

# China Consulting Workshop on Global Assessment of Agricultural Science and Technology

17-18 November 2003

Beijing

## Summary

China Consulting Workshop on Global Assessment of Agricultural Science and Technology was held on 17-18 November 2003 at Chinese Academy of Agricultural Sciences (CAAS), Beijing. This event was sponsored jointly by the World Bank and the Ministry of Agriculture (MOA) of the People's Republic of China, and organized by the Center for International Cooperation of MOA and the Institute of Agricultural Economics (IAE) of CAAS. At this workshop, there were 60 representatives from governmental agencies, public agricultural research institutions, universities, NGOs, private sector, and rural leaders.

Plenary sessions and panel discussions were organized at the workshop. The World Bank's representative Ms. Eija Pehu delivered the opening address. She made a brief introduction about the initiative on global assessment of agricultural science and technology, the progress today, the targets, scope, characteristics, expected achievements, and such aspects as the management organization, executive institutions, and financial budget. Dr. Zhai Huqu, President of CAAS, gave a keynote speech on reform of the agricultural science and technology system in China.

Nine speakers were invited to make presentations on different issues, including food safety, resource and environment, poverty alleviation and regional development, agricultural research and extension, private-funded research, linkages between agricultural R&D and poverty reduction, etc. at the plenary sessions. The participants were divided into 4 groups at the panel sessions to discuss the targets and scope of global assessment of agricultural research, expected results and features, and main problems that were observed in Asia and China. Mr. Juergen Voegelé, from the bank office in Beijing delivered the closing remarks.

The following is a summary of the main conclusions and findings of the workshop.

### **Major issues in China and Asia**

The participants generally agree that a global assessment of agricultural research is urgently needed, given the declining tendency of agricultural research intensity (ARI) in the world and the long-lasting under-investment in the agricultural research in China. In addition to the reasons discussed in other consulting workshop, the participants thought that the major issues in China and Asia should be taken into account to make the assessment more relevant:

#### **Major Challenges in Asian Agriculture**

- v Responsibility to feed almost half of world's population
- v Small Size
- v Agriculture accounts large share of GDP and employment
- v Large rural/urban gap
- v Large regional variation
- v Low capita income-low support for Ag R&D

#### **Characteristics of Asian Agricultural Research**

- v Larger system
- v Relatively higher quality of research staff
- v Production oriented research portfolio
- v Crop oriented research priority
- v Less involvement of the private sector
- v Weak IPR
- v Lower research intensity ratios
- v Farmers' rights not protected

#### **Major Issues on R&D Assessment**

How to use assessment to improve efficiency and effectiveness of R&D? There are different

goals of R&D:

- λ Efficiency
- λ Poverty
- λ Regional inequality
- λ Environment
- λ Livelihood
- λ Farmers' capability

The question is whether R&D is the best approach to deal with all issues, or are there better approaches than R&D

### **Background of Assessment**

Most participants suggested that an effective assessment of agricultural R&D activities must be constructed on well-defined background of assessment and the regional R&D characteristics, where the assessment is made. The main common features in China and Asia, for example, are reflected in:

- Severe challenges facing the agricultural sector in Asia and China. First of all, the assessment must start from the basic situation of agriculture in Asia and the farmers' life, rural poverty, huge population, limited natural resources, and environment;
- Typically, contradictory phenomena are prevalent in Asia – small producers vs. large market and R&D system, considerable development gaps between urban and rural areas, remarkable contribution of agricultural sector to GDP while the rural areas sink in financial crisis, high pay-off of R&D activities to the society, yet the salary of the R&D staff is normally miserable, and so on; and
- Main characteristics of agricultural R&D system in Asian countries. They include: investment in agricultural R&D activities, organizational system of R&D and its structure, allocation of resources, participation of private sector in agricultural R&D, protection of intellectual property rights, historical features, and farmers' political and social rights, etc.

### **Goal of Assessment**

The participants appreciated the following remarks in the report delivered by the assessment Steering Committee:

- The assessment principles, emphasizing efficiency; considering equality, lifestyle and ecological aspects; pursuing a comprehensive evaluation from the angle of socio-economic development, ecological environment and sustainability. That is a superior and more scientifically-based system for assessment; and
- The information can be shared with the decision-making organizations.

But they also suggest:

- The targets of assessment should be further clarified. Not only government agencies (policy suppliers) are included, but also the demand side, e.g. NGOs, private enterprises, farmers, financial bodies, associations, R&D institutions, etc. Given the variety of stakeholders, an alternative indicator system for assessment – and hence results – might be quite different;
- Some new items should be added for assessment as the society progresses rapidly, and the goals of the farmers are changing. Not long ago, the farmers put the economic interest (higher output) first, now they think of both economic and social interests, i.e. both income growth and acquisition and protection of other rights. In other words, in addition to environment, poverty reduction and safety, other indicators (i.e. income, health, political rights, etc.) must be incorporated;
- The R&D capability should be also included in the assessment system, such as human capital, investment intensity, institutional framework, and integration of research personnel;
- The government and the public should have access to relevant information, including historical background (both positive and negative), agricultural R&D institutions, current investment level, demand for research findings and future development, reform of the agricultural R&D system, and any proposals for such reforms; and as public goods, the results of assessment should be delivered to the government agencies and to the public as

well to enlarge its influence.

### **Scope of Assessment**

In general, the scope of assessment defined by the document is reasonable and feasible. Based on the historical experience and retrospective evaluation of R&D policies, it will give an analysis on their impact on nutritional level of different groups and living conditions in rural areas, the causes to noticeable differences in application of R&D achievements, etc., which can serve as a scientific basis for judging the validity of any R&D system or institution, and for their further improvement. Nevertheless, it seems to be something missing in the document, as it has not considered enough the specific features in differences of the nations and regions. For instance:

- How to compare the agricultural research systems in well-developed market economies and their innovation capacities with those, say, in China, which is under tremendous changes, moving toward a market economy?
- Assessment of agricultural science and technology in the transition countries. From a historical perspective, the institutional changes so far have yielded remarkable positive results in scientific research, extension and application of R&D achievements; judging with the future development, these countries face new challenges, such as how to adapt to the changed economic institutions and land ownership system;
- How does an agricultural R&D assessment system reflect the specific socio-political and economic conditions in the different historical periods of China, where the long-lasting political movements and turbulent social situation have born a print on it.

The participants suggested that the following items should be listed in the assessment system:

- To assess the situation of the agricultural R&D itself. That embraces, among others: the composition and geographical location of R&D institutions, investment in research activities, internal management of R&D institutions and their operation mechanisms, extension and application of R&D achievements, and so on;
- Many industrialized nations often resort to technical barriers to trade (TBT) under the WTO rules. It is the time to begin to assess the impacts on developing countries due to blocked information exchanges;
- It is necessary to assess the perspectives, gains and losses by developing biotechnology, e.g. genetically-modified organisms (GMOs);
- It is reasonable to include in the agenda the women's role in agricultural production and their application of R&D results, especially in the poverty-stricken regions;
- To evaluate the probable negative impacts of the universal declining trend of investment in agricultural R&D; and
- To incorporate the agricultural policy evaluation into the assessment framework as the development environment of agricultural R&D system.

### **Characteristics of Assessment and the Methods**

The participants have a general impression that the steering committee should call for a more comprehensive assessment system and associated methods, as the current system and methods are not applicable enough. That is particularly true if the system or methods are used in Asian countries or regions plus their specific social systems, with their different development levels. The assessment system must be differentiated adequately.

It has been deemed advisable that the assessment system to have the following features:

- Highly transparent, credible and comprehensive to cover a wide range of the study;
- High rate of popular participation, which would facilitate the assessment be designed on a more realistic and scientific basis and the results be more reasonable and equitable; and
- Done from global, regional and local perspectives.

The following aspects are important for the methods adopted:

- The government officials may be invited to participate in the project, but they must not control it;
- Where possible, quantification of the assessment results is desirable;
- The assessment procedure must start from region by region and individual items, then

- followed by the comprehensive evaluation;
- Attention must be paid to differences of regions and business sectors with their specific conditions, the assessment indicators and methods must be chosen carefully to adapt to such conditions; and
- A re-assessment should be done after the assessment. That is advisable to evaluate the efficiency, role and results of the current assessment, which could become the basis for revision and improvement of the global agricultural assessment of the agricultural research system.

### **Expected outcomes of Assessment**

According to the representatives of the workshop, the global assessment of agricultural research should expect to have the following results:

- To assist NARS to set up its own evaluation and decision support system to assess research impact and set research priorities to reach the national development goals in a continued basis,
- To promote regional collaboration in R&D impact assessments (issues, methods, lessons),; policy research (why one country spends more on R&D than others, and why one country's IRR is higher than others etc); enhance the exchange of experience and lessons of individual country or region in fighting poverty and hunger and preventing the deterioration of environment by using R&D results; and to promote exchange of information about new technologies and policies implemented in R&D sphere;
- To nurture policy environment for private sector to investment on agricultural R&D. The private sectors' investment on agricultural R&D is relatively low but have large potential in Asia and China. Nevertheless, there are many obstacles affecting private investment. The assessment should also diagnose these factors and provide alternative advices for nurturing policy environment for private sector to investment (IPR, tax, credit, land etc.)
- To clarify disputable issues of ongoing reform of agricultural research system. The global assessment should facilitate the solution of a series of disputable issues and evaluation of possible results of the ongoing reform of agricultural research system in China and many other developing countries. Many issues are waiting for our answers, such as: What are the relations between the public and private sector? What are the accountability and relevance of present public research? How should the public agricultural R&D resources be allocated more rationally? Is it wise to encourage public-funded R&D institutes to run profit-seeking business? How to encourage private investment on agricultural R&D? How to protect intellectual property rights? How to keep balance between the interests of public or small farmers and big agri-business enterprises etc.?

### **Other Issues beyond the Assessment**

- We must have a realistic attitude in evaluating the role or functions of agricultural research. On one hand, we must fully recognize the importance of agricultural R&D in economic development, society, ecology and environment, and people's development; and on the other hand, we must also take into account that the due functions of the R&D activities can become an actual reality only in an appropriate policy environment with other accompanying measures. It would be unreasonable to describe agricultural research as omnipotent panacea;
- It has been a big problem about institutional innovation, including the right way to reform the agricultural R&D system. How to improve the government regulations to enhance the efficiency of agricultural research? That is an open question.
- The global assessment of agricultural research is a very big project, which covers a broad field and contains many complicated problems. It is of crucial importance to act according our capability and define correctly the sphere for the assessment, using proper methods, and set a well-organized procedure.

*Summarized by Dr. Keming Qian, November 25, 2003*