

ASSESSMENT OF FOOD PRODUCTION SYSTEM AND FOOD SECURITY IN THE GAMBIA

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ABSTRACT

The study analysis is based on the assessment of production system employed by the farming community in reducing food insecurity in the Gambia. The strategy used the literatures that discussed various methods in providing policies and programmes to enhance agricultural production and productivity in the country such as concentration on rural smallholder farmers constituting the majority of the poor and strategies emphasis on: expanding irrigation and land development through appropriate land use and soil management and increasing commercialization through intensification and enhanced productivity and competitiveness of cereals - particularly rice among others. It was observed that Gambian primary sector has been characterized by subsistence production of food crops comprising cereals (early millet, late millet, maize, sorghum and rice); semi-intensive cash crop production (groundnuts, cotton, sesame and horticulture) and traditional livestock rising. Farmers generally practice mixed farming, although crops account for a greater portion of the production. On average, some 200,000 ha are annually cultivated of which less only 2% of them are irrigated. Among the crops, groundnuts are the most important occupying 40-50% of the cultivated area followed by early millet (25%), rice (8%), sorghum and maize (7% each) with the least of the area allocated to sesame and the root and tubers (cassava and sweet potatoes). The majority of farmers are smallholders (less than 3 ha per farm family) and are generally resource poor. There is heavy reliance on household labour and traditional farming techniques. Food security has been described using four key dimensions to the definition: availability, stability, safety and access. Although his view is based on urban context, the first dimension, food availability relates to the readily sufficient amounts of food. This is mainly a function of food production and supply. Food stability requires that food can be accessed at all times. Food safety is linked to the quality of food. It is not enough that sufficient amount of food are available, if it cannot be consumed without risking major health problems. It has been stated that access to food is associated with the resources that an individual or household possesses to obtain food required for a healthy diet. Also agriculture sector is confronted with constraints that result in low productivity, limited

marketing and commercialization, and low net incomes, erratic and low rainfall patterns; a highly seasonal and mostly rain-fed subsistence-based production; unreliable access to inputs; insufficient supplies and use of improved seeds; limited landholdings under irrigation, diminishing access to good arable land due to population pressures among others. Thus we recommended the following: need for increase productivity through the implementation of sustainable land and water management with emphasis on cereal crops, others crops in upland areas, horticulture and livestock production, production and resource management constraints; focus on vitalizing agricultural commodity value chains, and measures and programs to support competitiveness and higher investments in value chains; recognize high potential for positive impacts on women and youth employment; address capacity weaknesses of producer organizations, address forest and fisheries resources and parks and wildlife the problem of resource depletion, sustainable technologies and the need for strengthening and improving agency coordination and capacity to produce timely, accurate and relevant data and analysis concerning food and nutrition security.

Keywords: Food Production System, Food Security, The Gambia

INTRODUCTION

The Republic of Gambia is one of the smallest countries in West Africa surrounded by the republic of Senegal on the northern, eastern and southern sides, and bounded on the Atlantic Ocean. It has a total land area of about 11,000 square kilometres/extending approximately 400 km eastwards with widths varying from about 80 kilometres at the Atlantic coast to about 24 to 28 km in the east. The country has a human development index ranking of 160 out of 179 nations. The agricultural production is the main economy activity in the Gambia but has declined throughout the 1990's as a result of several factors including poor rainfall distribution, weak marketing infrastructure, lack of access to credit (especially for the youths and women) and a limited resource base. Generally Gambian agriculture has been characterised by subsistence production of food crops, comprising cereals (early millet, late millet, maize, sorghum, rice), semi intensive cash crop production (groundnut, cotton, sesame and horticulture). Farmers generally practice mixed farming, although crops accounts for a greater portion of the

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production. The agricultural sector is characterized by little diversification, mainly subsistence rain-fed agriculture with a food self-sufficiency ration of about 50%. The crops sub-sector generates approximately 40% of the foreign exchange earnings and provides about 75% of total household income. The crop-sub-sector employs 70 percent of the labour force, and accounts for 33% of GDP of the country (www.fao.org/gambia). Livestock production in the Gambia is still predominantly traditional i.e. low input extensive system of husbandry. Current livestock population is estimated at around 300,000 cattle; 140-150,000 sheep and 200,000-230,000 goats. The poultry population in 2007 comprised 300,000 broilers, 18,500 commercial layers and 550,000 local chickens (DLS, 2007).

Despite the primary role of the agriculture sector in the economy, its performance and share in most key socio-economic indicators in the past decade have not been consistent, and in some years, performance in production stagnated or even declined. This has been attributed to a combination of factors including the following; adverse climatic conditions from 1968 to the first half of 90s through to the early years of the present millennium (2000); application of Structural Adjustment Programmes without sequencing in the mid to late 1980s, low private investment, especially in value added, declining international agricultural commodity prices; soaring prices of food commodities and essential production inputs; inadequate domestic policies, institutional support and investment in the sector, particularly roads and equipment.

Subsistence farming households do not produce enough in their mono crop system to achieve a marketable surplus. Income from agriculture and other sources is limited often due to insufficient output marketing opportunities. Poor rural households have to bridge a food deficit period between 4 to 6 months, generally in the raining season. Key constraints to the development of fisheries, especially artisanal fisheries, include post-harvest losses, weak extension and research systems and poor marketing infrastructure. The Special

Programme for Food Security (SPFS) in the Gambia has provided a wealth of examples of community organisation and specific food security activities such as water harvesting, improved and diversified production including poultry, small ruminants, aquaculture, mushrooms, exotic fruits, cashew and rice to achieve local food security.

Forestry sector as an importance area is another constrains in the sub sector in terms of mainly structural, particularly weak institutional setting, with the sub sector policy not yet operational that will provide guidance on the nature and scope of taking advantage of the opportunities the sub sector offers, at the same time ensuring its sustainable management.

Objective

The broad objective of this study is based on the assessment of production system employed by the farming community in reducing food insecurity. The specific objectives of the study are the following

- I. To examine the farming systems adopted by the farmers within the country
- II. Determine the constraints of the farming practices of the farming community
- III. Assess the method that generate high yield to the farming community for food security

The Gambia's salt and fresh waters have abundant and diverse resources. It has a total continental shelf area of 3855 sq. km on the Atlantic Ocean in one of the richest fishing zones of the world. Species present include pelagic and demersal fish, as well as crustaceans and shellfish. With a theoretical annual MSY of 65,000 - 75,000 MT and estimated annual exploitation of around 45,000 MT, the fisheries resources are believed to be under-exploited. Production of food commodities for local consumption heavily depends on the weather. The country produces about 50 percent of

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its domestic requirements. The country relies on rice imports from the international market to cover its consumption needs, and food prices are strongly affected by the exchange rate of the Dalasi. Soaring international food prices and low national production are leading to high inflationary pressure on the domestic food market, eroding the purchasing power of urban and rural consumers. It is therefore essential to examine the production system applied geared towards self food sufficiency.

Agriculture is the key sector for investment to achieve long-term food security as well as reducing poverty levels as stated in Vision 2020 and MDG. In order to achieve these goals the agricultural sector needs to be transformed from subsistence farming to market oriented commercial enterprises. Comparative advantages of agricultural and human resources need to be built, emphasising productivity increases and competitiveness.

The fisheries sub-sector is both industrial and artisanal, with the latter accounting for about two thirds of the total catch. Marine fish resources are enhanced by the freshwater flows of the River Gambia. Prolific mangrove growth supports thriving ecosystems and the brackish and freshwater zones of the middle and upper regions are also rich in crabs and shrimps, with great potential for aquaculture.

The River Gambia is one of the major rivers in West Africa and is navigable up to 390 km upstream. Studies by FAO suggest that there is high pressure on demersal fish stocks and the Government is trying to reduce fishing of these species. But pelagic fish are believed to be underexploited as they are mainly caught by artisanal fishermen using gill nets and sold in urban markets. There is currently a heightened awareness of the importance and value of the Forestry sub sector macro-economic development of the country, particularly to food and nutrition security for poverty reduction,

economic growth, climate change implications, conservation of the country's biodiversity and its fragile ecology.

LITERATURE

The Gambia has a narrow economic base, relying heavily on agriculture which provides employment for about 75 percent of the labor force. Performance of the sector has fluctuated, contributing on average 30 percent of Gross Domestic Product (GDP) in 2010 and a growth rate of 4 percent. Despite its potential, identified in a number of commodity studies such as in the horticultural sector, agricultural production evidences low and unpredictable yields and high susceptibility to droughts and erratic climate patterns. It is rain-fed, only 3 percent is estimated under irrigation. A number of challenges prevail: increasing soil degradation, low quality and insufficient supply of inputs, limited value addition and commercialization, inadequate linkages with markets including undeveloped integration in the region and with other sectors of the economy, such as tourism, manufacturing and services. Poor performance in the agricultural sector has contributed to low income levels of smallholders and persistent high levels of poverty, which are reported at 61percent, GNAIP (2012).

Food Security

Alfred (2015) explained food security using four key dimensions to the definition: availability, stability, safety and access. Although his view is based on urban context, the first dimension, food availability relates to the readily sufficient amounts of food. This is mainly a function of food production and supply. Food stability requires that food can be accessed at all times. Food safety is linked to the quality of food. It is not enough that sufficient amount of food are available, if it cannot be consumed without risking major health problems. There is a strong link between street foods and prevalence of gastrointestinal infections that has been detected in developing countries (FAO, 2008). The Gambia as a developing

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economy cannot be an exception. Globally, these infections are a major cause of morbidity particular among children.

The final dimension, access to food is associated with the resources that an individual or household possesses to obtain food required for a healthy diet.

Agricultural sector

Gambian primary sector has been characterized by subsistence production of food crops comprising cereals (early millet, late millet, maize, sorghum and rice); semi-intensive cash crop production (groundnuts, cotton, sesame and horticulture) and traditional livestock rising. Farmers generally practice mixed farming, although crops account for a greater portion of the production. On average, some 200,000 ha are annually cultivated of which less only 2% of them are irrigated. Among the crops, groundnuts are the most important occupying 40-50% of the cultivated area followed by early millet (25%), rice (8%), sorghum and maize (7% each) with the least of the area allocated to sesame and the root and tubers (cassava and sweet potatoes).

The majority of farmers are smallholders (less than 3 ha per farm family) and are generally resource poor. There is heavy reliance on household labour and traditional farming techniques. However, there is large-scale use of animal traction which has enhanced mechanization on most of the small holdings across the country (Department of Agricultural Services, 2001)

Whilst groundnut cultivated area and production dominated the early periods of the review by 1985/86 the coarse grains became more dominant on both counts. Production of coarse grains registered the biggest increase from around 40,000 Mt or 15% of total crop production in 1974/75 to over 90,000 or 50% by 1985/86. The upsurge in production levels of coarse grains could be attributed to the importance farmers attached to these crops for increased household food security particularly after the droughts in the 70's

and early 1980s and the decrease of groundnuts yields resulting in revenue erosion of the farmers. However the full potential of these crops is yet to be exploited due to shortage of improved seeds, fertilizers and other inputs coupled with difficulties associated with processing. Amongst the coarse grains, early millet registered the highest increase in terms of both cultivated area and production; with cultivated area increasing from a low of 4,600 ha in 1977/78 to the highest of 109,900 ha in 2006/07 and production from 3,000 Mt to 166,000 Mt in the same period.

Significant increases in total production and cultivated area in the last ten years are reflective of agricultural mechanization programmes put in place by the Government since 1994. Under the operations "Back to the Land" and "Feed the Nation", the Government provided over 100 tractors from 1999 to 2005 for hire during land preparation activities and has contributed to increased cultivated area. Although a mixed trend, the latter years record more implements and working animals which may also explain the increase in cultivated area. The relative share of cereals in the total major cropped area increased marginally from 36.7% in 1975 to 59.8% in 1985/86 and then to about 62% in 2004/05. The relative share of coarse grains in the total cropped area also increased marginally but at a stronger rate than the share of cereals.

Farming Techniques and Production Trends

Farming techniques particularly irrigation also contribute to Salinization (the accumulation of salt in soils) which invariably cause stunted growth in plants thereby decreasing harvest and eventually making soil unsuitable (Adelekan, 2008). "According to Food and Agriculture Organization (FAO) of the United Nation (UN) Salinization has degraded an estimated 7-10 percent of the world's 250 million hectare (618 million acres) of irrigated lands." In Gambia, the soil is mostly poor and sandy, except in the riverine swamps. On upland soils the main food crops, besides groundnuts, are millet, cassava, corn, and beans. Most landholdings range between five and

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nine hectares (12 and 22 acres). Agriculture supports about 80% of the active population, and contributed about 40% of GDP in 2001. Irregular and inadequate rainfall has adversely affected crop production in recent years. Gambia's agricultural sector has very poorly performed over the past 40 years. Cereal yields, fruit yields, oil crop yields, and tuber/root yields have grown by either 0.0% or -1%. Fruit yields experienced its sharpest decline in the early 2000's but was able to quickly recover. Unlike most SSA country, Gambia's tuber/root yield did not recover from the sharp decline experienced it experience in the early 1970's. Cereal and oil crop yields have been decreasing with multiple transitory fluctuations (Chauvin et al., 2012).

Trends in production in Food Crops

As mentioned earlier, Gambian primary sector has been characterized by subsistence production of food crops comprising cereals (early millet, late millet, maize, sorghum and rice); semi-intensive cash crop production (groundnuts, cotton, sesame and horticulture) and traditional livestock rising. Farmers generally practice mixed farming, although crops account for a greater portion of the production. On average, some 200,000 ha are annually cultivated of which less only 2% of them are irrigated. Among the crops, groundnuts are the most important occupying 40-50% of the cultivated area followed by early millet (25%), rice (8%), sorghum and maize (7% each) with the least of the area allocated to sesame and the root and tubers (cassava and sweet potatoes).

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Livestock Production

Livestock constitutes important sources of food, income, and manure and farm power in The Gambia. The trend in this sector shown from 1975 to 2006 is generally increasing population for cattle and for small ruminants. The cattle population averages around 430,000 heads, 220,000 sheep and 300,000 goats, 16,000 pigs, and 400,000

chickens. Despite the large number of cattle, off-take remains low due to holding of stocks as reserves of wealth by owners.

At an estimated per capital meat consumption of 8 kg of milk and other dairy products (estimated at between 10 and 24 kg per caput per annum), large volumes of meat, eggs and milk are annually imported to meet consumption requirements. There was the increasing import dependency for livestock products since 1990, in particular for milk and eggs. Demand has increased in recent years due to increasing income and a rapidly expanding urban population. Nevertheless, livestock yields have remained unchanged since the last fifteen years (174 kg/year for milk and 3.2 kg/year for eggs). This large import of livestock products, which are often cheaper than the domestically produced items, has served as a disincentive for local producers. Due to the low input management systems and poor husbandry practices, productivity and output have been generally low in the traditional free-range extensive systems. In the emerging modern sector semi-intensive management systems are predominant with increasing utilization of composite animal feed and concentrates.

Fisheries

The Gambia is endowed with abundant marine and riverine fish. Estimates from surveys highlight that demersal stocks are heavily fished with sustainable limits being approached; the pelagic resources are however under-exploited. Fisheries constitute an important natural resource and provider of cheap source of protein for a significant proportion of the population. Per capita fish consumption is higher in the coastal areas with 36 kg/per caput/annum for Banjul compared with 18 kg/per caput per annum for URR lowest in eastern Gambia. It is estimated that the maximum sustainable yield from the Gambia's continental shelf and estuarine area is 80,000 MT per year, whilst current catches are put at 30,000-40,000 Mt. The observation also indicates that high valued demersal species are under threat from exploitation. From 1981 to

2004 artisanal and industrial fisheries sub-sectors are one of dwindling catches from the industrial sector whilst those of the artisanal sector show an increasing trend. High post-harvest losses, lack of credit, low skill levels and lack of infrastructure for landing constitute key constraints encountered in the sector.

This analysis shows that production growth has largely been due to area expansion with productivity stagnant due amongst others to dependence on rainfall, low investment in production inputs and related industries and the small size of holdings. Performance on the yield of major crops is from the period 1974/75 to 2006/07 shows decreasing trends. After increasing until 2000, yields of main food crops decreased sharply and then stagnated over the last years. Besides unfavourable weather conditions (mainly rainfall), low yields are due to an important rise in the cost of production (particularly for fertilizers). Groundnut productivity has been particularly affected by poor seed-nuts, inadequate quantities and un-affordability of chemical fertilizers.

METHODOLOGY

Agriculture and Food Security Strategy

The Gambia showcased its full commitment to poverty reduction by preparing a long-term development strategic plan called "*The Gambia Incorporated Vision 2020*" in 1996 aimed at transforming the country into a middle-income, export-oriented nation by 2020 with agriculture and natural resources (ANR) identified as top priority. As a consequence a series of medium-term programs and strategies have been prepared, to address priorities and expectations on improving ANR performance. Among key programs and strategies are: (i) the Strategy for Poverty Alleviation (SPA, 1995-1999); (ii) Poverty Reduction Strategy Papers (PRSP I&II, 2003-2011) - linked to United Nations (UN) Millennium Development Goals (MDGs); and (iii) the ANR Policy (ANRP) (2009-2015) with the policy objective of commercializing the ANR sector.

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To enhance agricultural production and productivity, the Government prepared the Agriculture and Natural Resources (ANR) Policy (ANRP) (2009-2015) to guide the country's efforts in the ANR sector. The policy concentrates on rural smallholder farmers constituting the majority of the poor. The ANRP and strategy place emphasis on: (i) expanding irrigation and land development through appropriate land use and soil management; and (ii) increasing commercialization through intensification and enhanced productivity and competitiveness of cereals - particularly rice. In 2010 the Gambia National Agricultural Investment Plan (GNAIP 2011-2015) was approved within the context of the Comprehensive Africa Agricultural Development Program (CAADP/NEPAD). The Overall Goal of GNAIP is to enhance economic growth and poverty reduction by increasing the contribution of the ANR sector to the national economy.

GNAIP Development Objective to increase food and nutritional security and household incomes particularly for vulnerable households so as to achieve through increased production and productivity based on sustainable management of natural resources, commercialization and active private sector participation. The GNAIP objectives are alignment with CAADP pillars, national policies, and existing gaps presented as Global Agriculture and Food Security Program (GAFSP) sub-components, to be filled with GAFSP financial support. As a multi-sector investment plan, this gives priority to increased productivity, improved resource management, and commercialization, but equally as important, food and nutrition security, increased smallholder incomes, and increased household resilience to disaster and shocks.

CONCLUSION

Issues in Agriculture and Food and Nutrition Security

The agriculture sector is confronted with constraints that result in low productivity, limited marketing and commercialization, and low net incomes. This is particularly worrisome given the steady

increases in food prices since 2008. Average yields for rice, and maize are low and lagging behind West Africa's average performance. The 2007 Brief of the Africa Rice Center indicated average rice productivity at 1.62 tons/ha for West Africa, whilst National Agriculture Sample Survey (NASS) (2009) reported yields in The Gambia at 0.89 ton/ha. Maize yields, estimated at less than one ton per hectare for The Gambia is below the West Africa regional average of 1.7 tons/ha (World Bank - Maize Revolutions in Sub Saharan Africa, 2011). National cereal production can cover only 60 percent of annual consumption needs. These conditions contribute to high levels of poverty and food insecurity - reported at 11 percent (Comprehensive Food Security and Vulnerability Analysis -CFSVA 2011), high malnutrition, weakened household resilience, and constrained economic growth. Overall, The Gambia has shown robust and steady macroeconomic performance with moderate inflation, reporting an average 6.8 percent real GDP growth during 2003-2008 and dropping to 4.6 percent in 2009 due to the impact of the global economic crisis. The agriculture sector, now contributing 30 percent of GDP shows modest growth of 4.6 percent in 2010. Small ruminants and poultry production are relatively easy to own by resource-poor farmers and major occupations of women farmers at the household level. They serve as sources of income, protein in the household diet and spread risks inherent in agricultural production as they reproduce very fast. Sheep and goat meat production was estimated at 578 tons and 1045 tons respectively in 2010. Chicken meat was estimated at 1200 tons. National egg production was estimated at 17 million (10 per capita) in 2010 (FAO, 2012) compared to production in Senegal for 2010, estimated at 591.5 million (about 50 per capita). Vegetable production is one of the key sources of income and employment for women. Main horticultural crops include tomatoes, onions, cabbage, eggplant, okra, peppers and lettuce. These are grown in small plots by smallholder farmers on an individual basis in communal gardens, mainly managed by women. Total domestic production levels of vegetables are not available, but vegetable exports are reported to

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have declined mainly due to high costs of transport, compliance difficulties with EUREPGAP, the absence of the leading producers/exporters, affecting out-grower schemes. However production and exports have revived, it is expected that out grower schemes will be revitalized.

Constraints in agriculture production

Erratic and low rainfall patterns; a highly seasonal and mostly rain-fed subsistence-based production; unreliable access to inputs; insufficient supplies and use of improved seeds; limited landholdings under irrigation (estimated at 3 percent, FAO AQUASTAT 2012); diminishing access to good arable land due to population pressures (at 2.1 percent growth per annum) (Agricultural Policy Note draft, 2011); a land tenure regime based on customary practices that do not favour agricultural investment; weak crop, livestock, and fisheries research and extension systems; low intensity of improved seeds and fertilizers; land degradation, poor water management; and lack of coordination. Women have constraints accessing adequate land due to gender-discriminating customary land tenure regimes. They also experience inequitable access to inputs and services despite their major role in cereal, horticulture, and livestock and poultry production. Other challenges confronting women in the horticulture sub-sector include lack of processing and storage facilities leading to post-harvest losses, inadequate market outlets and lack of market information systems. Regarding women's participation in small ruminants and poultry rearing, limiting factors include high incidence of diseases (Peste de Petit Ruminant for sheep and goats, and New Castle Disease for poultry) resulting in high morbidity and mortality rates; low levels of nutrition largely due to inadequate availability of feed and high cost of imported feed; and low genetic potential of local breeds.

Commercialization

Government measures have been inadequate in stimulating increased private sector investment in agriculture and natural resources. In

addition to the issues discussed above, constraints include: insufficient agribusiness capacity of smallholders and processors, limiting competitiveness; low access to financial capital; undeveloped access to markets; weak market information systems; limited processing and storage facilities; huge post-harvest losses (estimated at 10-30 percent); high costs of electricity; high transport costs and limited air and sea freight capacities; and poor feeder roads. As predominant actors in horticulture, women in particular have insufficient knowledge and skills and access to services and technical support regarding value addition, materials, labour-saving equipment, micro-finance, and market information. Linkages between smallholder farmers and medium to large scale farming establishments and other value chain actors (e.g. outgrower schemes) are few.

Food and Nutrition Security and Social Protection

The Gambia is classified by FAO as a low income food deficit country (LIFDC) and relies heavily on food imports; about 30 percent of cereal needs are covered by rice imports (Cross Border Trade and Food Security in West Africa (2010): CILSS/FEWS/FAO/WFP). National food insecurity reported at 11 percent, shows marked geographic dimensions across the country with higher poor, food insecure or vulnerable populations in Central River Region (CRR), Lower River Region, (LRR) and West Coast Region (WCR). "Feminization" of poverty is exemplified by higher levels of poverty and food insecurity among female-headed households (CSD, 2003; IFAD, 2012). Poor households are particularly at high risk and vulnerable to sporadic shocks such as seasonal droughts, flooding and can easily fall below the poverty line under prolonged food insecurity during extended lean periods. The share of the poorest quintile in national consumption is 8.8 percent (MDG Report, 2010). Children are particularly vulnerable: levels of chronic malnutrition among children under five years are high, 23.4 percent of children are stunted, 9.5 percent wasted, and 17.4 percent are underweight, mainly due to reduced food intake, weak coping strategies during the

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lean season, inadequate food utilization, frequent infections, limited knowledge of nutrition/improved food preparation, irregular availability and access to vegetables and fruits.

The few transfer programs in the country are fragmented, and no social protection policy exists. A school feeding program (SFP) exists, supported by GoTG, World Food Program (WFP) and European Union (EU), and acts as the only country-wide safety net for poorer families, who benefit from the income transfer it provides. Decreases in WFP finances may cause retraction in the SFP. Weaknesses in the food security and nutrition information systems (FSNIS) and poor coordination among agencies prevent reliable and timely information for monitoring food security and vulnerability. The National Disaster Management Agency (NDMA) has been playing an active role in coordinating national disaster preparedness, response and mitigation despite institutional/operational capacity constraints.

RECOMMENDATIONS

There is need for increase productivity through the implementation of sustainable land and water management with emphasis on rice, maize, and millet intensification, others crops in upland areas, horticulture and livestock production, addressing production and resource management constraints with attention to strengthening support services such as research and extension services, capacity building, micro credit, market information, etc.

There is need to focus on vitalizing agricultural commodity value chains such as rice, horticulture, livestock and dairy, cereal and cash crops, building on Government measures and programs to support competitiveness and higher investments in value chains. There is particularly high potential for positive impacts on women (who are the predominant actors in food transformation and agribusinesses) and youth employment. It is also essential to address capacity weaknesses of producer organizations, with the objective of

promoting agribusiness models such as out-grower schemes and linkages with private sector.

In the areas of livestock/transhumance, forest and fisheries resources and parks and wildlife the problem of resource depletion, soil degradation, climate change, and unsustainable natural resource management are addressed through improved watershed and conservation management as well as through the establishment of land tenure framework to promote climate-adaptive investments. Sustainable technologies that increase soil organic matter and fertility and conserve limited water resources are promoted in these projects.

There should be the need for strengthening and improving agency coordination and capacity to produce timely, accurate and relevant data and analysis concerning food and nutrition security. Malnutrition, particularly of children, and weak household resilience, are currently addressed by Government in part, through food transfer programs such as the school feeding Programme (SFP), and nutrition interventions and education. These measures have shown positive impacts (for instance SFP has been found to significantly contribute to students' minimum daily nutritional requirements (WFP, 2011). School feeding will also serve as an entry point to boost commercialization of local produce through the local procurement initiative.

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