JIRCAS

GRiSP Global Forum:
2012 Accomplishments

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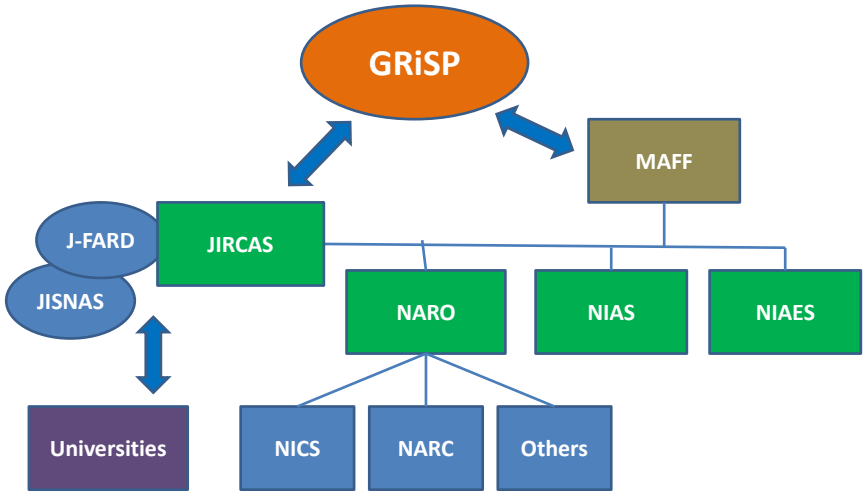
Structure of National Agricultural R&D System

Ministry of Agriculture, Forestry and Fisheries (MAFF)

- Agriculture, Forestry and Fisheries Research Council (AFFRC)
  - AFFRC Secretariat
  - National Agricultural Research Organization (NARO)
  - National Institute of Agrobiological Sciences (NIAS)
  - National Institute for Agro-Environmental Sciences (NIAES)
  - Japan International Research Center for Agricultural Sciences (JIRCAS)
- Forestry Agency
  - Forestry and Forest Products Research Institute (FFPRI)
- Fisheries Agency
  - Fisheries Research Agency (FRA)

4 organization are planned to be merged in April 2014.

GRiSP Coordinating Committee in Japan (GCCJ)



JIRCAS International Symposium 2011

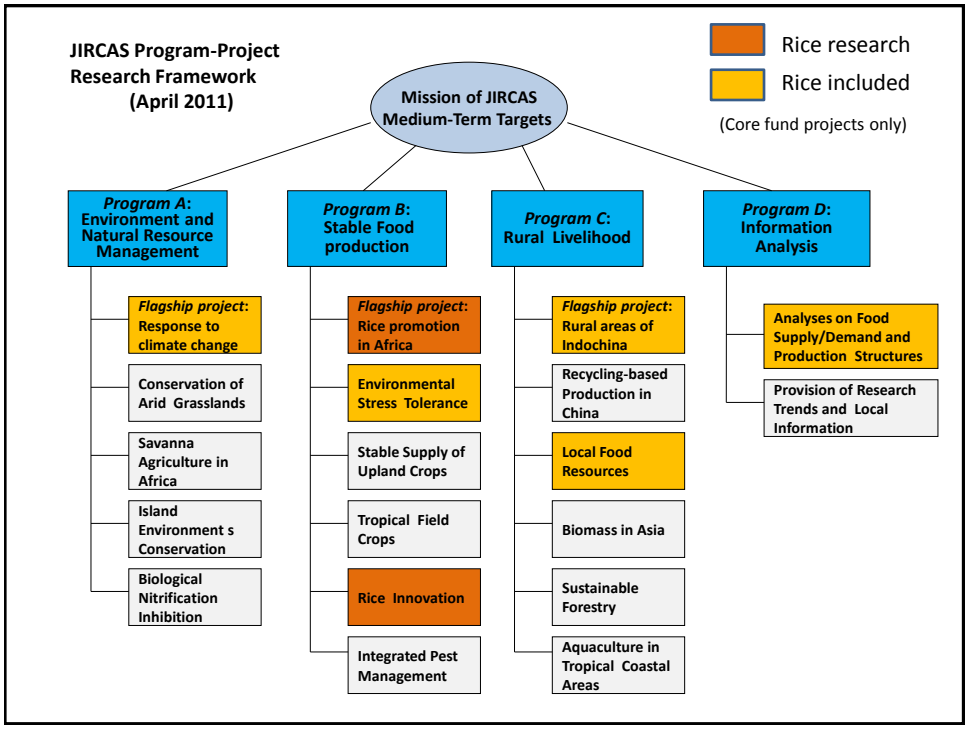
Trends of International Rice Research and Japanese Scientific Contribution
- Support to GRiSP and CARD

Date:
November 14-15, 2011

Supported by:
Agriculture, Forestry and Fisheries Research Council (AFFRC) Secretariat
MAFF
NARO
NIAS
NIAES
Japan International Cooperation Agency (JICA)
IRRI
AfricaRice
Japan Forum on International Agricultural Research for Sustainable Development (J-FARD)

Topics from JIRCAS

1. Rice Development in Africa
2. Stress Tolerant Crops by DREB Genes
3. Enhancing Tolerance to P Deficiency
4. IR64-INLs for Yield Potential
   (IRRI-Japan Project)



Topics from NARO (NARC, NICS …)

1. Race Dynamic Model of Rice Blast
2. Rice Cleistogamy - a Tool for Suppressing Gene Flow
3. LAX2 Gene Regulates the Number of Grains per Panicle
4. Mechanism Underlying Grain Chalkiness
5. DNA Marker Breeding at NICS

Topics from NIAS, NIAES

1. Deep Roots Line, Dro1-NIL
2. SNP Analysis of NIAS Active Accessions
3. World Crop FACE Workshop, 2012

Summary : 2012 Accomplishments

1. JIRCAS is acting as the focal point of GRiSP in Japan.
2. Rice research in JIRCAS is activated by GRiSP both in basic and applied (incl. on-site trials) areas.
3. NARS and Universities in Japan continue to provide unique and innovative research results, which can be globally applied through GRiSP.

Improving food security and the capacity of research scientists/professionals in Africa through extensive implementation of standardized field trials on rice and integrated comparison of cross-national datasets

Objectives

- This framework is expected to contribute to the development of human resources and the improvement of research faculties in African member countries of CARD through extensive implementation of standardized field trials on rice including the selection of appropriate varieties. In addition, it is aimed at enhancing food security and food supply resilience in the whole area of Africa by developing a crop model (applicable to various parts of Africa) that could be utilized to estimate rice yield based on collected datasets and to support policy decision-making.

- Note that this is a proposal to CARD to facilitate discussion among stakeholders to make a public announcement during TICADV and not to consult/decide any research program/project conducted by institutions.

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Outlines

- First, the people concerned, including researchers from interested African member countries, will develop a technical manual to serve as guide in conducting field trials on rice. This manual will explain data collection methodology on variables such as soil, fertilization, meteorology, yield, and cultivation technologies. These standardized field trials will then be implemented in multiple countries -- 10 or more if possible -- under various environmental conditions (i.e., based on soil quality and meteorological characteristics) in order to generate an extensive, comparable database and share them among CARD members.

- Second, experts will develop a crop model based on the theory of crop growing process applicable to various parts of Africa by analyzing and evaluating the collected datasets to estimate rice yield. The model will allow the people concerned to identify effective cultivation technologies and estimate yield potential under specified environmental conditions in various parts of Africa. This will also support decision making for the proper direction of technology extension and for investment purposes.

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Implementation process

1. **Sharing of database on current field trials on rice**

2. **Standardizing field trials on rice (developing a manual) and planning for its extensive implementation**

3. **Sharing of database among CARD members and supporting policy decision-making by utilizing a crop model**

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1. Sharing of database on current field trials on rice

1-1. AfricaRice/JIRCAS will develop a draft technical manual (Ver.1) which standardizes data collection methodology in the conduct of field trials on rice, focusing on soil, fertilization, meteorology, yield and cultivation technologies in order to collect comparable data. The collected data will then be stored/inputted in a standard format (Ver.1) to be created by AfricaRice/JIRCAS.

1-2. At the same time, interested African member countries of CARD will start collecting data of current field trials on rice and input them into the format (Ver.1) described in 3-1-1. AfricaRice/JIRCAS will compile them into a database and return it to member countries to share information on yield under current conventional cultivation conditions.

2. Standardizing field trials on rice (developing a manual) and planning for its extensive implementation

2-1. Interested African member countries of CARD will select core scientists from each country to work hard in building/advancing this framework. The scientists will participate via email discussion groups and workshops to be organized by AfricaRice/JIRCAS. They will identify the data items to be used, discuss how these data will be collected, and devise ways to efficiently carry out field trials on rice in order to collect extensively comparable data. These concerns will be addressed during the workshops and subsequently guide the collaborators in developing a technical manual (Ver.2). The manual will outline the data collection methodology on standardized field trials on rice and will present the recommended format (Ver.2) for inputting the collected data.

2-2. The core scientists of the countries will gather the results and decide on available test fields (on station/on farm) under various environmental conditions (i.e., based on soil quality and meteorological characteristics) in which they will implement field trials. They will propose an organized system for field trials and observations with the support of CARD members such as donor organizations if necessary.

2-3. Available CARD members such as donor organizations will provide funds and equipment/materials for observation, and the field trials on rice will start in the countries.

3. Sharing of database among CARD members and supporting policy decision-making by utilizing a crop model

3-1. AfricaRice/JIRCAS will organize annual workshops, put together the data collected from the member countries, and share the database among CARD members.

3-2. AfricaRice/JIRCAS will develop a crop model based on the theory of crop growing process applicable to various parts of Africa by integrating, analyzing, and evaluating the collected datasets to estimate rice yield. The model will allow the people concerned to identify effective cultivation technologies and estimate yield potential under the specified environmental conditions in various parts of Africa. Furthermore, the model will help provide information on future trends and fluctuations of rice yield caused by external disturbances (such as climate change and extreme events) and macro scale information relating to the enhancement of rice supply resiliency.

3-3. The countries concerned will utilize the crop model developed by AfricaRice/JIRCAS to support policy decision making for extending appropriate cultivation technologies for the countries. The model will estimate the effects of increasing yield, assess farming costs, and direct the development of cultivation technology and human resources.

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Expected effects

1. This will facilitate human resources development and enhance the capacity of research scientists/professionals in African member countries of CARD through participatory development of a technical manual on standardized extensive field trials on rice and its implementation.

2. This will promote the development of cultivation technologies and cross-regional extensions through sharing of information of field trials on rice from one particular area of a country to another where environmental conditions are similar.

3. This will provide more precise estimates in gauging the achievement of CARD objectives by improving the reliability of statistical data (which have problems in accuracy) on rice production and farm management.

4. This will promote the development of a crop model based on the theory of crop growing process applicable to various parts of Africa using a combination of crop variety, growing environment, and cultivation technologies to estimate rice yield. This will be utilized it as a tool to support policy decision-making by the countries concerned and for obtaining macro scale information relating to the enhancement of food security and rice supply resilience in entire Africa.

5. This framework may be found applicable to similar cases involving other crops in Africa.

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