

Ensuring socio economic transformation and food security through rice Production in Ethiopia

Overview of the CARD initiative

The Coalition for African Rice Development (CARD) initiative was launched at the Tokyo International Conference on African Development (TICAD IV) in 2008 and spearheaded by JICA, NEPAD, AGRA. In addition to the three mentioned, core partners include research agencies and regional/international financial institutions, i.e. AfricaRice, AfDB, FAO, FARA, IFAD, IRRI, JIRCAS and World Bank.

The goal is to double rice production in Sub-Saharan Africa from 14 to 28 million tons by 2018 through addressing the issues of: (i) the whole rice value chain approach, (ii) the salient rice-growing agro-ecological zones, (iii) capacity building and (iv) South-south cooperation.

The objectives of CARD are : (i) rationalize and increase investment for rice sector development mainly through existing funding frameworks, (ii) develop capacities of governments to effectively manage rice sector development as well as to secure government funding / donor investment, (iii) provide enabling environment for rice-related investment both for development agencies and governments and (iv) better coordinate interventions based on the shared view on rice development through NRDS which has to be in line with overarching development frameworks (PRSP, CAADP...etc).

Currently, CARD supports the following 23 Sub-Sahara African countries. Ethiopia joined the CARD initiative in 2009 as one of the pioneering second group countries. The first group countries include Cameroon, Ghana, Guinea Conakry, Kenya, Madagascar, Mali, Mozambique, Nigeria, Senegal, Sierra Leone, Tanzania and Uganda. Benin, Burkina Faso, Central African Republic, Côte d'Ivoire, Democratic Republic of Congo (DRC), Ethiopia, Gambia, Liberia, Rwanda, Togo and Zambia represent second group countries.

Overview of the process of NRRDSE formulation and implementation

The National Rice Research and Development Strategies of Ethiopia (NRRDSE) were formulated by a technical committee. The members of technical committee were represented by research institutions, Ministry of Agriculture, SG 2000 and Ethiopian seed enterprise. The NRRDSE reviews the current status of rice sector and explores the challenges and opportunities within the rice sector. The document also outlines the scopes and vision of the development of rice sector in Ethiopia. It emphasizes on three components namely (i) rice research, source seed and capacity, (ii) rice development and capacity building, and (iii) coordination and management of the strategies. The NRRDSE was officially launched in February 2010.

Shortly after the launching, the technical committee with assistance from focal persons of rice growing regions drew plans for implementation of NRRDSE. The implementation plan was officially approved in July 2011. A task force was formulated to oversee the implementation of NRRDSE. This taskforce includes National Rice Research Coordinator, representative from the Agricultural Mechanization Research Directorate, Coordinator of Agricultural economics, Research-Extension and Farmers' Linkage (EIAR), agronomist from Agricultural Extension

Directorate (MoA), seed expert from Ethiopian Seed Enterprise (ESE), an expert from Sasakawa Global 2000, advisor for Agricultural Transformation Agency (ATA), an expert from MEDA, expert from the Planning Directorate (MoA), and JICA advisor representing Rice Secretariat (MoA). The rice secretariat of MoA currently serves as a focal point for Ethiopia's NRRDS taskforce. Dr. Dawit Alemu (Coordinator of Agricultural Economics, EIAR) serves as a Chair and Dr. Tareke Berhe (Rice and Tef Advisor for ATA) serves as a co-chair for the NRRDS taskforce.

NRRDSE: Summary and measures identified

The NRRDSE aims to ensure national food security and increased income, and reduce poverty by progressively transforming the rice sector into a viable production and marketing system. It seeks to achieve this goal by taking a whole value chain approach and by promoting agro ecology based interventions, small scale and commercial rice systems, gender considerations, and environmental sustainability.

The key priority intervention elements envisaged include strengthening the policy and institutional support, research and extension capacity building, promotion of improved seed system, fertilizer distribution and marketing, efficient irrigation and water management systems, mechanization, improved post harvest technologies and enabling finance to all the actors involved in the rice value chain.

Harmonization of NRRDSE priorities with the interests of key stakeholders of rice sector development

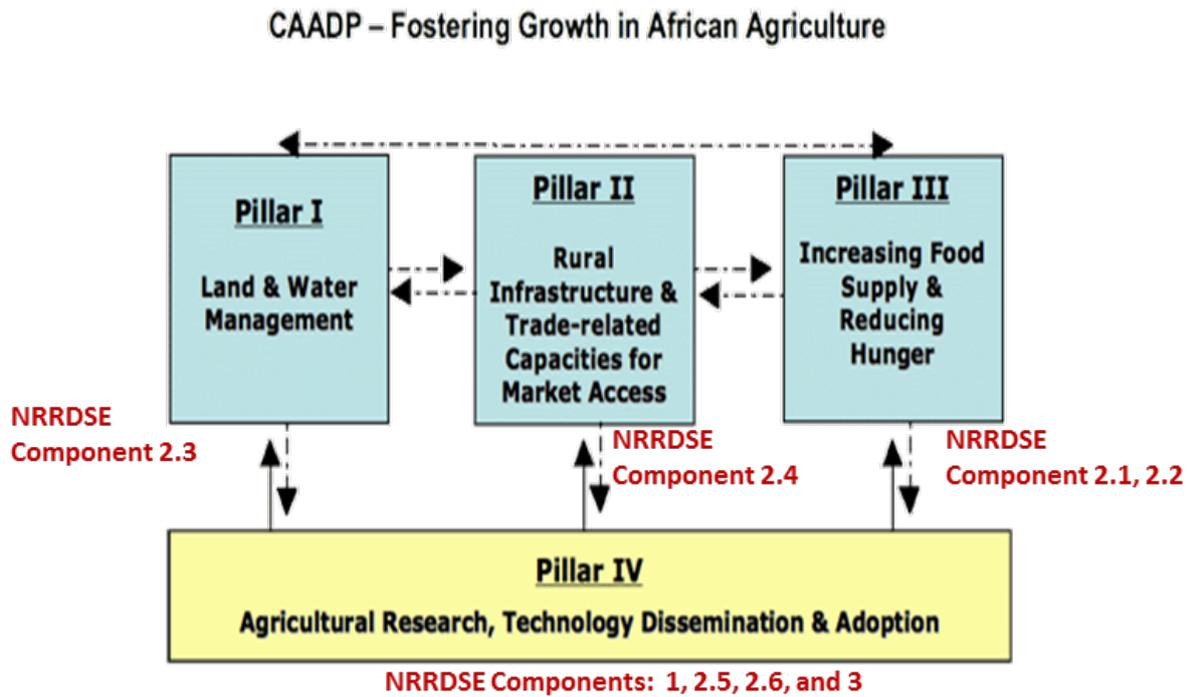
Rice is currently grown in swamps such as in Fogera plains where the population hitherto has been receiving food aid. The relatively higher productivity of rice crop under irrigated conditions over other traditional crops such as Tef and other cereals provide a viable economic alternative for thousands of farmers who have until now managed subsistence farming. The existence of diverse ecosystems such as the uplands, rain fed lands and flash flood prone areas (during the rainy seasons) in which rice can be grown in Ethiopia further enhances the scope of rice production in the country. In addition, the existence of huge unexploited lands in Ethiopia expands the scopes of rice production.

The higher production volumes and the prices of rice grains over other cereals enable farmers to substantially raise their farm revenues. The long shelf life and the variable ways in which rice can be used in to prepare a range of traditional food recipes have increased the acceptability of rice amongst rural population. Rice provides a good integration of rural livelihoods by providing by-products such as straws and husks that shall be fed to livestock and/or used as alternate source of fuel.

Given these advantages, rice sector provides a tangible avenue for implementing strategies on food security and poverty reduction in Ethiopia. However, currently the limited investments in rice sector in research and development prevents farmers and other stakeholders from the benefits that the rice sector stands to offer.

The priorities outlined in NRRDSE are consistent with the overarching strategies of Ethiopian government reflected in the new Growth and Transformation Plan (GTP) which aims to double agricultural production by 2015. The proposed approaches under NRRDSE are in alignment with

the four pillars of Comprehensive African Agriculture Development Program (CAADP) as shown in the figure below.



The rapid increase in area under rice cultivation has created a significant demand for improved inputs such as seeds, fertilizers, pesticides and tools/machineries in Ethiopia. The current agro dealer networks in rice growing areas are inherently weak and inefficient, and therefore provide opportunities for entrepreneurs and investors in rural areas. Furthermore, the substantial increases in rice production in the recent years have also heightened the demand for processing of rice. The existence of small mills in rural areas does not adequately cover the demands and also play a negative role on the quality of locally produced rice. Thus milling of rice provides a major avenue for small and large scale investors in rice sector.

Sub-sector analyses and the proposed list of interventions for the immediate future

By taking the entire rice value chain, the taskforce members of Ethiopia analyzed the various issues facing all the stakeholders along the rice value chain, and came up with interventions that would address the constraints in each subsector. These interventions are shown in a matrix called ‘Subsector Intervention Element Matrix’ (SIEM) below.

Subsector Intervention Element Matrix (SIEM) of Ethiopia's rice sector

	Policy / Institutional	Infrastructure	Human resource capacity	Provision / support	Information / knowledge
Seed	Seed Regulatory Laws Private Sector Seed Certification	Storage Facilities Breeding Facilities (Germplasm, Glasshouse)	Breeders, Seed technologists, Technicians Plant Protection Scientists	Ecology specific varieties Hybrid rice Salt/Stress tolerant rice Aroma/Flavor/Cooking quality	Seed Use Sources of availability
Fertilizer	Incentives Access to Credit	Soil laboratory equipments, chemicals	Soil technicians Soil Scientists Agronomists Extensionists	Soil reclamation Site-specific fertilizer recommendations and Integrated Soil Fertility Management Soil testing services	Timely availability/distribution Price fluctuations Profitability (advantages) Fertilizer Use Efficiency Micro Nutrients Integrated Soil Management
Agrochemicals	Adulteration Regulation (quality, expiry)		Plant Protection Scientists Extension Agents	Emergency reserves of chemicals against major epidemics Seasonal Forecasting Efficiency of new chemicals	Awareness of appropriate chemicals, availability and usage
Irrigation / water management	Ownership and responsibility conflicts of irrigation schemes, structures Water Fees	Catchments in Uplands Rain Water Harvesting Bore-wells Dams River diversions Canals Rehabilitation of existing infrastructure Pumps	Short term training courses for farmers, development agents, and specialists	Irrigation scheme designs Water potential assessment Technical assistance on operation and maintenance of small pumps	Water Use Efficiency Maintenance and responsibility of irrigation structures Drainage
On-far m technology dissemination (E)		Training Center of Excellence	Extension/Development agents Extension Researchers Technology Evaluation	Comprehensive packaging of technologies Extension Materials Demonstration/Promotion	Communications of research information
Mechanization	Raising the limits of foreign currency Tariff reduction (Small scale import tariff, sales	Training and Testing Center	Rural artisans Mechanics Operators Extension agents	Small Tools (Weeders, sprayers) Implements (levelers, threshers, power tillers,	Awareness Profitability (Cost/Benefits) Knowledge of applications

	Policy / Institutional	Infrastructure	Human resource capacity	Provision / support	Information / knowledge
	tax) on machineries, spare parts, implements Incentives (soft loans, tax)		Engineers Post harvest technologists	rotavators) Service/Maintenance	
Quality improvement	Standards of mills and milling process Grading (at local mills) Quality/Standards (purities, broken %, hygiene, packaging) Incentive (Differential pricing for good quality rice) Rice Millers Association	Assembly Hubs Rural Electric Supply Fuel Storage in rural areas Quality testing laboratories	Food technologists Milling technicians Training on post harvest handling, storage and marketing	Small Mills and other machineries Value Addition	Awareness on linkage between quality and price Best post harvest handling and storage practices
Access to market	Minimum support price Rural trading of paddy Predetermined Contracts between cooperatives and millers Cooperative output markets	Feeder roads Transportation Storage Market Information Infrastructure (Price, trade)	Economists Market Informers Trading Entrepreneurs	Rural communication facilities Monitoring of trade activities Training on trading Collective bargaining (Cooperatives)	Market Information (Price, trade (import/export volumes)

Prioritization of the needs of rice sector for funding

The taskforce assessed the activities of all the on-going rice related projects and programs in the country, and analyzed the degree of sufficiency of such projects/programs in addressing the needs shown in SIEM. The table shown below shows those subsector intervention elements (cells) that are insufficiently funded in yellow color. Cells colored in blue show those elements that are sufficiently addressed by various projects/programs. Green colored cells indicate those subsector interventions that are not addressed (gaps) by any of the existing projects. Through a consensus process, the taskforce then prioritized eight sub sector interventions that require immediate attention by the stakeholders through the next funding cycle (shown in red). From each of these prioritized subsector interventions, the taskforce has drafted 14 concept notes are presented here for consideration of funding by the stakeholders.

Subsector Intervention Element Matrix of rice sector in Ethiopia:

Subsector/Intervention	Policy/Institutional Support	Infrastructure	Human Resource Capacity	Provision/Support	Knowledge/Information
Seed	Blue	Green	Red	Red	Yellow
Fertilizer	Green	Green	Blue	Red	Yellow
Agrochemicals	Green	Green	Green	Yellow	Yellow
Irrigation / water management	Green	Red	Yellow	Yellow	Yellow
On-farm technology dissemination (E)	Green	Red	Red	Blue	Yellow
Mechanization	Green	Green	Red	Yellow	Yellow
Quality improvement	Green	Green	Yellow	Red	Yellow
Access to market	Green	Green	Blue	Blue	Yellow

Red cells represent priorities that require immediate funding from the stakeholders, Blue cells represent those elements that are adequately covered by projects/programs, Yellow cells show elements that are insufficiently addressed by on-going projects/programs, and Green cells represent those elements that are not addressed by any of the on-going projects/programs.

Note: Concept Notes on the identified priorities are attached below for consideration of funding by the stakeholders

Summary of the estimated budget of the proposed project concept notes

Sl. No	Project Title	Estimated Budget (USD)	Percentage of Total
1	Human capacity building for rice research and development by training breeders, crop protection scientists, seed technologists and technicians	1,700,000	4.4
2	Development of ecology specific and market preferred rice varieties in Ethiopia	1,100,000	2.9
3	Developing and Promoting site specific fertilizer recommendations and integrated soil fertility management practices in Ethiopia	1,400,000	3.7
4	Strengthening the capacity of soil testing laboratory services	5,400,000	14.1
5	Participatory evaluation of improved rice technologies	215,000	0.6
6	Capacitate development agents, subject matter specialists and researchers on rice production in rice growing areas	460,000	1.2
7	Establishment of a national centre of excellence for rice research and training	13,200,000	34.5
8	Capacitate and operationalise Farmer Training Centres (FTCs) in rice growing areas for effective technology dissemination	1,400,000	3.7
9	Expansion of rice cultivation area through small scale river diversions in rice growing areas	5,500,000	14.4
10	Promotion of supplementary irrigation through borewells for small scale rice growers in upland and rain fed ecosystems	3,000,000	7.8
11	Training rural artisans, mechanics and operators on fabrication, maintenance and effective use of agricultural machines	781,000	2.0
12	Enhancing national research and development capacity and dissemination of agricultural mechanization technologies	1,500,000	3.9
13	Training rice growers on post harvest handling, storage and marketing practices	1,300,000	3.4
14	Enhanced access to machineries that will improve the quality of locally produced rice	1,300,000	3.4
	Total	38,256,000	