

Role of International Community in Delivering Research and Technology Applications that Enhances Small Farmer Incomes and Food Availability in Developing Countries

**Paper presented to the G-77 meeting
12th – 16th September 2005**

Romano M. Kiome (PhD, MBS)¹

The International Community

In the perceptions of the developing countries and more so the national agricultural research and development systems, the international community implies bodies and entities that have international funding and implementation capacity and/or mandates. These include: the United Nations (UN) entities; the International Monetary Fund (IMF); World Bank (WB) entities; the developed countries; but even more importantly, the Consultative Group of International Agriculture Research (CGIAR); the Advanced Agricultural Research Centres (IARC) of the north; and the multinational corporations and private firms. These bodies can be grouped into the following four categories:

- 1. Funding Agencies** which include IMF, the WB entities, the developed countries, and the UN bodies. These agencies do not only fund agricultural research and development but also determine the loaning and granting policies of other agencies. They are also a repository of enormous information and knowledge that is very useful for the small scale farmers. Furthermore, they have highly qualified and competent human capacity for policy development and analysis, programme development that culminates to enormous influence on the policies and programmes that affect the small scale farmers in developing countries.
- 2. Coordinating Agencies** which also include some of the WB entities, some of the UN agencies. These are a conduit for most of overseas development assistance from their main organisation and other funding agencies including that from the developed and developing world. They not only disburse funds but also provide technical assistance and monitor implementation of programmes. Some are also implementing agencies of multinational development programmes. They are also a repository of enormous pool of scientific technologies, information and knowledge.

¹ Director
Kenya Agricultural Research Institute

- 3. Implementing bodies** which include some of the UN bodies, the IARC of the Consultative Group of International Agricultural Research Centres (CGIAR) and other, and Advanced Agricultural Research Centres of the North. These are also a conduct of a large portion of overseas development assistance, as they implement various programmes in developing world. They have an enormous pool of human capacity and have accumulated large banks of scientific technologies, information and knowledge.
- 4. Multinational Corporations** which include multinationally shared agencies and internationally located private firms. These are key players in science and technology as they apply their technologies all over the world including developing countries. They have conducted very advanced research, have enormous financial capital and have enormous technologies rocked up in patents and other intellectual property provisions. While their objectives are derived by making profit their role in the livelihoods of small scale farmers is becoming more important because of the financial resources that they control and their role in delivering scientific technologies and knowledge.

The international community is seen to have the most powerful instruments and means that can cause an enormous global impact that is the funds, the human capacity, and an enormous pool of scientific technologies and knowledge. Their impact on livelihoods of small scale farmers has been demonstrated in many parts of the developing world especially in Asia and Latin America and also in Africa. For this community to have sustainable and accelerated impact in developing countries it needs to link with and play a role establishment of strong national community which is the interface with small scale farmers and producers.

National Community

In the context of agriculture, the national community include the national governments, the national agricultural research and development entities, the private sector entities, the non-governmental organisations and the farmers and producer. These organisations have different roles and responsibility in the application of science and technology for incomes and food to the resource poor small scale farmers in developing countries. Their roles and responsibility range from setting national agricultural research and development policies to implementing programmes for and that impact directly on the small scare farmers and producers. They have the legal and the moral obligation to deliver improved scientific technologies and

knowledge to small scale farmers because this is their main constituency. These bodies can be grouped into the following categories:

- 1. Policy and Funding Agencies** which is mainly the national governments and their respective ministries. The governments have a responsibility of putting in place policies that are conducive to the development of small scale resource poor farmers. They also have the means to provide funds to the implementing agencies to implement programmes that would empower the farming community to generate incomes and food from their farming enterprises.
- 2. Implementing Agencies** mainly comprise of the government ministries and state corporations, nongovernmental organisations, the private sector and the community based organisations. With respect to agriculture, public research organisations in developing countries have evolved drastically and become more responsive to the needs of small scale farmers.
- 3. Beneficiary communities** in the context of agriculture are the community based organisations, farmers and producers. National governments and implementing agencies may also be beneficiaries but they are expected to be the interface with the farmers, hence benefiting for and on behalf of the farming community and producers.

The Small Scale Farmers in Developing Countries

To elaborate the role of international community, it is important to have common ground of small farmer in developing country. The small scale farmers contribute the bulk of the agricultural economy. On average they contribute between 60 and 80 percent of agricultural outputs in developing countries including commercial crops. They however play a minor role in processing and marketing of the produce and are disadvantaged in many ways. They farm on less than 3 hectares of land, have little access to credit, and farm inputs. They are mostly aged over 45 years and semi-illiterate. They are not only poorly connected to regional and international markets but are also disadvantaged in terms of application of science and technology because of lack of physical and financial resources and paucity in education.

Role of International Community

In our view, the role of international community in delivering research and technology to enhance small farmer incomes and food availability in developing countries can be grouped into the following seven categories:

- 1. Acquiring and advanced scientific technologies and new knowledge.** In the context of agriculture this is the core business of international and advanced agricultural research organisations. Over the years, these organisations have accumulated an enormous technological, human and physical capacity, using international public resources, to undertake basic and strategic research and acquire enormous new scientific technologies and knowledge. An example is the gene banks of the international community containing millions of accessions of genetic resources. Hardly any national system in developing countries has makers for genotyping both plant and animal genetic resources. These are held either by public or private international system.

In terms of infrastructure, the international community have the most advanced and highly equipped laboratories with the state of the art instruments unaffordable by any developing country. Hardly any national system in developing countries has genomics and bio-informatics instrumental capacity. The international community employ the most qualified and experienced scientists even those trained by developing countries because they can pay them attractive remuneration.

In addition to this the international community has adequate understanding of the small scale farmers in developing world, particularly in partnership with the national systems to generate technologies that are appropriate for small scale farmers. It is therefore imperative that these organisations maintain these technologies and knowledge but even more important that they continue to play the role of developing superior technologies and acquiring new knowledge for application now and in future by all.

- 2. Influencing international policies.** International policies such as overseas development assistance policies, trade policies, and intellectual property policies have a strong bearing on small scale farmers in the developing countries. In most cases these policies are skewed in favour of the developed countries with serious negative consequences on the small scale farmers in developing countries. For example current international development assistance policies may be skewed in favour of international agricultural research and development community at the expense of the national agricultural research and development systems. Furthermore, the international trade policy remain in favour of the developed world at the expense of small scale farmers in developing countries. There are no

policies to give incentives to national agricultural research systems to invent and benefit from intellectual property rights. Their innovations continue to be taken and patented by the international community.

This is probably the main reason why small scale farmers in developing countries have remained at the bottom of development echelon and uncompetitive in global economy. The international community in agriculture has, over the years, accumulated adequate knowledge of the small scale farmers in developing countries that they are well placed to advise the international funding community on appropriate policies that would benefit the small scale farmers.

- 3. Mobilizing international financial and human capital.** The international community has enormous financial resources that can be applied to enhance application of science and technology for the benefit of small scale farmers for their incomes and food availability. However these resources have continued to be used to advance and perpetuate the existence and objectives of some international implementing bodies with little benefit to small scale farmers in developing countries. It is probably for this reason that national agricultural research and development systems and the small scale farming community have become impoverished and lacking in financial and human capital while the international community is budging in these resources.

In view of their being close to the international funding agencies, the international and advanced agricultural research organisations have a special advantage to mobilize these resources so that they can be used for science and technology for small farmers in developing world.

- 4. Strengthening the regional and sub regional organisations.** Over the years, the developing countries have established regional and sub regional agricultural research and development organisation with a view of getting better organised to deliver appropriate science and technologies for small scale farmers. In Africa there is now the Forum for Agricultural Research in Africa (FARA) and four sub regional organisations, one for western African, one for northern Africa, one for Eastern and Central Africa, another for Southern Africa that are striving to deliver application of science and technology to the national agricultural research systems for small scale farmers. These organisations are becoming important, especially in sub-Saharan Africa where some of the national systems are too small to conduct meaningful research. The regional and sub regional organisations are providing fora and the critical mass of human capital for development of technologies and acquisition of knowledge for small scale farmers in developed world.

With their enormous pool of technologies, financial and human capital, it is the responsibility of the international community to support and strengthen these bodies so that they can adequately participate in delivering science and technology for the benefit of small scale farmers.

- 5. Strengthening the national agricultural research and development systems.** National research and development organisations are the obvious interface between the international community and the small scale farmers in developing countries. They are not only the permanent feature in agricultural research and development continuum but they are also the only organisations legally and morally bound to deliver scientific and technological advances to the farming community in their respective countries.

Over the years the national agricultural and development systems have evolved greatly and in some countries have physical and human capacity that is even higher than those of the international research systems put together. For example, Brazil's, India's and China's agricultural research and development system are bigger than the CGIAR. In Africa Nigeria, Egypt and Kenya human and physical capita than the CGIAR uses in the respective regions in Africa. This capita is in some cases underutilized.

In other countries, the national systems have remained small and without the critical mass of delivering science and technology to small scale farmers. For the international scientific knowledge and technologies to reach the small scale farmers, it is imperative that the national research systems have adequate capacity to play the role of linking the international systems with small farmers. The international community therefore has a duty to strengthen the national systems to play this role. This is probably the most important task of the international community to enhance the application of science and technology for incomes and food availability of the small scale farmers in developing countries. The national systems must be empowered in terms of physical, financial and human capital to deliver the application of science and technology to small scale farmers which is their legal and moral obligation.

The mode and type of strengthening of the national research and development systems will depend on their current status. Well established and strong ones may only require financial and good partnerships with the international community while weak ones may require support to establish human and physical capital.

- 6. Brokering internationally based technologies and knowledge.** The international community, especially the private sector has developed advanced scientific technologies and knowledge that is very useful for small scale farmers in developing countries. Some of these technologies and knowledge remain locked up in patents and other intellectual property provisions and are not available to the national systems for small scale farmers. The international community in agricultural research and development has an advantage to broker or access to these technologies and make them available to the national systems for the benefit of small scale farmers.
- 7. Interventions in regions in crisis.** Countries and regions that have experienced crisis either from wars or catastrophes have had their agricultural research and development systems destroyed. Examples of this situation are the wars in Mozambique, Zaire, Rwanda, Burundi, Somali, Afgastan, and Iraq. These regions need special interventions to rebuild their national systems and direct interventions to small scale farmers to access to science and technology. The international community has a duty and moral obligation to assist these regions in these interventions.