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NEWS

Appointment

Dr. Joseph G. Mureithi has been appointed as the Deputy Director, Kenya Agricultural Research Institute (KARI). He has been coordinating the Soil Management and Legume Research Networks Project. ECAPAPA congratulates Dr. Mureithi and wishes him well in the new appointment. His new contacts are: Tel: 254 20 4183301-20, Fax: 254 20 4183344 and e-mail: jgmureithi@kari.org

FRAMEWORK FOR AFRICAN AGRICULTURAL PRODUCTIVITY ENDORSED

Sustained agricultural growth at a much higher rate than the past is crucial for reducing hunger and poverty across Africa in line with the Millennium Development Goals. The African Union's New Partnership for African Development (NEPAD) has issued a Comprehensive African Agriculture Development Programme (CAADP) as a vision for the restoration of agricultural growth, food security, and rural development in Africa. The specific goal of CAADP is to attain an average annual growth rate of 6 percent in agriculture. The Forum for Agricultural Research in Africa (FARA) is leading the development of a Framework for African Agricultural Productivity (FAAP) through which agricultural research, technology dissemination and adoption could be achieved. The 7th Ordinary Session of the Assembly of Heads of State and Government held in early July 2006 in Banjul, Gambia endorsed that African member states and Regional economic Communities realign their agricultural productivity programs to FAAP. In a two-part series, ECAPAPA brings you excerpts from FAAP.

African agricultural productivity-An imperative for change

AGRICULTURAL growth benefits both rural and urban poor by providing more food and raw materials at lower prices; freeing up foreign exchange for the importation of strategic industrial and capital goods; providing growing amounts of capital and labour for industrial development; providing a growing domestic market for nascent national industries; and reducing poverty by increasing labour productivity and employment in rural areas. The poor performance of the agricultural sector explains much of the slow progress towards reducing poverty and hunger in Africa. Agricultural growth has barely kept up with population growth rates such that the growth in per capita agricultural output has lagged far behind other developing regions. To reverse this trend and meet the Millennium Development Goal (MDG) of halving poverty by 2015, the sector needs to grow much faster and maintain annual growth rates of about 6.2 percent. Some countries will require even higher growth rates, given many years of neglect.

The question of whether Africa can achieve the required agricultural growth rate will depend on how quickly gains in productivity can be achieved to allow the sector to grow and compete in both domestic

and international markets. Increasing agricultural productivity implies a transformation from traditional to modern agriculture, which involves both technical change and the presence of input, seasonal finance and marketing systems to increase farm production and deliver it to consumers at a competitive price.

To increase agricultural productivity, the value of output must increase faster than the value of inputs. Gains in overall agricultural productivity can therefore come from changes in the physical productivity level through change in technology employed in the production process, which results in more output per unit of input such as land (yields) or labour, or from changes in production and market costs and hence the increased profitability of farmers. Thus, increasing agricultural productivity not only relies on improved production efficiencies, such as through adoption of modern or improved technologies and practices, but also critically relies on many other factors such as adequate access to productive resources, well functioning markets and infrastructure, and a conducive policy environment, for example stable macro-economic policies.

In terms of both land and labour productivity, Africa still lags far behind other developing regions. Within Africa, the situation is especially marked in Southern and Eastern Africa (excluding South Africa). Low growth rates in cereals yields and production in Africa have translated over the years into falling per-capita food production and increased imports, contributing to high levels of food insecurity at both national and household levels. Twenty percent of African cereal consumption depends on imports, including food aid.

Much of the growth of output in Africa has been due to expanded use of land, labour and livestock, until the 1990s, when recent estimates imply that productivity growth has played an increasingly larger role. To achieve the desired agricultural growth rate of 6 percent or more will require total factor productivity growth rates of 4.4 percent per year. This is because the growth in land and labour inputs are unlikely to continue to grow at the same rate as in the past, and productivity must increase at a faster rate for output to grow. The expansion of the labour force is tied to the demographics of the region and changes in the recent past show a reduction in the growth of labour. While the economically active population in sub-Saharan Africa increased at an average growth rate of 2.1 percent during 1981-1990, this growth was reduced to 1.9 percent per year in the 1990s. The estimated expansion of productivity at an average annual growth rate of 4.4 percent assumes that labour and capital will continue to grow as in the 1990s, contributing 1.8 percentage points to growth in agriculture.

Lessons learned from the success of agricultural-led growth strategies elsewhere in developing countries show that productivity and overall growth in agriculture has been technologically driven. However, one measure of productivity, the share of areas planted to modern varieties in Africa, is only a small fraction of those in other regions and genetic improvement accounts for only 28 percent of yield growth compared to 88 percent in Asia. In addition to technology, adequate access to rural infrastructure has been essential for promoting growth in agriculture as well as in the non-farm economy and rural towns, and for strengthening rural-urban demand linkages. Equally important is that growth must be broad-based, so that the majority of smallholders also benefit from technology innovation. Distortions in prices also need to be removed to provide incentives for farmers to invest and produce.

Pay-offs to increased agricultural research and extension investment can be particularly high. Unfortunately, investment in agricultural research and development (R&D) in Africa has stagnated over time. Focusing R&D investment on improving yields of basic food staples has the potential to leverage stronger growth linkages. Empirical evidence from around the developing world suggests that a $ 1 increase in staple agricultural income will generate an additional $ 0.30 to $ 0.80 in additional income in rural non-farm economy and a disproportionately large increase in the country's total Gross Domestic Product (GDP), through increased demand for inputs, and more importantly, through increased

consumption demand as a result of higher agricultural incomes. Similarly, investment in infrastructure, particularly rural feeder roads, can also lead to large productivity growth and poverty reduction effects. In addition to its effects on agricultural productivity, infrastructure investment can also have large growth effects on non-farm sector.

Agricultural growth combined with non-agricultural growth produces even larger benefits. This is because growth in non-agriculture incomes also increases demand for agricultural products. Meanwhile, non-agricultural incomes can rise further through multiplier effects emanating from agricultural growth itself. These linkages are very important in creating the long term growth dynamics required for structural transformation towards a more industrialized economy.

The framework for African Agricultural Productivity (FAAP)

Investments in agricultural productivity must be prioritised on those activities that have the largest potential to impact productivity, and they must be managed for results. Consultations with Africa's agricultural leaders, agricultural professionals, agri-business, and farmers found substantial agreement that failures in various institutional areas are the main factors hampering progress in the sector. Capacity weaknesses, insufficient end user involvement, ineffective farmer support systems, and systematic fragmentation between elements of the overall innovation system that is, between research, extension, training, farmers' organizations, the private sector, consumers, among others are common to most of Africa's agricultural productivity institutions and activities. CAADP further points out that these problems are compounded by the fragmented nature of external support and by inadequate overall investment in agricultural research, technology dissemination and adoption. Building on this consensus, FAAP sets out what African stakeholders think is needed to get African agriculture back on track.

The emerging African agenda for improving agricultural productivity, profitability, and sustainability through innovation highlights three principal elements: institutional reform, including the efficient use of resources for activities that are most likely to achieve productivity increases; increasing total investment; and harmonising funding. Detailed development of how to implement the recommendations for each of the elements of the agenda is, of course, time and location specific and must be determined country by country and case by case.

Evolution and reform of agricultural institutions and services

Lessons from across the African continent and elsewhere have shown that the effectiveness of agricultural technology generation and dissemination institutions depends crucially on relevance and responsiveness to farmer needs. At present, farmers' needs and those of agri-business too often do not sufficiently drive the orientation of agricultural research and extension services, causing lack of relevance and impact. Even when relevant, know-how and technologies are too often not widely taken up by farmers, suggesting also the lack of effectiveness in the transfer of technologies. The difficulty of maintaining human capital in these systems, the bureaucratic environment of the public sector, and a chronic shortage of operating resources also constrain the performance of research, extension, training and education systems, suggesting an inadequacy of investments in human capital.

In order for Africa's agricultural productivity efforts to be successful, they should reflect the principles of:

- *Empowerment of end-users: T*o ensure their meaningful participation in setting priorities and work programs for research, extension, and training to ensure their relevance;

- *Planned subsidiarity: T*o give responsibility and control over resources for agricultural research, extension, and training activities at the lowest appropriate level of aggregation (local, national and regional);

- *Pluralism:* In the delivery *o*f agricultural research, extension, and training services so that diverse skills and strengths of a broad range of service providers, such as universities, non governmental organizations, public and the private sectors, can contribute to publicly supported agricultural productivity operations;

- *Evidence-based approaches: W*ith emphasis on data analysis, including economic factors and market orientation in policy development, priority setting and strategic planning for agricultural research, extension, and training;

- *Integration of agricultural research*: With extension services, the private sector, training, capacity building, and education programs to respond in a holistic manner to the needs and opportunities for innovation in the sector;

- *Explicit incorporation of sustainability criteria*: In evaluation of public investments in agricultural productivity and innovation program (fiscal, economic, social and environmental);

- *Systematic utilisation of improved management information systems*, in particular for planning, financial management, reporting, and monitoring and evaluation;

- *Introduction of cost sharing: W*ith end users, according to their capacity to pay, to increase their stake in the efficiency of service provision and to improve financial sustainability; and

- *Integration of gender*: Considerations at all levels, including farmers and farmer organizations, the private sector, public institutions, researchers and extension staff.

This list of guiding principles is not comprehensive and it does not address every aspect of institutional design relevant to agricultural productivity interventions. However, it does identify areas which require the most urgent attention. Some programs already attempt to include these principles. For others, their application to the reform of institutional structures will help solve the problems discussed earlier, especially for improving relevance and effectiveness of research and extension systems, as well as related training, capacity building and education programs, which are essential for achieving bigger impact on agricultural productivity, profitability and sustainability.

Empowerment

Farmer empowerment will play a key role in improving agricultural productivity and efforts to develop systems that foster greater farmer knowledge, control of funds, organizational power and institutional participation; allowing producers to become more active partners in agricultural productivity initiatives. This will require; enabling them to express their demands and set the research agenda, providing access to information, enabling them to participate intellectually, quality control, to learn and turn villages and communities into knowledge centres, making the research and advisory systems responsive and responsible, research on the information, communication technology (ICT) and distance learning techniques that will put the farmers in the driving seat by empowering them to access the information they need.

Farmers who have the capacity to analyse their constraints and identify opportunities, articulate their needs, exchange knowledge, and improve their bargaining power will have better access to, and use of, relevant agricultural knowledge and technologies. In other words, farmers and other beneficiaries must be empowered through knowledge, control of funds, and strong organizations, so as to drive development. While farmer empowerment may target farmer and farmer group capacity building, it should be mainstreamed throughout agricultural technology development and dissemination systems to allow the emergence of a more bottom up approach, giving end users true voice.

Putting farmers at the center of agricultural innovation systems: FAAP advocates that farmers be at the centre of innovation systems' approaches. Therefore, FAAP core business is to empower farmers to be active players in improving agricultural productivity not just in terms of increasing their yields but also in decision making on how programs and policies are shaped. Actors such as policy makers, researchers, extension workers or development agencies should be more accountable to the farmers. FAAP will therefore advocate among all actors that farmer empowerment be put up front. It will harness capacity wherever it exists in or out of Africa towards this end product.

FAAP as facilitator of institutional changes and capacity building that will empower farmers. It would encourage different actors such as researchers to support the development of viable producer organisations that can represent the interests of farmers and pastoralists in public policy making, open new market opportunities for their members with the required inputs and services. This could include the following:

- ✓ Sensitising and mobilising smallholders and pastoralists to create groups or associations around economic activities, for example, input and/or credit access, marketing, agro-processing;

- ✓ Strengthening capacity of existing farmers' associations and national producers organisations to provide more efficient services to members;

- ✓ Assisting farmers' organisations to participate in policy making, priority setting and governance of National Agricultural Research Systems (NARS) and advisory service systems;

- ✓ Promoting the use of modern technologies and distance learning approaches to enable farmers and pastoralists to become knowledgeable and innovate with confidence; and

- ✓ Linking rural communities to markets through interactive information services that exploit modern Information and Communications Technology (ICT) such as mobile phone short messaging services (SMS).

Catalytic role: FAAP will play a catalytic role to implement the necessary changes at all levels. It will extend into practice the genuine intellectual involvement of the farmers in setting agricultural productivity programs i.e. research agenda and in the research itself. This could be made through by:

- ✓ Catalysing support for farmers' organisations in the development and implementation of promising innovations;

- ✓ Stimulating reviews of legal and regulatory frameworks to create supportive institutional environments; and

- ✓ Advocating research on innovative financing of farmers, input suppliers and produce merchants.

Agricultural extension

Moving towards more participatory agricultural extension will allow greater responsiveness to farmers' needs and facilitate learning on how they can increase their own productivity, raise their incomes, collaborate effectively with one another, and with partners in agri-business and agricultural research, in addressing their individual and common problems, and become actively involved with major stakeholders in determining the process and directions of innovation, including technology generation and adoption. Thus, while one underlying motivation is growth, extension also contributes to empowerment - helping farmers to help themselves - through the generation of human and institutional capital.

To do this, the role of extension systems will shift from prescribing to facilitating. Instead of trying to "sell" predefined packages, extension will increasingly focus on building capacity among rural people to identify and take advantage of opportunities (both technical and economic) and to cope more effectively with risk and adversity. To perform such a wide-ranging role, extension service providers must be trained in areas beyond technical agriculture. Their focus will be centred on helping farmers to better understand their own farming challenges, and to access and utilize information and associations which can help them to improve their own livelihoods sustainably.

The success of extension programs is tied to their responsiveness to the specific needs of the clients and market opportunities. As a consequence of empowerment, farmers will be better equipped to select, test, compare and adapt appropriate technological, service and market options. Through their own farmers' associations and local governments, farmers can participate in decisions about the design, funding, governance, execution, and evaluation of extension programs. Application of the FAAP guiding principles will help agricultural extension systems evolve in the directions suggested above so that:

- Extension services will increasingly be provided through performance-based contractual arrangements, rather than by civil servants. Potential extension service providers may include combinations of private sector, NGOs, farmers' associations, universities, or any other entities with the capacity to provide extension services. In allowing for a plurality of providers, such arrangements take advantage of a broad array of already available field expertise. They contribute to developing the private sector in rural areas. Extension services provided by the private sector are typically more efficient and accountable for their performance and results. They also allow for more flexibility for promoting staff who perform well and dismissing those who do not.

- Farmers, through their groups and associations, will have significant influence over the allocation and use of agricultural services expenditures, e.g., by contracting extension service providers.

- Contracting out extension services will not eliminate the role of the public sector: when extension delivery is contracted out, the government role becomes one of financing, regulation, policy, quality assurance, oversight, and provision of training and information to the organizations or individuals contracted to deliver extension.

- The costs of extension are gradually shared with local governments, farmers' associations, and eventually the producers themselves. For some commodities, such as cotton, sugar or poultry, agribusiness partners may support part of the cost of providing extension services.

- Where knowledge and solutions are not available, formal and informal means should be in place to ensure that farmers as a group have voice in decisions affecting research priority setting, funding, execution, and evaluation. Resources and mechanisms should be established to make it

possible for farmers and extension systems to pay researchers, whether from the public or the private sector, to carry out on-farm participatory research. This will create the conditions under which farmers, extension staff and researchers can learn from each other.

- Resources and mechanisms should be available to the extension systems to make it possible for farmers and service providers to influence and benefit from training and education programs available in the agricultural sector (farmers, extension service providers, researchers, civil servants, agri-business people, among others).

Agricultural research

Agricultural research provides an opportunity to bring creativity, scientific methods, and indigenous knowledge to bear upon the opportunities and problems faced in the agricultural sector. In doing so, research leads to the generation and adaptation of technological, sociological and economic innovations for use by farmers and other actors in the agricultural sector. Adoption of yield-enhancing technology and practices leads to increased productivity, incomes and improved more sustainable livelihoods, including food-security. Therefore, investments in agricultural research are also investments in growth. For the urban and rural poor, the results of agricultural research help to keep food affordable.

In many parts of Africa, realising the potential of agricultural research to reduce poverty has been elusive, despite the many achievements of agricultural research. This frustrating reality is evidenced in the prevalence of poverty, hunger and malnutrition, among farm families. At this juncture, harnessing the development and poverty-reducing potential of agriculture depends crucially upon establishing ways to ensure the relevance of agricultural research activities for the challenges facing poor and small-scale farmers now and in the future. FAAP recognises the important role that the public sector has to play, as well as the need to better integrate the private sector in the process, based on the following principles;

- Priorities are set through a transparent process of data collection and analysis, in particular gap analyses, with the objective of choosing research priorities at national, regional and continental levels that will be most likely to contribute to the achievement of the CAADP objective of 6 percent growth in agricultural output.

- End-users should be actively engaged in the processes of agricultural research priority setting, planning and managing the work programs.

- Decision-making authority for planning and implementation, as well as financing, should be increasingly transferred from national level to lower levels of government (with farmers' and agri-business representation) so that stakeholders have a prominent voice and effectively influence in decision-making.

- More emphasis should be given to cross-country collaboration through the mechanism of the sub-regional organizations (SROs)–with a commitment to reduce redundancy created by every country having its own program for every topic–and a commitment by countries to bring synergies and improve cost-effectiveness by pooling resources at SRO level to support regional program approaches where spill-overs and common issues extend beyond borders.

- While the public sector will in most countries continue to cover core agricultural research needs, publicly financed research should also be carried out by other research providers. Potential providers include universities, the private sector, specialized NGOs, and in some cases, farmers' organizations. These can contribute in several ways, e.g., by contracting for specific research-

related tasks; multi-year programmatic contract; and competitive grant schemes to support proposals in priority areas. Contracting out research services does not eliminate the role of the public sector. When research is contracted out, the government's role becomes one of financing, quality assurance and provision of training and information to the organizations or individuals who have been contracted to deliver research services.

- The costs of public agricultural research programs are gradually shared between national and local governments, but also with farmers' associations, and agri-business.

- Establishment of national agricultural research strategies through participatory and multi-disciplinary processes - and their endorsement at national level through inclusion in the Poverty Reduction Strategies (PRSs).

- Greater emphasis should be given to human resource development and in the agricultural research system, through improved salaries, performance related pay, better working conditions, and training opportunities.

Agricultural training and education

Agricultural training and education has a direct impact on agricultural productivity and on the performance of ancillary businesses and trade. It also stimulates implementation of knowledge-driven economic growth strategies and poverty reduction. Most African farmers only have access to primary education. This puts a premium on the quality of agricultural education in primary curricula. In addition, to making careers in farming and related branches of agriculture more attractive, there is also a need for adjusting the way agriculture is presented to students.

In view of the distances and poor infrastructures, agricultural actors must also take advantage of modern Information and Communications Technologies (ICTs) and distance learning methodologies, which empower farmers and allow them to demand for and access suitable knowledge. The quality of tertiary agricultural education is critical because it determines the expertise and competencies of scientists, professionals, technicians, teachers, and civil service and business leaders in all aspects of agriculture and related industries. It raises their capacities to access knowledge and adapt it to the prevailing circumstance, and to generate new knowledge and impart it to others. There is a consensus amongst recent studies, such as those by the Inter-Academy Council and the Commission for Africa, that urgent action must be taken to restore the quality of graduate and postgraduate agricultural education in Africa.

The number of private education institutions in Africa has increased dramatically but, their contributions are still marginal for agriculture in comparison to public institutions. Public support for strengthening agricultural education should promote a radically new approach to solving individual and institutional problems and maintaining global standards. To be effective it must, amongst other things:

- Create competitive working conditions that attract and retain the best brains which requires establishing standards for institutional reforms (in structure and programmes), as well as increased and better utilization of resources;

- Establish links between national, sub-regional, regional and global institutions;

- Make curricula more responsive to development needs;

- Improve access to locally relevant educational materials based on agricultural research experiences in Africa;

- Breakdown the institutional and programmatic separation between universities and National Agricultural Research Institutes which result in inefficient use of capacity and unproductive competition;

- Enhance the quality of the delivery of education by upgrading knowledge and skills of researchers and educators

- Enhance teaching and training in technologies that could make faster progress in addressing African agricultural constraints, including biotechnology and ICT

- Contextualise teaching in the management of risk and uncertainty related to smallholder agriculture, e.g., climate change, globalization and international agreements and conventions

- Prepare students better with the skills and tools they need for developing and implementing knowledge-based innovation systems

- Improve integration of land use and environmental topics (including biodiversity, bio-energy, and carbon sequestration, among others).

- Enhance the enrolment of women, commensurate with their predominant role in the sector;

- Establish links in the education system from formal teaching to professional training;

- Create synergies among institutions and curricula in education, research and extension;

- Improve aspects of value adding, marketing and agri-business.

In the next issue, we will present FAAP's strategy on promoting resource alignment and increased funding in the process of strengthening Africa's capacity for agricultural innovation as an engine for development. ECAPAPA received this information from Guy Rogers Evers, FAO/World Bank. He is gratefully acknowledged.

COMMUNICATION

Call for papers

The International Centre for Tropical Agriculture (CIAT) in conjunction with the International Service for National Agricultural Research Programme of the International Food Policy Research Institute (IFPRI-ISNAR), the International Livestock Research Institute (ILRI) the (International Institute for Rural Reconstruction (IIRR-Africa) and Promoting Local Innovation (PROLINNOVA) are organizing an international symposium on agricultural innovation systems in Africa, to be held on **21–23 November 2006** in Kampala, Uganda. The symposium will bring together researchers and practitioners involved in innovation systems to share current thinking, experiences, advances and lessons. Interested researchers and practitioners are invited to submit abstracts for Symposium papers relating any of the following themes;

i) Conceptual and methodological developments in agricultural innovation systems
ii) Partnerships and other forms of social capital in agricultural innovation systems

iii) *Institutional, policy and knowledge-sharing mechanisms to support agricultural innovation systems*
iv) *Enhancing local innovation processes*
v) *Market-led innovation in agriculture*
vi) *Building innovation capacity.*

The papers should draw on diverse fields and disciplines of the social, agricultural and natural resource sciences, and should present good practice in studying and in enhancing the process of innovation for effective agricultural research, development and education. Papers need not be directly linked to agriculture and natural resource management. The deadline for submission is **15 August 2006**. For details contact: Innovation Africa Symposium Secretariat: innovationafrica@cgiar.org

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