



Increasing Agricultural Productivity in the COMEC Region: Improving Irrigation Capacity in The Gambia

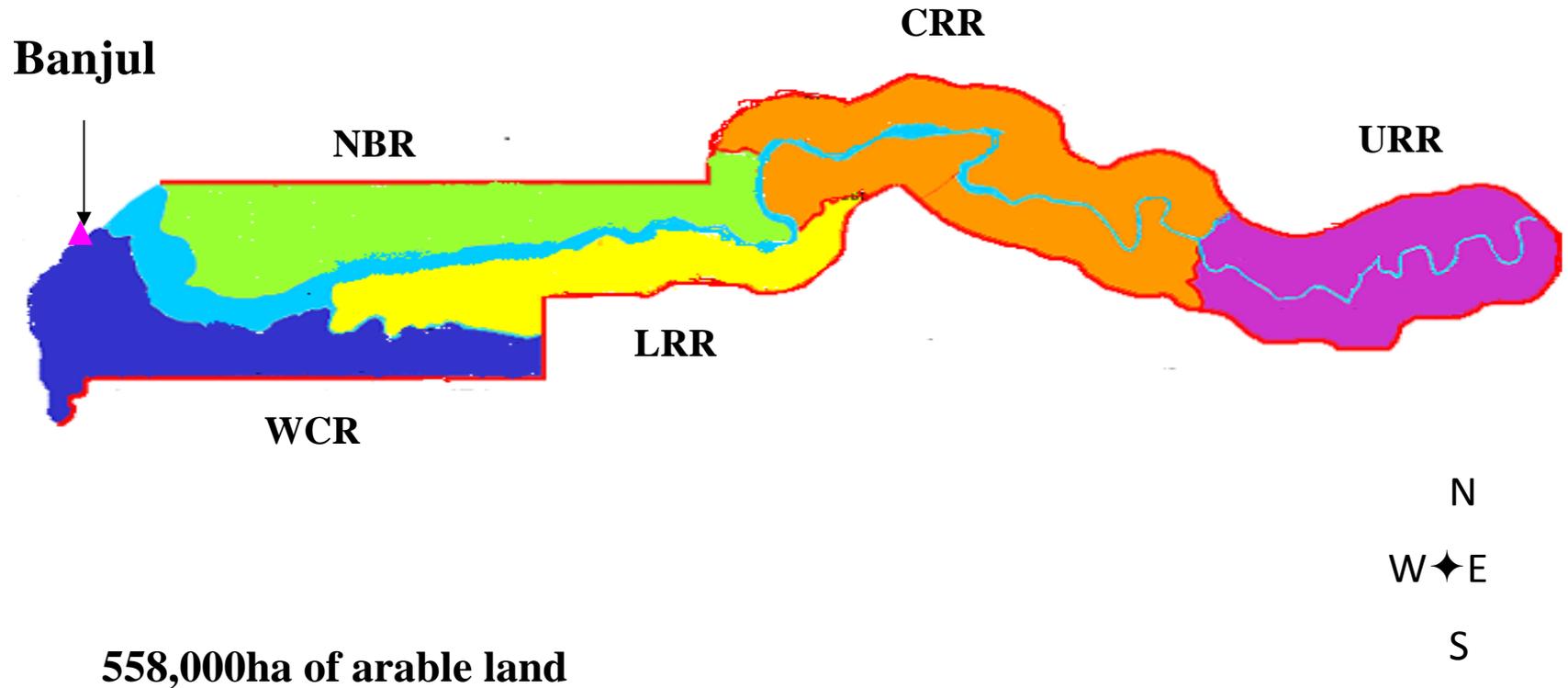
The Gambia Country
Presentation

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Outline of the Presentation

- Map of The Gambia
- Country Background
- The Climate
- Economic Feature
- About the Continent
- Rice Irrigation in The Gambia
- Maize Innovation Platform: Status of Maize Prior to DONATA Intervention

Map of The Gambia



Country Background

- The Gambia is located on the West Coast of Africa, bisected by The River Gambia and surrounded on all sides by The Republic of Senegal, except on the Atlantic Coastline
- One of the smallest countries in Africa, it has a land area of only 11,300km² consisting of a narrow strip of land 25 to 50km wide on both banks of The River Gambia, which stretches for about 450km from the River's mouth towards the East
- The topography consists of river and flatland swamps intersected by tidal creek or watercourses, which leads to gently rolling slopes which themselves end in a plateau

The Climate

- The Climate of The Gambia is semi-arid tropical with a long dry season from November to May, and a short rainy season from June to October
- It is characterized by high solar radiation throughout, therefore temperature wise, a growing season of normally 365 days
- Being semi-arid tropical, the amount of solar radiation is higher than typical for tropical areas, thereby providing favorable conditions for the production of many crops, including the main staple food, rice

Economic Feature

- Agriculture is the mainstay of the economic providing food and cash income to about 75% of the population
- Therefore it has the capacity to both generate and save foreign exchange through exports (cash crops) and import substitution (increased domestic food production)
- Food production is predominantly subsistence rain-fed Agriculture, principally consisting of some commercial groundnut, cotton and horticulture production, and food crops production, mainly cereals (millet (early, late millet, rice, maize and sorghum))

Economic Feature Cont.

- These crops are produced under two main cropping systems
 - 1) upland production systems and
 - 2) Lowland rain-fed and water controlled irrigated swamps
- The upland production systems are on alluvial soils, with the major crops being groundnuts, early and late millets, maize, sorghum and upland rice
- Both the lowland rain-fed swamps under the rice ecologies; the Banta Faro (on the edges of alluvial plains), mangrove tidal swamps and freshwater tidal swamps; and the water controlled irrigated swamps production systems, are primarily rice-based with some vegetables and fruit production under the Banta Faro
- An estimated 555,240 ha are considered suitable for agriculture, with 326,340 ha considered suitable for upland agriculture, and 81,120 ha considered suitable for irrigation

About the Continent

- Africa has abundant resources suited for agriculture, especially land, **water**, and labor
- Africa's population is growing rapidly, and will continue to do so until 2050, when the pace will slow
- World Bank January, 2013 Africa Agribusiness Report has it that Africa's farmers and agribusinesses could tap into a trillion-dollar market by 2030
- if they can secure access to significantly more capital and infrastructure, including **irrigation**, to grow their food and compete in the global market
- *This is to show that COMCEC Theme of **Increasing Agricultural Productivity by IMPROVING IRRIGATION CAPACITY** could not have come at a better time than now*

Rice Irrigation in The Gambia

- Rice consumption is on the rise in The Gambia, and so is rice production
- However, over the last decade, the rate of production increase was typically insufficient to meet consumption, resulting in increasing imports
- This raises a number of issues, as the burden of increasing imports is unlikely to be sustainable
- The question and challenge indeed is how to achieve a sustainable and sufficient growth rate in Gambia rice production

Rice Irrigation in The Gambia

NERICA Rice Field in
2010, Good Rain season



NERICA Rice Field in
2011, Bad Rain Season



- The question is that, why do we eat only when it rains?
- The answers are as many as there are problems in the Muslim Ummah and why

Irrigation as simple as this the answer



Rice Irrigation in The Gambia Cont.

- Yield improvement per unit area is the best option for increasing domestic production and supply in the country
- The potential increase (through irrigation) can be measured on the bases of yield gap between the current yield (rain fed) achieved in farmers field and the potential
- By potential yield, means the production that could be obtained in farmer's field using known improved technologies and farming practices
- It is important to note that this potential is not the maximum agronomic yield that can be achieved under a complete controlled environment

Rice Irrigation in The Gambia Cont.

- On aggregate, the potentially achievable yield through irrigation would enable the country to be rice exporting country, because the yield would be in 5-6 folds and cropping 2-3 times in year as compared to 1 in rainfed

	Rain-fed	Pump Irrigation
Season	1	2.0
National Average Yield MT/ha	1.2	4.5
Estimated Area Cultivated in 2012	64,000	N/A
Total Estimated Production (MT)	76,800	576,000*
Per Capita Consumption of Paddy	180kg	180kg
Estimated population in 2012	1,800,000	1800000
Average Annual Paddy requirement	324,000MT	324,000MT
Deficit /Surplus	-247,200MT	+25,200MT

* Assume the same area was irrigated for demonstration purposes

Rice Irrigation in The Gambia Cont.

- This would be a production without any area expansion, and thereby represents the other extreme option for increasing rice production relying solely on yield increases with stagnant area or even reduce area under cultivation
- Irrigated systems potentially also allow for double cropping - thereby increasing land use intensity and the annually cropped area.

Rice Irrigation in The Gambia Cont.

- Part of the River Gambia is Fresh Water and this is being utilized for Tidal Irrigation which is limited to CRRN and CRRS
- What the country needs is pump irrigation nationwide to reduce drastically abject poverty and food insecurity in the country
- To do this in the short term is to rehabilitate the abandoned irrigated scheme is certainly one of the most efficient way to expand pump irrigated pump rice cropped area. In the medium term, a balanced rice food-security will require an extension of irrigated cropped area nationwide

Rice Irrigation in The Gambia Cont.

- Arable land available in the country is about 558,000ha
- Agricultural activities in The Gambia is rain-fed
- Rain season is very short (June to September) and erratic
- Rain ceased sometime when the crops are in their critical growth stages leading to poor harvest, increase food insecurity and poverty
- Productivity of rice is about 0.9-1.2 Mt/ha (rain fed)
- Potential for rice productivity under irrigation is about 5.5-6.5Mt/ha, and this is why pump irrigation is very vital for The Gambia

Rice Irrigation in The Gambia Cont.

- Therefore what The Gambia needs now is increased **investments** in **irrigation infrastructure** and agricultural machinery to take advantage of the improved investment climate
- With the enactment of a new state Lands Act, which is design to provide ready access to agricultural land to prospective investors for the establishment of large scale plantation size operations
- We therefore hereby extend an invitation to prospective investors in agriculture particularly pump rice irrigation in The Gambia

Maize Innovation Platform: Status of Maize Prior to DONATA Intervention

- The Dissemination of New and Existing Agricultural Technologies (DONATA) started in The Gambia in 2009/2010 cropping season
- Prior to this cropping season, maize has been cultivated in the country since time in memorial generally as a back yard crop
- Generally, maize was considered as a backyard crop and occupied insignificant proportion of the outer field before the introduction of the DONATA Platform
- The total area cultivated under Maize in The Gambia during the period 2009/2010 cropping season is estimated at 46,000 hectares an increase of 17.4% from 2008/2009
- The persistent concentration of maize production in the back yard was due to inadequate plant nutrient in the outer field and high cost of fertilizer, so precious farm input and available at high cost.

Gambia DONATA Maize Innovation Platform

- DONATA Maize innovation Platform in The Gambia was created in June 2011 in four IP communities (Fass Saho, Pakau Njogu, Mamuda and Kerr Jarga) in the North Bank Region
- An incremental three IPs (Chilla, Sambakalla and Regional Policy dialogue) in 2012 making a total of 7 IPs and 4 entry points:
 - i) Assess to JEKA and DMR grain yellow maize and enhanced soil fertility management,
 - ii) Commercialization of quality grain yellow maize,
 - iii) Grain maize add value for household food and nutrient security.
Until August 2012 additional platform entry point and
 - iv) Policy dialogue on maize value chain development *at district* and regional level

Research, NGO and Extension facilitation and animation of the IP

- National Agricultural Research Institute is the focal and implementing institution of DONATA activities
- The research team facilitate and animate the platform with its main implementing partners such as Extension, NGO who provide the necessary ground facilitation with and relevant national stakeholders
- The research team makes every effort to connect everyone in the commodity value chain from the producers, processors to the entrepreneurs, the transporters, policy makers and knowledge producers
- Extension and NGOs Co –facilitation of the IP brought together a network of partners who "work together on a common theme to use National Agricultural Research knowledge and farmer existing knowledge in ways it has not been used before, to generate goods and services for the benefit of the poor Gambians

Learning Visit of the CORAF Region to The Gambia



- DONATA Gambia has successfully hosted DONATA CORAF region learning visit in September 2012 and the photos are DONATA maize field visited
- About 22 professionals and CORAF staff from CORAF region countries and institutions took part in the learning visit

Outcome DONATA Intervention

- Significant increase in women participation in the IPs is registered over the period
- Data from the regular convergence, IP operations and farm activities indicated that number of women and youths that are IP members and taking part in major IP activities increased significantly
- Access to knowledge, resources, access to technologies & best bet practice and acquisition of farm especially by women is as well on the increase from nearly zero timely access to 50% timely in 2012



If irrigation is available, this can be done for about 3 time in a year

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**We Thank You for your Undivided
Attention**