide incentives to attract and retain highly qualified and skilled staff; and,
3. Undertake regular but periodic training for staff to update skills and competences on sustainable forest resource management.

Promote and improve health and safety standards and practices

The working environment need to safe and the health status of workers enhanced for effective performance and sustainability. In this regard good practices related to health and safety standard and practices need to be in place. Key actions required, include to:

1. Develop code of conducts/guideline on safety at the work place for stakeholders;
2. Conduct training on codes of conduct/guidelines for workers; and,
3. Implement standard practices on improved health with the use of the right gear etc.

Encourage studies on gender aspects of forest policy and practice

Gender is a key determinant in sustainable forest use and conducting studies on this aspect will contribute to better understanding of key factors for sustainable forest resource and ensure optimization of outcomes from policy and practices. In this regard, key actions include to:

1. Carry out periodic market research e.g. demand and consumption trend analysis on forest product from a gender perspective;
2. Carry out management practices on silvi-culture for key indigenous/exotic species with a gender perspective;
3. Determine the effects of climate change on the forest ecosystems within a gender perspective; and,
4. Carry out cost-benefit analysis on the profitability of prioritized species to guide on choice of trees for investors.

Analyse the environmental impacts of forest products and their substitutes

Conducting environmental impact assessments including on the impacts of forest products and their substitutes will ensure that appropriate safeguard measures are recommended and implemented. In this regard, the following actions are required:

1. Carry out EIA on plans, programs and projects related to forest resources management;
2. Carry out studies on the environmental impact of forest products and their substitutes; and,
3. Disseminate the findings of such studies and share/sensitize communities on the way forward.

BIODIVERSITY AND WILDLIFE MANAGEMENT

Sub-objective: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across Government and society

1: Awareness on the values of biodiversity and the steps they can take to conserve and use it sustainably.

While there is recognition and awareness of the direct uses of biodiversity by local communities and decision makers; this is not the case of the value of ecosystem goods and services. In this regard, it is pertinent to increase the overall awareness of the population, local communities, policy makers and CSOs as to the diverse values of biodiversity and of ecosystem goods and services. The following actions will be relevant:

- (i) Develop an extension strategy aimed at public awareness and education;
- (ii) Produce and disseminate public awareness and education materials from the extension strategy;
- (iii) Implement the extension strategy; and,
- (iv) Carry out MTR and subsequent evaluation of the strategy.

2: Integration of biodiversity values into national and local development and poverty reduction planning processes and national accounts

In the computation of national accounts, the values of biodiversity, especially of ecosystems services are not sufficiently considered. It is relevant that the diverse values of biodiversity and the opportunities derived from its contributions and sustainable use are recognized and reflected in relevant public account computations. The following actions are proposed:

- (i) Conduct studies on the valuation of biodiversity and ecosystem services; and,
- (ii) Communicate the results of the studies on the valuations and integrate into local and national plans.

3: *Pollution from all forms of water bodies and land-based activities are brought to levels that are non-detrimental to ecosystem functions*

In the bid to mitigate the negative impacts of pollution and its threats on air, land and aquatic diversity due to large-scale industrial activities, fishing and other solid and liquid wastes generated across ecosystems. This will entail conducting Environmental Impact Assessments (EIAs) and strategic Environmental Assessments (SEAs) of policies, programs and projects as well as monitoring compliance: In this regards, the following actions will be pivotal:

- (i) Ensure compliance and implementation of Environmental Management Plans by corporate entities, projects etc;
- (ii) Develop and promote general and specific waste management plans that prevent contamination of both surface and underground fresh water bodies; and,
- (iii) Periodically monitor the quality (pH, electrical conductivity and major ions) of water bodies.

4: Availability of sustainable production and consumption plans and keep the impacts of resource use within safe ecological limits

In the bid to minimize environmental problems such as logging, sand mining, deforestation etc, government agencies and business sector need to mainstream biodiversity in their strategic plans. In this regard a number of guidelines exist which should facilitate involvement of private entities and individuals in the management of the biodiversity resources. Key actions required include:

- (i) Conduct advocacy to mainstream biodiversity into projects, programs and projects;
- (ii) Advocate for the alignment of biodiversity conservation with other conservation activities; and,
- (iii) Monitor and evaluate outcomes and report on them.

Sub-Programme B: Reduce the direct pressures on biodiversity and promote sustainable use

5: Reduce the rate of biodiversity loss, forest fragmentation and land degradation

The degradation of rangelands, forest ecosystems and associated species is a direct consequence of unsustainable utilization and poor management of biological resources. Concrete measures have to be employed to ensure the derivation of optimal benefits for communities dependent on natural resources for livelihood. In this regard, efforts should be made towards promoting good exploitation practices and good governance mechanisms on natural resources management. The following actions will be key:

- (i) Review the revised Biodiversity and Wildlife Act;
- (ii) Promote good governance practices to enhance productivity of rangeland and forage resources;

- (iii) Promote viable Sustainable Land Management (SLM) practices e.g. GAMSIF;
- (iv) Promote energy saving e.g. with improved cooking stoves and alternative energy sources egg solar and butane gas;
- (v) Carry out restoration of degraded wetlands and landscapes;
- (vi) Promote sustainable use of non-timber forest products; and,
- (vii) Apply sustainable management practices including use of traditional resource management systems to ecosystems under pressure including hot spots and ecologically sensitive areas.

6: Protection of areas that are suitable for spawning and nursery are protected, while the use of wrong gears is reduced

The Gambia has a coastline of 80km, a continental shelf within the Exclusive Economic Zone (EEZ) extending 200 nautical miles from the low water mark. This is inclusive of nearly 58,000 ha of mangrove stands and laterite reefs serving as spawning and nursery ground for fisheries species and aquatic mammals. This area needs to be protected from mangrove dieback and the rampant utilization of wrong fishing gears, depletion of fish stock and other aquatic species. Coastal erosion activities affect the breeding habitats, patterns of crustaceans and marine turtles.

Key actions include:

- (i) Establishment of at least 3 marine Protected areas;
- (ii) Restore degraded wetlands;
- (iii) Rehabilitate eroded areas through coastal engineering program; and,
- (iv) Establishment of local committees and mobilize volunteers to police the vulnerable spawning and nursery grounds.
- (v) Facilitate fishing gear exchange program for fishermen in exchange for wrong mesh size nets and gears.

7. Sustainably Manage areas under agriculture, aquaculture and forestry, ensuring conservation of biodiversity

Area expansion to agriculture, settlements and other related activities are the major factors for habitat conservation leading to biodiversity loss. There is need to reduce the pace of expansion into forest and other sensitive ecosystems. The Gambia has designated 3 RAMSAR sites and is on the verge of designating some more. This is a clear indication of that wetlands issues are incorporated into biodiversity and other sectoral policies, but not adequately addressed. Thus actions are needed to reduce rate of loss and degradation of natural habitats, facilitate adoption of technologies and innovations that enhance productivity particularly of smallholders. Key actions required include:

- (i) Promote the adaption of technologies and innovations for increasing productivity of smallholder farmers;
- (ii) Promote the provision alternative livelihood including jobs alternative energy sources;
- (iii) Facilitate the preparation and accomplishment of a wetland policy; and,
- (iv) Support the designation of 4 new RAMSAR sites.

8. Pollution, including waste, agro and industrial chemical has been brought to levels that are not detrimental to ecosystem function

Due to the rapid population and urbanization growth rates, there has been a significant increase in domestic wastes resulting in the dumping of both solid and liquid domestic and industrial effluents in and around wetlands and water bodies. These comprise significant quantities of chemical fertilizers, pesticides and herbicides used in boosting agricultural production but detrimental to biodiversity and humans. Similarly, the phasing out of ozone layer depleting substances in refrigerators is key initiative of Government to address global warming. In view of this and the obligation to control the trans-boundary movement of POPs, ozone depletion substances and other

hazardous chemicals. There is need to implement the convention in a participatory manner with the following actions pivotal:

- (i) Consolidate the bi-monthly national cleaning exercise;
- (ii) Organize mass campaigns against illegal dump sites and improper industrial effluent waste disposal practices;
- (iii) Regulate and control the trans-boundary movement of POPs and other hazardous chemicals;
- (iv) Facilitate the implementation of the Algiers Convention; and,
- (v) Phase out of ozone depletion substance.

9: Reduce the occurrence and introduction of invasive species

Invasive species are threats to biodiversity and ecosystem stability. There has been a rapid increase and spread of invasive species particularly in the protected areas and other water bodies causing a reduction in species occurrence and availability. This also affects the productivity in the wetlands leading to the displacement of indigenous species of natural ecosystems. In view of this, effective strategies are required for their control and eventual eradication. Key actions needed include:

- (i) Develop an invasive species action plan;
- (ii) Commence Invasive species action plan implementation;
- (iii) Monitor implementation of the Action Plan;
- (iv) Undertake efforts to reduce area covered by the invasive species; and,
- (v) Promote the use of invasive species as biomass energy and organic manure.

10: Minimize the vulnerability of ecosystems impacted by climate change

Climate change and climate variation are negatively impacting on ecosystems and consequently on the wellbeing of the populations that are directly dependent on ecosystem resources for their livelihoods. Consequently, adaptation strategies including sustainable agricultural and livestock practices, integrated freshwater catchment management, and afforestation/reforestation programmes need to be put in place. In this regard, forest ecosystem restoration through area enclosures and massive tree plantings in the Gambia. Increasing forest cover, designation of wetlands and restoration of degraded areas are required to realize this target. Key actions required include:

- (i) Increase the areas under forest cover, designated wetlands and restored degraded areas; and,
- (ii) Provide incentives for the local communities through NAPA and NAMA from high forests, woodlands and traditional agro-forestry.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

11: Increase terrestrial and inland water, and coastal and marine areas conserved through systems of protected areas

The establishment and effective management of protected area system has proven to be the best way of conserving fauna and flora. In view of this, there is need to increase the PA coverage considering ecosystem representativeness, connectivity and management effectiveness. Inadequate law enforcement, poor coordination, insufficient facilities and infrastructure, absence of wild life corridors, weak capacity and low staff remuneration are among the problems that need to be addressed in this target. Solutions include boundary demarcation, formulating and implementing new management plans as well as establishing additional PAs in Community Conserved and private protected areas. In this regard, key actions required include:

- (i) Boundary demarcation and development of management plans for PAs;
- (ii) Establish additional ecologically representative PAs, especially ICCAs; and,

(iii) Conduct economic valuation for at least seven Pas.

12: Prevent known threatened and rare species from extinction and extinct species reintroduced or restocked

The rich biodiversity of the Gambia is being destroyed due to traditional hunting, the fragmentation of ecosystems and forest fires as the migratory corridors and habitats of important species are destroyed. Other contributing factors to species extinction include the rapid population growth and urbanization which contribute to the shrinking of suitable habitat for wildlife species. In this regard, lost species need to be re-introduced and their habitats maintained in ecosystem equilibrium. Key actions required include:

- (i) Identify existing and potential protected areas where Endangered and Critically Endangered species are confined (Known as Highly Ecological & Sensitive Zones or HESZ);
- (ii) Conduct an analysis to highlight those HESZ, that could benefit from new or enhanced protection, and develop an action plan to advance their conservation;
- (iii) Establish and manage connectivity corridors;
- (iv) Facilitate annual early burning, promoted and facilitated; and,
- (v) Restock most extinct species.

13: Maintain the genetic diversity of cultivated plants, farmed and domesticated animals and of wild relatives

While the Gambia has acceded to the Nagoya Protocol on ABS in July 2014, there is need to develop a legal framework to facilitate its implementation. Due to limited capacity and lack of effective enforcement and follow up mechanisms for the implementation of the ABS, it has been problematic to maintain the genetic diversity of cultivated plants, farmed and domestic animals and their wild relatives. It should be noted that The International Trypanotolerance Centre (ITC) and the Department of Livestock Services have been engaged in genetic preservation of endemic ruminants such as the NDama cattle, the Djalonke sheep and the West African dwarf goat. In the bid to maximize access of potential genetic materials and equitable sharing of benefits accrued from their utilization, the following actions are required:

- (i) Support research to identify potential genetic resource for bio-prospecting and knowledge management;
- (ii) Promote preservation of genetic diversity of species; and,
- (iii) Promote sustainable production and productivity of livestock improved to meet national demand in meat and meat products and increase milk production over present level.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14: Reduce poverty incidence of protected area dependent communities to reduce pressure on natural resources significantly

Most of the local communities living peripheral to PAs are poor and involved in the exploitation of natural resources for their livelihood. As their numbers increase, the rate of exploitation of the natural is significantly increased with the use of machinery (chain saw and tractors). Furthermore, their agricultural practices are not sustainable leading to loss of soil cover culminating in low productivity. This has resulted in considerable loss of the county's biodiversity. In the bid to address the above, The government is piloting a bio-right program for communities providing alternative livelihood through bee-keeping, village banking, community woodlots and oyster culture. This is expected to provide alternative income sources and enhance biodiversity conservation. The DPWM will pilot conservation tillage in the North Bank Region in order to promote agro-forestry and prevent the use

of mechanized agricultural practices as well as discourage the use of chainsaws in the communities. Key actions required include:

- (i) Undertake the Planting and maintenance of (1,000,000) nutrient enriching plants or trees;
- (ii) Support and facilitate the implementation of 5 bio-rights programs; and,
- (iii) Create employment opportunities for community living peripheral to Protected Areas.

15: Ecosystem resilience and the contribution of biodiversity to carbon stocks enhanced through conservation and restoration, including restoration of degraded ecosystems,

Conservation, restoration and sustainable management of natural resources including forests, woodlands, wetlands and other ecosystems are proven and available means to sequester carbon and reduce the emission of the other greenhouse gases. A number of challenges related to climate change are persistent including: (i) the coastline of The Gambia is eroding at an unprecedented rate affecting ecosystem, communities and species; (ii) most fresh water wetlands are mostly over flooded and invaded by phragmites species, water hyacinth and typha species; (iii) due to sea level rise communities living in the fringes of Tanbi Wetland National Park are exposed to seasonal flooding; and (iv) salinization into rice growing areas and thus impacting the livelihood of vulnerable communities. Efforts including restoration through mangrove and other tree planting exercises, increasing the forest cover, designation of wetlands and restoration of degraded areas are the major activities required to realize this target. Key actions required include:

- (i) Promote incentives for the local communities through woodlots and traditional agroforestry mitigation activities and programmes are implemented;
- (ii) Encourage construction of appropriate dykes, gully plugs, bridges, spillways and contour bunds; and,
- (iii) Encourage Environmental Impact Assessment (EIA) before developing any project affecting biodiversity.

16: Operationalize and put in force the Nagoya Protocol on Access and Benefits Sharing

The Gambia has ratified the protocol in July 2014 and has successfully put in a place a roadmap for its successful implementation. The roadmap entails issues that need to be addressed such as policy and legal arrangement, sensitization of policy makers, resource inventories, institutional arrangement and capacity building. A number of actions are required to operationalize the protocol including:

- (i) Mainstream ABS issues into the reviewed NBSAP;
- (ii) Mainstream ABS issues into the existing revised Biodiversity/Wildlife Act;
- (iii) Develop an ABS regulation;
- (iv) Establish institutional arrangements;
- (v) Conduct a baseline study on GR and ATK and assess capacity gaps;
- (vi) Organize capacity development on ABS;
- (vii) Documentation of TKs; and,
- (viii) Monitoring and evaluation of the implementation status.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

17: The Gambia would have adopted as a policy instrument, and has commenced implementing an effective, participatory and updated NBSAP

In order to fulfil the obligations under Article 6 of the Convention, The Gambia prepared its first Biodiversity Strategy and Action Plan (GBSAP) in 1999. After a decade of implementation, the document has been subjected to revision and updating. The GBSAP sets out the overall goals, principles and strategic actions through participatory planning and implementation for the conservation and sustainable use of biodiversity in The Gambia. This revised document will further address emerging issues and all other associated issues and support its mainstreaming into policies, programs, plans of sectoral, cross sectoral and other relevant stakeholders. Key actions required include:

- (i) Prepare and submit Fifth National Report on CBD;
- (ii) NBSAP prepared, validated and submitted to CBD Secretariat;
- (iii) Implement the NBSAP strategy and all the associated plans;
- (iv) Prepare, host and launch a CHM portal for information sharing;
- (v) Implement the Monitoring & Evaluation plan; and,
- (vi) Review and update 2nd NBSAP.

Target 18: Traditional knowledge, innovations and practices of indigenous and local communities and their customary use, are respected.

The Gambia is rich in traditional knowledge and comprises diverse ethnic language groups. Each of these ethnic groups has cultural connection with certain species of plants and animals. These take the form of rituals, cultural belief systems, and knowledge of specific species such as medicinal plants. However, this knowledge has not been sufficiently studied, documented or utilized in natural resources management. There is urgent need to recognize, document and promote the application of indigenous knowledge and at the same time establish a legal and policy framework to protect illegal access to and use of this knowledge and to ensure that holders of such knowledge are protected and equitably rewarded. In the regards, actions required include:

- (i) Carry out research and ethno-biological studies to document existing indigenous knowledge, practices and innovations; and,
- (ii) Establish and implement legal and other measures to protect, preserve and maintain the indigenous knowledge, innovations and practice.

19: Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the understanding of consequences of its loss, are improved, widely shared and transferred, and applied.

There is currently only limited information on new knowledge or compilation of exiting information which will help to identify threats to biodiversity and determine priorities based on status, trends and values for conservation and sustainable use. There is need to new research, the development of new technologies and improved monitoring. Key actions required for effective implementation of the target will also strengthen the policy-science integration through information access include:

- (i) Conduct valuation studies on at least two species and three ecosystems;
- (ii) Support and encourage academic research in biodiversity issues; and,
- (iii) Consolidate and apply ABS and related information on status, threats, trends and uses of biodiversity and its conservation status.

20. Mobilize financial resources for effectively implementing the Strategic Plan for Biodiversity from all source should increase substantially

One of the major obstacles for the implementation of the previous NBSAP was limited capacity, both in terms of financial and human resources. While Government Budgetary allocation for biodiversity conservation has been increasing over the years, there is need to mobilize additional resources from multilateral and bilateral donor agencies through mechanisms such as GEF, Regional Program for

Marine Conservation (PRCM) and schemes related to ecosystem-based adaptation to climate change and Biodiversity conservation. In this regard, actions required include:

- (i) Development of a financing plan;
- (ii) Establish a board of trustees to manage the BTF; and,
- (iii) Mobilize and access funds from the BTF for re-investment into Biodiversity conservation programs.
- (iv) Develop project profiles for the implementation of the revised NBSAP

4.2.5 Strengthening the resilience of vulnerable populations in food and nutrition security

In line with the National Nutrition Policy, the vision is that of a Gambia free of malnutrition. In this regard, the priority interventions have the objective of: improving maternal nutrition; promoting optimal infant and young child feeding; improving food and nutrition security at household and community levels; preventing and controlling micronutrient malnutrition among the population, especially women and children; improving food standards, quality and safety; preventing and managing food and nutrition cyclical crises; improving access to food, nutrition and resilience of vulnerable populations.

1. Improving maternal nutrition

This priority intervention has the aim to (i) improve the Nutritional Status of women before, during and after pregnancies. It is necessitated by the fact that the majority of women, especially those living in the rural areas are in poor nutritional status, a factor which contributes to their poor health status. The following actions are proposed to enhance their awareness and enhance their nutritional status:

1. Carry out SBCC campaigns to raise awareness on the causes, consequences, prevention and control of maternal malnutrition using developed messages;
 2. Train health workers on the lifecycle approach;
 3. Support BFCI sites with building rest houses; and,
 4. Advocate for the enrolment of girls in schools through public sensitization.
 5. Advocate for the domestication of the ILO maternity protection convention
- (ii) to reduce the prevalence of malnutrition among women of child bearing age

Poor dietary habits, inadequate knowledge and poor environmental sanitation are key factors for the high prevalence of malnutrition among women of child bearing age. Key actions relevant to increase awareness and knowledge to reduce the prevalence of malnutrition include:

1. Support capacity building of stakeholders on the prevention and control of malnutrition through development of a training module;
2. Train stakeholders using the module;
3. Train local government authorities to incorporate; and,
4. Support and increase access to micronutrients through ongoing supplementation and fortification programmes.

2. Promoting optimal infant and young child feeding, interventions will hinge on: improving the nutritional status of children, promoting optimal infant and young child feeding practices, promoting nutritious, safe and locally available complementary foods, support communities to implement community-based programs, which protect and support infant and young child feeding practices, Strengthen and expand the Baby Friendly Community Initiative (BFCI) strategy to all communities, and Support capacity building of community-based extension workers on infant and young child feeding. These are detailed below.

(i) Improve the nutritional status of children

Poor feeding practices and unhygienic handling of feed for children are key causes for malnutrition. In the bid to improve the nutritional status of children, the following actions will be pertinent:

1. Develop SBCC on materials on IYCF;
2. Launch national awareness campaign on IYFC; and,
3. Support world breast feeding week celebrations

(ii) Promote optimal infant and young child feeding practices

In the bid to improve the nutritinal status of infants and young children, the need for proper guidelines, skills transfer and step down training are key activites. In this regard, efforts to promote optimal infant and young child feeding practices should focus on key actions to include:

1. Develop dietary guidelines for the optimal of infants and young children;
2. Develop recipes for complimentary foods made of locally available food;
3. Conduct training of trainers on developed recipes for MDFTs, health facility cooks; and,
4. Conduct step down training on the prepatation of recipes developed including cooking demonstartions.

(iii) promotion of nutritious safe and locally available complimentary foods

The prevalence of malnutrition among children, particularly in the rural areas is high and efforts need to be made to improve access and availability of nutritious safe and locally available complementary food. The following actions are proposed to enhnace awareness and access to nutritious food:

1. Develop SBCC materials on improved nutrition;
2. Increase awareness of legilators, policy makers and the public through use of SBCC materials in TV, radio,print and traditional drama groups ;
3. Support communities in establishing micro-gardens growing micro-nutrient rich vegetables; and,
4. Establish and support functioning of a micro-nutrient deficiency committee.

(iv) Support communities to implement community-based programs, which protect and support infant and young child feeding practices;

Local communities are increasingly involved in nutrition enhancement programmes and buidling their capacities through nutrition education and actions are essential in improving the nutritional status particularly of children. In this regard, key actions to support communities implement community-based programmes for infants and child feeding practices include:

1. Developement of Training materials on Child feeding practices;
2. Training of community members on optimal infant and child feeding practices; and,
3. Support communities in establishing microgardens nutrient rich foods.

(v) Strengthen and expand the Baby Friendly Community Initiative (BFCI) strategy to all communities

The Baby Friendly Community Initiative (BFCI) has gained wide acceptance as a strategy to enhnace nutrition and awareness on improved health status of babies in communities. There is need to strengthen and expand the BFCI to all communities through the following actions:

1. Review and update best practices in the implementation of the BFCI;
2. Strengthen and expand BFCI in communities; and,
3. Monitor and evaluate BFCI in communities.

(vi) Support capacity building of community-based extension workers on infant and young child feeding

Community-based extension workers (MDFT's) are at the forefront of nutrition education and need to be fully updated on the theme. The following key actions are relevant:

1. Develop training modules on infant and young child feeding practices;
2. Train community based extension workers (MDFTs) on training modules on infant and young child feeding practices; and,
3. Support community-based extension workers undertake step down training in communities.

3. Improving food and nutrition security at national, community and household levels

Interventions under the theme will aim to: improving household nutritional knowledge; developing nutritional awareness/education programs integrated into curricular throughout the basic cycle; promoting nutrition sensitive agricultural practices through methodological and technical support; supporting SBCC campaigns on the management of agricultural waste, food hygiene and safety; promote inter-sectoral collaboration on addressing food and nutrition security; and, mainstreaming nutrition into investment policies and plans at national level. The key actions are detailed below.

Improve household nutritional knowledge

Acquiring improved nutritional knowledge at the household level contributes to well being as it facilitates adoption of better food handling, processing and consumption practices. The availability of SBCC materials and the use of various channels of dissemination are pivotal in this regard. Key actions proposed include:

1. Develop SBCC materials on household nutritional knowledge for use in knowledge building on nutrition;
2. Carry out sensitization community using developed materials to enhance nutrition knowledge; and,
3. Carry out M&E activities to enhance learning.

- (i) Develop nutritional awareness/education programs integrated into curricular throughout the basic cycle

There already exist nutrition education materials for some stages in the basic cycle; this needs to be expanded to cover the entirety of the basic school cycle. This facilitates teaching and inculcates awareness at an early stage of the child's development. Key actions in this regard, include:

1. Develop awareness materials on Nutrition for curricular of basic cycle schools;
2. Support the publication of materials for schools; and,
3. Train teachers on the use of developed materials.

- (ii) Promote nutrition sensitive agricultural practices (diversification, food fortification, food safety) through methodological and technical support

Nutrition sensitive agricultural practices comprising diversification, food fortification and food safety need to be promoted to enhance the nutrition status of communities and households. A number of methodologies and technical support are essential through key actions, which include to:

1. Provide support to the development of materials to support nutrition sensitive practices;
2. Provide training support on the use of materials developed to support implementation of nutrition sensitive practices; and,
3. Provide equipment and input support for implementation of nutrition sensitive practices.

- (iii) Support SBCC campaigns on the management of agricultural waste, food hygiene and safety;

The management of agricultural wastes, food hygiene and safety are critical issues to enhance the food and nutrition security status of households and communities. In this regard, the widespread adoption of

is necessary, this will require an intensive SBCC campaign to stakeholders. Key actions that need to be undertaken include to:

1. Develop SBCC materials on the management of agricultural wastes, food hygiene and safety; and,
2. Disseminate SBCC materials through Radio, TV and traditional media to communities and stakeholders.

(v) Promote inter-sectoral collaboration on addressing food and nutrition security;

A multiplicity of sectors and agencies are intervening to addressing food and nutrition security. There is need for harmonizing approaches and streamline interventions. In this regard, a number of actions are proposed :

1. Establish a working group comprising membership of the National Nutrition Council and Food Security Committee; and,
2. Support meetings, study tours amongst members of the working group.

(iv) Mainstream nutrition into investment policies and plans at national level

Addressing nutrition issues requires adopting a multi-dimensional approach within different sectors. Given the multi-dimensional nature, it is pertinent that nutrition is mainstreamed into the investment policies and plans at national level for the various sectors. Key actions proposed include to:

1. increase the awareness of legislators, policy makers and the public on the importance of nutrition; and,
2. develop materials and disseminate through the mass media-Radio, TV and print media.

4. Prevent and control micronutrient malnutrition among the population, especially women and children

Key interventions will aim to : increase household consumption of iodized salt; eliminate Vitamin A Deficiency and its consequences; promote fortification of foods with micronutrients; increase awareness through SBCC on the importance of micronutrient and their consumption; and support linkages among government, NGOs and private sector.

(i) Increase household consumption of iodized salt

Inadequate intake of iodine results in Iodine Deficiency Disorder (IDD). There is therefore urgent need to increase individual and household consumption of iodine. Key actions required in this regard, include to:

1. Sensitize communities on requirements of the Food Fortification and salt;
2. Support members of the National Association of Salt Producers and communities with equipment including test kits on iodine;
3. Train members of the National Association of Salt producers on appropriate production, testing and storage techniques; and,
4. Prepare and implement monitoring plan on iodized salt production, consumption and quality.

(ii) Eliminate Vitamin A Deficiency and its consequences

Vitamin A Deficiency (VAD) and its consequences inhibit optimal production and productivity of households. In this regard intake of adequate quantities of Vitamin A are essential to meaningful wellbeing. Key actions proposed include to:

1. Carry out sensitization/awareness campaigns on Vitamin A deficiency and its consequences

Support;

2. procure and distribute necessary supplies;
3. develop expansion plan on Vitamin A supplementation; and,
4. monitor food supplementation programme.

(iii) Promote fortification of food with micronutrients

Food fortification with micronutrients ensures their availability to consumers through enriched local cereals, cooking oils, sweet potato etc. Community sensitization as well as the design and implementation of programmes are relevant complementary interventions. Key actions proposed include:

1. Sensitize/raise public/community awareness on food fortification and on the importance of micronutrients;
2. Design and implement programmes on food fortification (local cereals, vegetable oil, sweet potato, etc);
3. Develop an expansion plan to serve communities (unserved and underserved); and,
4. Monitor and evaluate fortification programme with micronutrients.

(iv) Increase awareness through SBCC on the the importance of micronutrients and their consumption

Adequate intake of micronutrients ensures ensures balanced nutrition at both individual and household levels. However, due to inadequate awareness, household consumption is low culmination in micronutrient deficiencies, In this regard, awareness through SBCC is pivotal. Key actions required include to:

1. Develop SBCC materials on the importance of micronutrients;
2. Disseminate developed materials to stakeholders including communities and decision-makers using Radio,TV,traditional drama; and,
3. Monitor and evaluate programme.

(v) Support linkages among government, NGOs and private sector

Different public agencies, NGOs and the private sector are engaged in food and nutrition security but do operate in a harmonized manner with complimentary linkages. It will be pertinent to establish complementary linkages through key actions, including to:

1. Establish task force within the National Nutrition Council on importance of micronutrient;
2. Convene meetings of the Task force on micronutrients inviting the private sector, NGOs, CBOs; and,
3. Organize field events on micronutrients in communities with Private sector, NGOs, CBOs etc.

5. Improve Food Standards, Quality and Safety

In view of the significance of imported and marketed food in domestic consumption, it is crucial to improve food safety through standards and regulations of the market. Interventions aim to: improve the food control system; support the development of standards; support the function of national laboratories for food testing. The cardinal actions are detailed below.

(i) Improve the food control system

In the bid to ensure safe food for consumers, it is essential that a strengthened and functioning food authority is in place- the Food Safety Quality Authority (FSQA). A number of actions are proposed to ensure a functional food safety system include to:

1. Strengthen FSQA through equipment and training support;
2. Support the review and updating of existing legislation, guidelines and codes of practice on food quality and safety; and,
3. Review, update and produce existing standards and codes of practice on identified foods (National Codex, Sanitary and Phytosanitary Committee).

(ii) Support the development of standards

Quality standards have been developed for a selected number of commodities. Efforts need to be done review, update those completed and develop for selected food commodities to ensure quality food for consumers and for trade. Key actions required include to:

1. Support the review, update and development of standards on identified foods;
2. Support the dissemination of developed/updated standards; and,
3. Support the training of stakeholders on standards.

(iii) Support function of national laboratories for food testing

A number of national food testing laboratories exist in key institutions, they however need strengthening through support in equipment and reagents to operate optimally. Key actions required include to:

1. Provide equipment and reagents support to national laboratories for food testing;
2. Provide training support to staff of national laboratories for food testing; and,
3. Support SBCC (Radio, TV and print media) on public awareness.

6. Prevention and management of food and nutrition cyclical crises are ensured

In the bid to improve vulnerability and resilience of households, the interventions aim to: support and strengthen the information and early warning systems on crisis risks and developing the harmonized framework analysis; and, support and strengthen capacity in national and community food reserves.

- (i) Support and strengthen the information and early warning systems on crisis risks and developing the harmonized framework analysis

The availability of accurate and timely information is critical to effective early warning and response mechanisms. In this regard, a number of key actions are proposed and include to:

1. Strengthen the FSN and early warning systems;
2. Develop capacity in the HF;
3. Strengthen alert systems; and,
4. Prepare response plans that are dependent on quality information.

- (ii) Support and Strengthen capacity in national and community food reserves

Food reserves at national and community levels are necessary to ensure food security. The Gambia currently operates no national food reserve system although a few community food reserves exists. Key actions proposed include to:

1. Strengthen capacity in national food reserves and community cereal banks;
2. Establish a national food reserves mechanism with food stocks; and,
3. link the national food reserves mechanism with the regional management.

7. Improving access to food, nutrition and resilience of vulnerable populations

Priority interventions aim to: Ensure that household resilience is strengthened and their vulnerability to chronic and nutrition insecurity is reduced; Governance of food and nutrition security is strengthened with

the capacity of civil society actors (NGOs and producers) strengthened in the governance of resilience; and, National information systems are fully functional and provide relevant decision support.

Ensure that household resilience is strengthened and their vulnerability to chronic food and nutrition insecurity is reduced

The location in the Sahel characterized by climate induced natural calamities including dry spells and late onset of the rainy season, it is pertinent to ensure that house resilience is strengthened and their vulnerability to chronic food and nutrition security in reduced. Key actions proposed include to:

1. Train households on Climate Smart Agricultural practices;
 2. Support households with inputs, equipment to adopt Climate Smart Agricultural practices; and,
 3. Provide household access to services including markets, credit and savings.
- (i) Governance of food and nutrition security is strengthened with the capacity of civil society actors (NGOs and producers) strengthened in the governance of resilience

Good governance of food and nutrition security is essential to ensure effective participation of all stakeholders including public, civil society actors and producers. Given the current status, there is need for strengthening of governance through capacity building. Key actions required include to:

1. Undertake capacity assessment in food security governance of civil society actors;
 2. Develop and test training modules on governance of food, nutrition security and resilience; and,
 3. Carry out training using modules for building governance on food security, nutrition security and resilience.
- (ii) National information systems are fully functional and provide relevant decision support

A number of national food security and nutrition information systems exist. These are largely fragmented, requiring coordination and support (financial and equipment) to ensure timely and comprehensive information for rational decision-making. Key actions required, include to:

1. Build capacity in Harmonized framework through the strengthening of analytical and information processing skills of various stakeholders in FSN;
2. Build the analytical capacity of national institution in FSN e.g. PSU, NaNA and GBOs; and,
3. Provide support to FSN data collection, analysis and dissemination.

SOCIAL PROTECTION AND FOOD SAFETY NETS

The NSPP proposes a set of priority actions to guide the establishment of a comprehensive social protection system in the country, key amongst these are: Safeguard the welfare of the poorest and most vulnerable populations. For example through unconditional cash transfers and in-kind transfers; Protect vulnerable populations from transitory shocks; Promote livelihoods and income of the poorest and most vulnerable, economically active population; and, Establish and promote weather-based insurance system for farmers

- (i) Safeguard the welfare of the poorest and most vulnerable populations-e.g. through unconditional cash transfers and in-kind transfers including the School Feeding

Food safety net mechanisms have to be employed to safeguard the welfare of the poorest and most vulnerable populations; this could be unconditional cash transfers or in-kind transfers. The interventions have to be well planned to have optimal impact and be sustainable. Key actions required, include to:

1. Design social safety net programmes to support vulnerable populations; and,

2. Strengthen and expand food safety net programmes e.g. in-kind transfers and unconditional cash transfers including public infrastructure works e.g. land conservation works; and,
3. Consolidate the School Feeding Programme and ensure nationwide coverage.

(ii) Protect vulnerable populations from transitory shocks

Due to the increased frequency of natural calamities, to which communities are subjected to, effective interventions aimed at protecting vulnerable populations from transitory shocks have to be planned and implemented. Key actions required include to:

1. Provide food relief assistance and repair of basic facilities (wells, housing, schools, etc.); and,
2. Build resilience through medium- term development support e.g. improved livestock breeds, draught animals, farming equipment, cereal processing and storage facilities, etc..

(iii) Promote livelihoods and income of the poorest and most vulnerable, economically active population

Communities, households and individuals in vulnerable zones are increasingly experiencing shocks due to lost production or means of subsistence; in this regard mechanisms that promote livelihood and income of the poorest and most vulnerable, economically active populations have to be implemented to build resilience on a sustainable basis. Key actions required include to:

1. Promote labour intensive works for cash or in-kind payments for the most vulnerable and economically active population; and,
2. Promote income generation activities for the vulnerable.

(iv) Establish and promote weather-based insurance system for farmers

There is a marked absence of agricultural insurance in a landscape characterized by frequent agricultural losses due largely to the weather. Recurrent droughts and flood leave households and communities in deplorable conditions, often relying on family and social networks for support. In the bid to minimize stresses and strains encountered, it is required to establish and promote weather-indexed insurance system for farmers. Key actions required include to:

1. Conduct feasibility of establishment and operation of Weather-based insurance system for Farmers;
2. Support the implementation of weather-based insurance system; and,
3. Monitor and evaluate performance of the system.

5. Budget and funding of NAIP 2019 – 2026

5.1 Evaluation of the budget

The total budget of the GNAIP II for the period 2019 – 2026 is computed at US\$349.88 million of which the base cost is US\$333.22 million with US\$16.66 million as the amount of contingency. This budget is broken down by priority area as presented in Table 16 to compare as follows: Programme 1: Production and value chain promotion on food crops and vegetable sub-sector totals US\$161.47 million (46.15%); Programme 2: Production and Value chain promotion on Livestock husbandry and pastoralist sub-sector costs US\$50.10 million (14.28); Programme 3: Production and value chain promotion on fisheries and aquaculture sub-sector amounts to US\$39.39 million (11.26%); Programme 4: Production and value chain promotion forestry and environment sub-sector costs US\$ 22.6 (6.46%); and Programme 5: Food security, Nutrition, Resilience and Social protection totals US\$47.76 million (14.22%); Programme 6: GNAIP

Coordination, Monitoring and Evaluation costs US\$10 million (2.87%). The detailed budgets of the programmes are presented in the Annexes.

Table 16: Estimated GNAIP-NFS Cost by priority intervention area

Programme/Component	Cost in USD	% of Total Cost
Programme 1: Production and Value Chain Promotion on Food Crop and Vegetable Subsector	161,467,100	46.15
Component 1: Improve production infrastructure for priority food crops and vegetable	106,680,200	30.49
Component 2: Enhanced sustainable intensification production of priority food crops and vegetables	24,073,150	6.88
Component 3: Post-harvest handling, produce transformation and marketing chains of food crops and vegetables developed and promoted	30,713,750	8.78
Programme 2: Production and Value Chain promotion on livestock husbandry and pastoralist subsector	49,965,500	14.28
Component 1: Improvement of Livestock Production and Productivity	10,771,500	3.08
Component 2: Disease Control, Prevention and Eradication	6,220,000	1.78
Component 3: Improvement of Feed Resources and Water Supply	16,236,000	4.64
Component 4: Livestock Commercialization and Marketing	3,690,000	1.05
Component 5: Livestock Research and Development	148,000	0.04
Component 6: Capacity Building and Training	12,765,000	3.65
Component 7: Policies and Regulations	135,000	0.13
Programme 3: Production and Value Chain Promotion of Fisheries and Aquaculture subsector	39,390,000	11.26
Component 1: Institutional Restructuring, Rearrangement and Capacity Strengthening	1,735,000	0.50
Component 2: Legal, Regulatory and Policy Reforms	60,000	0.02
Component 3: Key Stakeholder Capacity Building and Sensitization	1,440,000	0.41
Component 4: Inter-sectoral Linkage and Optimization of Overall Value Chain	34,955,000	9.99
Component 5: Collaboration and Partnership	60,000	0.02
Component 6: Post-harvest and Quality Control	1,000,000	0.29
Component 7: Fish and Fishery Product Marketing	200,000	0.06
Programme 4: Production and value Chain Promotion of Forestry and Environment subsector	22,595,000	6.46
Component 1: Forestry	12,955,000	3.70
Component 2: Biodiversity and Parks	9,640,000	2.76
Programme 5: Food Security, Nutrition, Resilience and Social Protection	47,760,000	14.22
Programme 6: GNAIP Coordination, Monitoring and Evaluation	10,041,724	2.87
Component 1: Institutional Arrangements and Coordination	3,431,724	0.98
Component 2: Financing Mechanism	550,000	0.16
Component 3: Monitoring and Evaluation	850,000	0.24
Component 4: GNAIP Implementation Capacity Building	5,210,000	1.49
Total Base Cost	333,219,324	95.24
Contingency (5%)	16,660,966	4.76
TOTAL	349,880,290	100

5.2 The funding strategy (mobilisation of domestic and external resources)

Financing of the six programmes of GNAIP II are to be financed from ongoing and planned projects funded by development partners and the Government of The Gambia. Project financing sources include key development partners such as the African Development Bank (AfDB) funding the ongoing Agricultural Value Chain Development (ACVD -USD 6.4 million) Project, The Programme for building Resilience Against Food and Nutrition Insecurity in the Sahel (P2RS-USD 8.22 million) and the recently approved Rice Value Chain Transformation Project (RVCTP- USD 40 million). The European Union (EU) is funding: Improving Food security and nutrition through food fortification (USD 3.3 million) and Agriculture for Economic Growth (USD 6.5 million); The Global Agriculture and Food Security Programme (GAFSP) is providing funding to FASDEP (USD 4.75 million). The Global Environment Facility (GEF) Adapting Agriculture to Climate Change (USD 3.67 million) and Community-based dryland forest management (USD 1.75 million); the Islamic Development Bank (IsDB) financing the Building Resilience to Restoring for Food Insecurity in The Gambia (USD 13.56 million), the Small Ruminant Improvement Project (USD 26 million) and co-funding the RCVTP. The Green Climate Fund is funding the Large Scale Ecosystem-Based Adaptation in The Gambia: Developing a Climate resilient, natural resourced based-economy (EbA- USD 12.76 million); while the World Bank is funding the Gambia Commercial and Value Chain Management (GCAV) project (USD 2.6 million).

Table 17 summarizes funding by category of execution agency comprising Ministry of Agriculture (MOA), those under Other Ministries comprising the Ministry of Fisheries and Water Resources (MOF&WR) and that of Ministry of Environment, Climate Change and Natural Resources (MOECCNR); those implemented by international technical agencies-notably the Food and Agricultural Organization (FAO) of the United Nations and the private sector. Accordingly, the contributions have reduced the funding gap, which is USD 139. 87 million or 40% of the overall funding requirement. The financing gap by programme area shows that fisheries and aquaculture production and value chain development (3) had the largest financing gap of 91.68% while Programme management (6) and Livestock value chain development had gaps of 23.24% 20.95% respectively.

Table 17: GNAIP Funding Gap Determination

A. Estimated Funds Available to GNAIP (USD '000')	Total	GNAIP Programme					
		1	2	3	4	5	6
Source							
MOA Projects	167,023	106,427	39,198	242	1,038	13,048	4,100
Projects- Other Ministries	12,761	2552	638	1534	7,656	0.00	2,084
Projects -Development Partners	15,226	4,131	2,678	0.00	5,665	1,228	1,523
Private Sector	15,000	9,000	4,500	1,500	0.00	0.00	0.00
TOTAL	210,010	122,110	47,014	3,276	14,359	14,276	7,707
B. GNAIP Programme Costs	349,880	161,470	59,480	39,390	22, 595	49,760	10,041
Funding Gap	139,870	39,360	12,466	36,114	8,236	35,484	2,334
Financing Gap in %	40.00	24.4	20.95	91.68	36.45	71.31	23.24

6. The Implementation, Monitoring and Evaluation and Communication Strategy for the Period 2019-2026

The successful implementation of this investment plan hinges on the commitment of the Government to provide the needed support while the line ministries take the leading role in the implementations and coordination of the programmes. Development partners and non-state actors will provide technical support and the private sector will be involved in the implementation of some specific activities. The key factors for successful implementation are adequate coordination framework, monitoring and evaluation, and communication strategy.

6.1 The implementation strategy

Implementation of GNAIP II will be carried out at different levels and the key institutions involved will include the National Council of Ministers (NCM), the Programme Steering Committee (PSC), the Programme Coordination Office (PCO) and the decentralised and local development structures, i.e. Regional, District, Ward and Village Committees.

The National Council of Ministers (NCM) will be highest decision-making body in the implementation of GNAIP II. It will provide overall policy direction and guidance for implementing GNAIP II. The NCM will be chaired by the President and will include, but not be limited to the following ministries and agencies: Ministry of Agriculture (MOA); Ministry of Fisheries and Water Resources (MOFWR); Ministry of Forestry and the Environment (MOFE); Ministry of Lands, Regional Government and Religious Affairs (MOLRRA); Ministry of Trade, Regional Integration and Employment (MOTRIE); Ministry of Finance and Economic Affairs (MOFEA); representative of development partners, etc.

The Project Steering Committee (PSC) shall comprise MOA (Chair), the PCO (Secretary), MOFEA, MOTRIE, MOFEA, MOLRA, MOFWR, MOFEN, MOBSE, MOHSW, Women's Bureau/MOA, Association of Non-Governmental Organizations (TANGO), DOA, DLS, NARI/MOA, Gambia Investment and Export Promotion Agency (GIEPA), Farmers Platform, Gambia Chamber of Commerce and Industry (GCCCI). The PSC will answerable to NCM. It will be responsible for the management and overall implementation and monitoring of all the GNAIP II programmes and activities. The PSC will review progress and technical reports and inform the NCM, as well as set up national thematic groups and task forces and support sensitization, communication and capacity building initiatives. It will meet at least quarterly and hold ad-hoc meetings as necessary. PSC will appoint senior staff of the PCO.

The Programme Coordination Office (**PCO**) will be answerable to the PSC. It will serve as the technical arm of GNAIP II, overseeing programme planning, implementation and coordination and progress at a programmatic level. The PCO will be supported by the ANR-Working Group and staffed by Programme Coordinator (PC), a Financial Controller, Administrator, Procurement Officer and ancillary support staff. The PC will be responsible for programme coordination and monitoring and will work closely with Programme Support Units. At the decentralised level, Regional Directors will be appointed to manage technical aspects of the programmes.

Programme Support Units (PSUs) are responsible for implementation the implementation of donor funded programme/projects. The PSUs will work closely with PCO and collaborate with other GNAIP programmes as appropriate. They will reporting to PCO as well as Regional PSCs (see below).

At the decentralised level, Regional PSCs (RPSC) will be established as a sub-committee of the existing Regional Development Committees to coordinate and manage GNAIP implementation ensure effective and timely delivery of results. GNAIP programmes will be implemented through existing decentralized structures such as the Regional Development Committees, District Development Committees, Ward Development Committees as well as Village Development Committees. The heads of line departments,

already members of Regional Development Committees, are expected to play key roles in RPSCs. The RPSCs will meet monthly to review progress.

6.2 Monitoring and evaluation

The Monitoring and Evaluation system has been developed and the verifiable indicators identified in the Results Framework presented in Part 10. The indicators will be incorporated into the revitalized Gambia Agricultural Information System (GAINS) of the MOA M&E Framework as an MIS. A special unit of the CPCU will be assigned to ensure that robust, reliable, and timely data is generated for the assessment of implementation of the GNAIP. The Unit will also be responsible for knowledge management.

The M&E will be characterized by the following:

Be an integral part of the Regional Peer Review Mechanism; and the holding of periodic Joint Reviews.

6.3 Communication strategy

Enhanced communication and awareness is needed to ensure public awareness of GNAIP. In this regard, a communication strategy will be developed to increase public awareness, information sharing and knowledge of GNAIP. CEES of MOA, the focal point for this activity, will develop awareness-raising materials targeted at the needs of specific audiences based on the most appropriate media, format and languages. The target audiences will include the Executive, the legislators, policy makers, public and local institutions, the media, development partners, non-state actors, various value chain actors and service providers.

7. Risks and Assumptions

The following constitute key risks, assumptions and mitigation measures for the investment plan:

- **Climate Change**

Climate change and its consequences including frequent droughts, floods and windstorms are key concerns which could inhibit agricultural production and productivity resulting in the non-attainment of key targets. This will be mitigated by the employment of appropriate climate smart agriculture including the installation of irrigation infrastructure and systems, adaptable seeds and animal species.

- **Insufficient funding for GNAIP II**

GNAIP II requires substantial investment funding for its realization, it is important that the ANR institutions can mobilize funding and that the private sector is properly incentivized to participate. Thus, GNAIP II will position agriculture and natural resources as a business and focus on the creation of competitive returns – the conducive environment will this be created to foster private sector investment.

- **Pest and Disease outbreaks**

The outbreak of pests and diseases of major economic importance is a potential risk which can have significant impact on performance of GNAIP II. The surveillance of diseases and pests and the promotion of best agricultural practices, will be key during the implementation process.

- **Lack of Political Will**

While the current environment is supportive of development of the ANR and considers it a high priority, it is recognized that a lack of political will is a critical risk factor (and typically a major driver of failure of past attempts for transformation) and therefore, this risk must be maximally mitigated in the construction of the strategy and implementation plan. It is envisaged that key stakeholders notably the public sector, the private sector, NGOs and Civil Society Organizations will all have a buy-in

- **Lack of Coordination between partners**

A number of partners including public, private sector, Civil Society have interest in agriculture, food and nutrition security, resilience and climate change etc, it is envisaged that the GNAIP will a partnership of all these stakeholders and that they will serve in the National Steering Committee. The ANR ministries will play a direct role in convening partners and facilitating them to hold each other accountable for agreed-upon targets. The ANR ministries will create the conducive environment in which partners can translate high-level commitments into concrete strategies to transforming specific agricultural value chains and agro-ecological zones. The GNAIP II will build internal capabilities to track and monitor progress against these collective commitments.

- **Market and Foreign Exchange Fluctuations**

Niche products might not find markets at domestic, regional and international levels and foreign exchange fluctuations might not make exports attractive. These risks will be mitigated through the adoption of prudent trade and macroeconomic policies.

- **Mismatch between current Public/private sector capabilities and those required for implementation**

A detailed assessment of GNAIP I comprising the capacities and capabilities particularly of the key stakeholders was conducted (GNAIP Review, 2016); it indicated gaps that need to be filled for effective implementation and provided recommendations on how to address the identified gaps through capacity building, in-house training and leveraging partnerships. The public sector will not execute the investment plan alone; target partners have been identified for the various value chains drawing on a broad spectrum of expertise in order to drive execution. Coordination of such partnerships inevitably involves trade-off between risks associated with capabilities at the public/private sector/civil society partners, versus the complexity of coordination, and as a result, the coordination mechanisms at the various levels will be critical in ensuring that there is associated breadth and depth in terms of partner capabilities in key execution areas.

8. Economic and financial profitability of the plan

FINANCIAL AND ECONOMIC ANALYSIS

Effective implementation of the Second Generation National Agricultural Investment Plan -Food and Nutrition Security (GNAIP-FNS 2019-2026) will be a key catalyst to socioeconomic growth and development in The Gambia in both the medium and long-terms. Analysis of production and productivity for the value chains indicate opportunities for growth, particularly through yield increments filling the significant gaps between attainable yields and the potential yields. The IFPR/ReSAKK study which informed the GNAIP II show that 9.4 percent annual agricultural growth is feasible with the Scenario of the Malabo. The Investment plan covered several value chains as well as food and nutrition security, resilience, climate change and gender with some of the benefits quite difficult to quantify and monetize for a comprehensive financial and economic analysis.

At this stage of the investment plan, the computation of a comprehensive financial and economic analysis is deemed not appropriate. Nonetheless, detailed financial and economic analysis can be conducted at project level, when these are being rolled out.

9. GNAIP II Results Framework

The key GNAIP II performances can be gauged from the key impact indicators comprising annual GDP growth; annual agricultural growth; food self-sufficiency; prevalence of underweight, and stunting under five as well as the community-managed forest as presented in Summary Table 18.

Table:18: Key Impact Indicators and Targets

Key Impact Indicator	GNAIP II Target (2019-2026)	Baseline	Source
Food self-sufficiency	Annual Rice Production of 220,000 Mt	69,000 Mt	NDP (2018-2021)
	Annual Maize production of 43,000 Mt	38,000 Mt	
	Annual fruit production of 162,000 Mt	127,000 Mt	
	Annual vegetable production of 50,000 Mt	34,000 Mt	
	Increase beef production to 5,670 Mt	4,931 Mt	
	Increase mutton production to 750 Mt	449 Mt	
	Increase goat meat production 1,600 Mt	988 Mt	
	Increase pork production to 1,400 Mt	1,166 Mt	
	Increase local poultry meat to 1,200 Mt	720 Mt	
	Increase commercial broiler meat to 1,150 Mt	562 Mt	
	Increase milk production from traditional herds to 28,470,915 litres / annum	25,882,650 litres	
	Increase egg production to 1,398 Mt	675 Mt	
	Increase honey production to 6.5 Mt	5 Mt	
	Increase fish production to 75,000 Mt	53,719 Mt	
Prevalence of Underweight	12%	21.6%	National Nutrition Policy (2018-2025)
Prevalence of stunting	13%	22.9%	
Prevalence of GAM	5%	10.3%	
Community Managed Forest	200,000 ha	200,000 ha	
Joint Forest Park Management (with state and community)	43,000 ha	36,963 Ha	

The Results Framework matrix (Annex 1) presents the components, sub-components, main activities, indicators, sources of Verification and Assumptions and Risks for each of the Priority Areas/Programs.

10.0 General Conclusions

The Gambian economy has been characterized by low GDP growth largely attributed to low productivity of the agricultural sector. The analysis the performance of the agricultural sector and changes in the food and nutrition situation of the country revealed that yields for key crops such as rice, coarse grains and groundnuts remain low; livestock population growth has also been fluctuating due to disease outbreaks and climate change. The Gambia ranks as one of the most vulnerable to climate change. Trends in climate data manifest climate change phenomena including rising temperatures, declining rainfall, droughts, floods and sea level rise.

Gambian households experience both acute and chronic food insecurity with 8% of households being food insecure or vulnerable to food insecurity. Food insecurity is characterized by regional and temporal variations and attributed to low and volatile cereal grain and livestock production, high poverty levels and vulnerability to external shocks. The Gambia experiences the triple burden of malnutrition- undernutrition, micronutrient deficiency and overweight. The prevalence rates for undernutrition monitored through stunting, underweight and wasting were 15.7%, 10.6% and 5.8%, respectively.

The analysis revealed that agricultural value chains face a number of challenges centering around: insufficient infrastructure; limited access to agricultural inputs and finance; unfavourable agribusiness environment and problems linked to limited inclusiveness, sustainability and nutrition which GNAIP II seeks to address. GNAIPII revolves around four strategic axes, namely: improving production and productivity of agro-forestry-pastoral and fisheries products; structuring of the value chains; strengthening the resilience of vulnerable populations; and governance. Approximately US\$ 374.22 million will be required to implement the following priority programmes identified in GNAIPII:

1. Production and value chain promotion on food crops and vegetables sub-sector;
2. Production and value chain promotion on livestock husbandry and pastoralist sub-sector;
3. Production and value chain promotion on fishery and aquaculture sub-sector;
4. Production and value chain promotion on forestry and environment sub- sector;
5. Food and nutrition security, resilience, social protection; and,
6. Promote good governance of the whole agriculture and natural resources sector.

The successful implementation of this investment plan hinges on the commitment of the Government to provide the needed support while the line ministries take the leading role in the implementations and coordination of the programmes. Development partners and non-state actors will provide technical support and the private sector will be involved in the implementation of some specific activities. The key factors for successful implementation are adequate coordination framework, monitoring and evaluation, and communication strategy.

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