FARA

Chronicles of FARA 2002–2007

Learning and evolving






1. Networking at the FARA General Assembly 2005, Entebbe, Uganda

2. His Excellency Mr Christian Diatta, Minister for Scientific Research and Technology (left), is welcomed by Dr Monty Jones, Prof Joseph Mukiibi, outgoing President of FARA (centre) and Dr Papa Seck, the new Chairman of FARA (second from left)

3. FARA's agreement with the African Union, Oct 2006, In the photo, AU's commissioner for rural economy and agriculture, H.E. Rosebud Kurwijila (left), shaking hands with the then FARA Chairperson, Mme Njabulo Nduli.

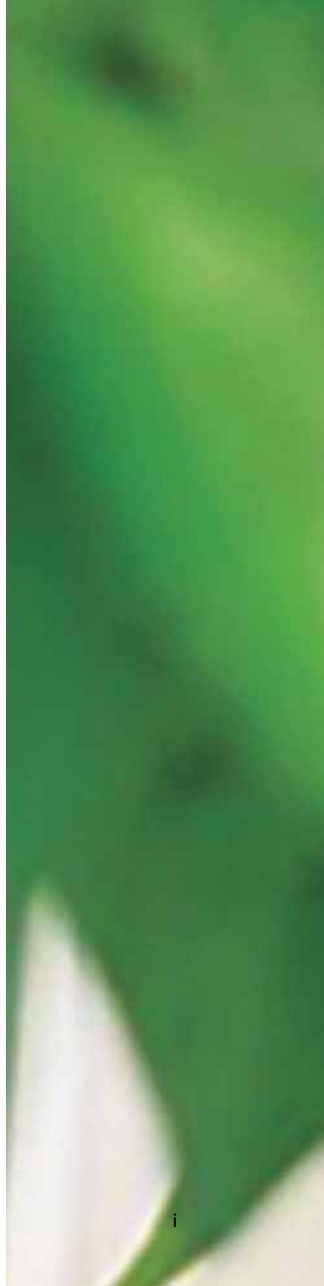
4. Sub-Saharan Africa Challenge Programme strategy approved by the CGIAR

5. Dr Monty Jones and Dr Paco Sereme (Executive Secretary, CORAF)

6. FARA General Assembly 2005, Entebbe, Uganda

Chronicles of FARA 2002–2007

Learning and evolving



Forum for Agricultural Research in Africa (FARA)
12 Anmeda Street, Roman Ridge
PMB CT 173, Cantonments
Accra, Ghana

2009

Citation: FARA (Forum for Agricultural Research in Africa). 2009.
Chronicles of FARA 2002–2007: Learning and evolving. Accra, Ghana. 80 pp.

For further information, contact:
Forum for Agricultural Research in Africa (FARA)
12 Anmeda Street, Roman Ridge
PMB CT 173, Cantonments, Accra, Ghana
Telephone: +233 21 772823 / 779421
Email: info@fara-africa.org
Fax: +233 21 773676
Web site: www.fara-africa.org

ISBN 978-9988-1-1062-6 (print)
ISBN 978-9988-1-1063-4 (pdf)

Writing: Mary Anne Fitzgerald, PO Box 647, Karen, Nairobi 00502, Kenya, 254-(0)721-340679, mafitzgerald@iconnect.co.ke

Editing/design: BluePencil Infodesign, Hyderabad, India • www.bluepencil.in

Cover design: Raghavendra Chowdhari • www.arthmediasolutions.com

Printed at Pragati Offset Pvt. Ltd., Hyderabad, India • www.pragati.com

Contents


CORNER
SHOP

Foreword

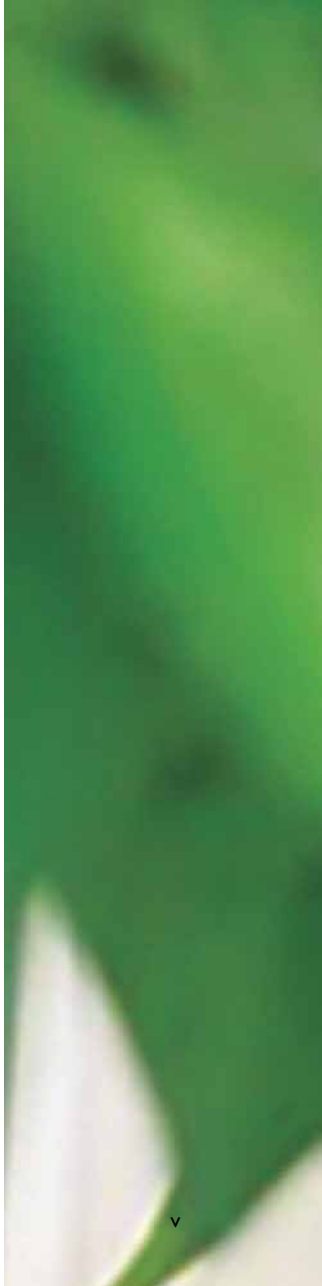
The objective of this publication was to document the lessons learnt in establishing the secretariat of the Forum for Agricultural Research in Africa (FARA), and identify best practices for similar organisations serving diverse and widespread stakeholders . The intention was not to write another annual report for FARA, but rather to tell the story behind the scenes on how its Secretariat was established based on the strong foundation built from several years of consultations and lesson learning before the Secretariat was functioning.

The establishment of the FARA Secretariat was approved in 2002 in Maputo, Mozambique at the first FARA plenary meeting. The same meeting approved Dr. Monty Jones' appointment as the FARA's first Executive Secretary. The Secretariat was then hosted by the FAO regional office in Accra, Ghana as a project with only one professional staff, two consultants, a Secretary and a driver in three offices.

Five years after its founding, the FARA Secretariat has evolved into a well established autonomous organisation with legal status and its own offices. Its staff has expanded to over 54 staff comprising 20 professional staff and 34 support staff. The strengthening of the Secretariat has enhanced the functioning of the Forum it was set up to support, especially through its network support functions, facilitating partnerships, and exchange of information among the Forum's members.

The Secretariat has gained international recognition as Africa's voice in agricultural research for development. It has been mandated by Africa's highest political body, the African Union to serve as its technical adviser in agricultural research for development as well as to be the lead institution for AU-NEPAD's CAADP pillar 4. It has undertaken several consultations, reviews and audits aimed at ensuring that it is relevant and adding value to its constituent sub-regional research organizations in Africa i.e. ASARECA, CORAF/WECARD, and the newly formed CARDESA in Southern Africa and NASRO for North Africa.

The Secretariat's interventions have influenced decisions at various levels within and outside Africa, concerning (a) increasing the amount and quality of investment by African governments, the private sector and international donors in Africa's agricultural research and development; and (b) adoption of multi-stakeholder and systemic approaches to African agricultural research that are best suited to Africa's heterogeneous and complex agricultural context.



The Secretariat's institutional strength is built on the buy-in of its stakeholders and the ways in which they influence its policies and events and how it can in turn add value to their efforts at the continental level.

The lessons learned since the founding of the Secretariat are a public good that can be drawn upon by other organisations in charting their own growth. The collation of this document has provided a valuable opportunity for the Secretariat to reflect on how well it has served its stakeholders and how it could do better.

Monty Jones
Executive Director
2002 to present

Dr. Denis T. Kyetere
Chairman, FARA
2007–2010

Acknowledgements

This publication was commissioned by FARA's Executive Board in 2008. Documenting the progress of a rapidly changing and growing institution such as FARA was a tough challenge, but was achieved through contributions from key partners before and after the FARA Secretariat was established. To assist in this task, the FARA Secretariat took the able assistance of a writer named Mary Anne Fitzgerald who worked closely with the FARA Secretariat Staff led by Monty Jones together with Ralph von Kaufmann and Myra Wopereis. Together they drew up a long list of prominent people who can be considered the founders and drivers of FARA.

FARA is grateful to all partners who responded wholeheartedly to interviews and emails. There were some who volunteered to give interviews because they felt that they were part of FARA. We extend special thanks to the SROs (ASARECA, CORAF/WECARD, SADC-FANR) who opened their doors to facilitate collection of stories from scientists, farmers, extension workers and civil society organizations. These stakeholders are the faces of FARA where action is taking place.

FARA is also grateful to the development partners from Europe and North America; their unending support and willingness to share thoughts and reflections about FARA are well appreciated. Their global perspective ensured that FARA's programmes are acknowledged by the international community.

FARA is indebted to the Government of Ghana for hosting its Headquarters and providing all necessary support for its effective functioning within and outside Ghana.

Documenting the progress of FARA was a tough challenge, but it was achieved through the goodwill and sound memories of key partners extending back to when FARA was only a concept in the minds of a few visionaries.

Introduction

If you are reading this publication, the chances are that you hold a university degree. In fact, you probably have a masters or even a PhD. You may be a researcher working for a national agricultural research institute or with one of the four sub-regional organisations (SROs), which, between them, coordinate science-based programmes in North, West, Central, Eastern and Southern Africa. Perhaps you are the executive officer of a national or a regional farmers' association. Or the owner of a seed company. Or you are an extension worker in a ministry of agriculture visiting farmers on a battered motorbike. Or a development planner making policy decisions based on 10-year-old data. You might even be the minister of agriculture or economic planning himself/herself! Of course, you are not necessarily African or living in Africa. You could also be working for one of the Consultative Group on International Agricultural Research (CGIAR) institutions. Perhaps you are a European or a North American who has helped Africa by overseeing your country's investment in some aspect of the agricultural sector. If you are any of these people, you are part of the Forum for Agricultural Research in Africa (FARA) family.

Researcher, executive officer, owner of seed company, extension worker, development planner...

If you are any of these people, you are part of the Forum for Agricultural Research in Africa (FARA) family

Sub-Saharan Africa relies heavily on agriculture for economic growth. This sector absorbs two-thirds of the labour force but generates only one-third of the Gross Domestic Product (GDP). It is the only continent where agriculture is experiencing negative growth and where most governments allocate less than 5% of their national budget to agriculture. Yet the African countries realise that it is the single most important sector for raising the standard of living of Africans. So does the World Bank. Its *World Development Report 2008* states that GDP growth in agriculture is four times more effective than industrial growth in enabling an exit from poverty. Increased productivity in staple foods through improved seeds spells surpluses, which can be processed and sold at a greater value. Better access to markets and to marketplace information cuts farmers a slice of the action in high-value horticulture, floriculture, poultry and dairy. The benefits from agricultural growth do not stop at the farm gate; it spills over into other areas, creating additional jobs in rural areas and market towns. Farmers realise more cash from their labours and this extra liquidity enables them to procure medicines, improve their diets and pay school and community fees—in other words, to live a better life.

For the past few decades, a food crisis has been brewing. Demand for food is expected to reach US$100 billion by 2015, double the demand that existed in 2000. But donor lending declined during the 1980s and 1990s. Official development assistance to agriculture fell from 18% in 1979 to 3.5% in 2004. Hopefully, greater attention will be paid to investment in the structures that underpin expansion, such as research, communications, markets and universities, and help will not be restricted to just emergency food aid over the next decades.

The concerns about agriculture have become even more urgent as we enter the new millennium. Food supplies are under pressure from a variety of circumstances and factors. There are more people to feed and their palates are shifting from more easily grown cassava, yams, sorghum and maize to less easily grown rice and wheat, “as well as to convenience foods”. Rising energy prices have triggered competition with biofuels for arable land. Land and water will one day be as precious as metals as our population continues its inexorable growth.

Then there are the consequences of global warming and climate change to contend with as well. More frequent and severe drought means that crops need better absorption and water retention capacity. Farmers must husband their resources carefully not only for the present but also for future generations. Agriculture consumes 85% of the world’s utilised water. Soils become depleted when adequate fertiliser is not applied and crop rotation is not practised. And slash-and-burn techniques accelerate deforestation. According to some projections, cropland may fall 20% short of required needs over the next 40 years.

The agricultural sector must be resilient to all these dangers to ensure sustainable production. This will require governments to move beyond political compulsions and take necessary action in terms of legislation and policy to introduce long-term measures to protect the sector from market volatility and collapse.

It calls for significantly greater investment in agriculture and agricultural research. It also means that when our African scientists make discoveries in the laboratory, the knowledge must be disseminated to others, including the many smallholder farmers, who are, after all, the backbone of the continental economy.

By the same token, farmers' voices should be heard in national forums. Few would refute that local communities must be involved in the decisions that affect their lives and livelihoods. Often, families have been in the business of farming for generations and have, over time, built up a fund of knowledge about soils, weather and suitable crops. They know what crops grow well and fetch the best price in their particular environments; they are well aware of the problems that beset them too. It is common sense that agricultural research should be an equal and many-sided conversation between farmers, scientists and the extensions workers, who are the middle link.

For far too long there has been a disconnect between the people who might read this book and the people who almost certainly will not read it. But they all strive towards the same ends—an expanding and sustainable agricultural sector that will eliminate hunger, ensure the achievement of sustainable rural livelihoods, and help advancement to middle-class prosperity. FARA's role is to bring together the many different men and women whose working lives revolve around agriculture—scientist, farmer, extension worker, policymaker, company executive, trader, processor, development partner and others—so that they can collaborate as a single dynamic family.

FARA's role is to bring together the many different men and women whose working lives revolve around agriculture—scientist, farmer, extension worker, policymaker, company executive, trader, processor, development partner and others—so that they can collaborate as a single dynamic family.

During the 1990s, R&D spending fell in nearly half the countries in sub-Saharan Africa, at least partially through government disinterest. For political parties, there was little immediate payoff in long-term research (results took 10 years minimum). Quick fixes such as subsidies and school-feeding programmes had greater visibility and were better vote-getters.

Transforming aid into partnership

"If you are an Indian, you don't need a FARA, but if you are Burundi, you had better have a FARA" Carlos Sere, Director General, ILRI

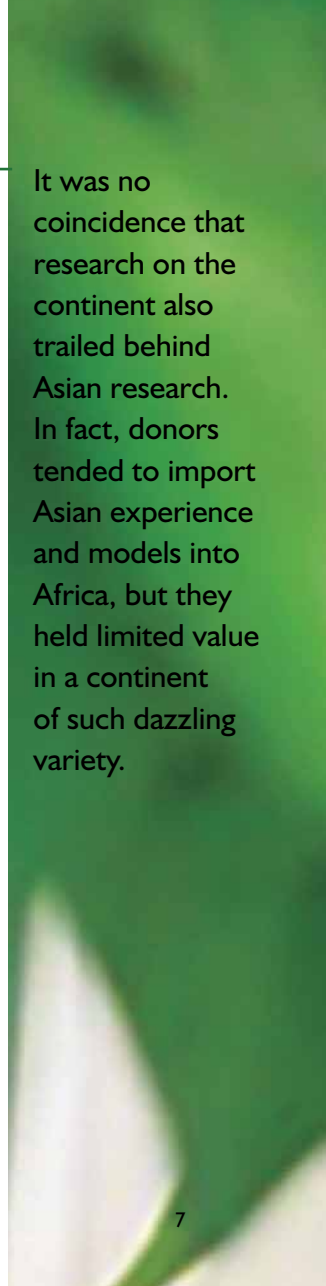
During the second half of the 20th century, there was no consistent long-term strategy for agricultural growth. While donor trends were changing with kaleidoscopic frequency, African agriculture continued to lag far behind the rest of the world. Starting in the 1970s, the economic buzzwords were industrialisation and urbanisation. Governments—and donors—did not see a particularly pressing need for investment in agricultural research and development (R&D). It was all about setting up factories and creating goods for export. Food crops were overlooked in favour of foreign exchange-earning cash crops.

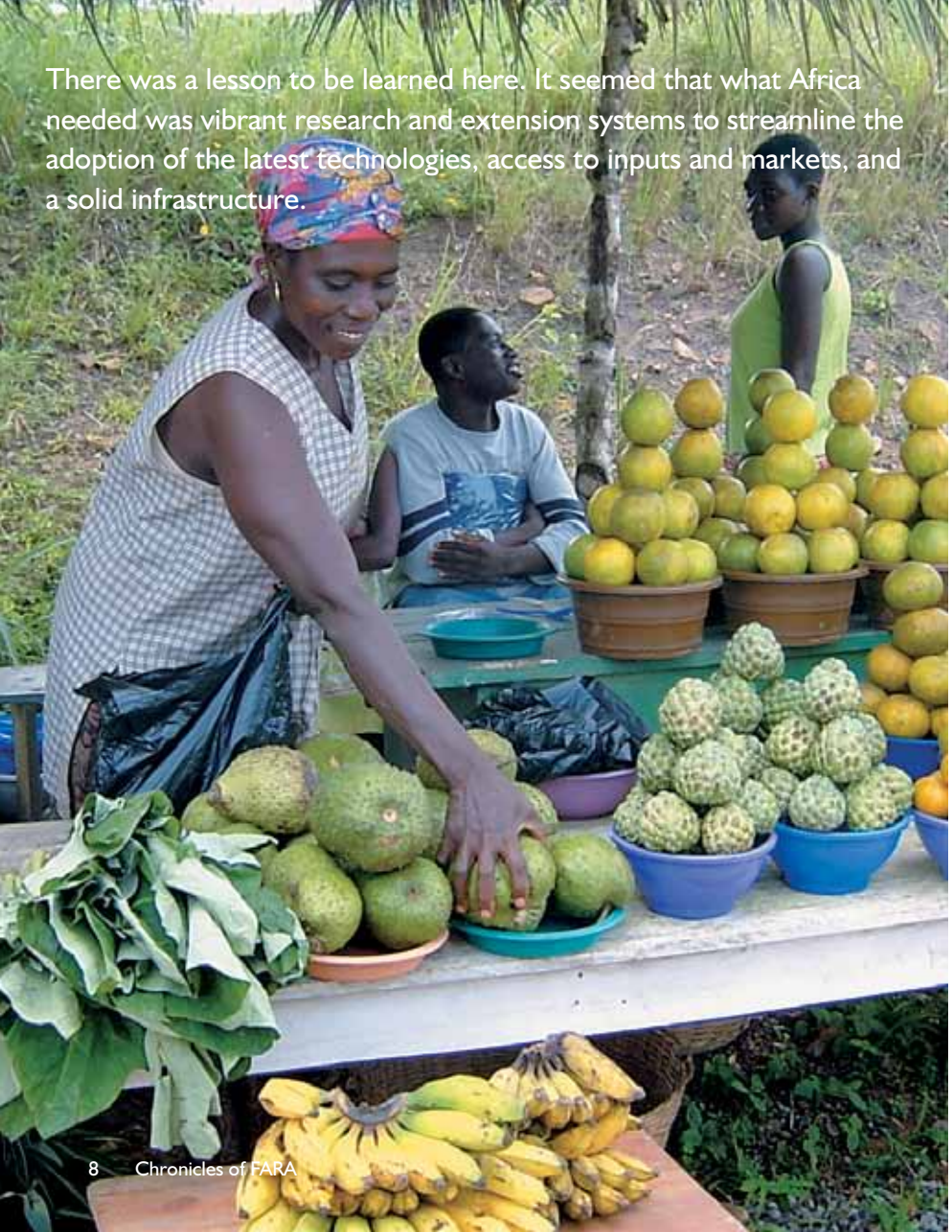
During the 1990s, R&D spending fell in nearly half the countries in sub-Saharan Africa, at least partially through government disinterest. For political parties, there was little immediate payoff in long-term research (results took 10 years minimum). Quick fixes such as subsidies and school-feeding programmes had greater visibility and were better vote-getters.

Public expenditure on agriculture averaged 5% of national budgets, half of what was committed to the sector in Asia, where a Green Revolution was moving ahead at full throttle. In Africa, aid to agriculture nearly halved, falling from US$1.7 billion to US$1 billion. By 2001, it was a negligible 6% of the aid flow. Conversely, food aid and emergency assistance almost doubled. In yet another donor trend, it was believed that poverty reduction would best be achieved by addressing the effective delivery of social services to rural populations. A decade later, it was recognised that social services on their own were not an engine of growth and did little to underwrite the expansion of agriculture.

Why were African governments and donors losing interest in the agricultural sector? It has been suggested that enthusiasm for Asian agriculture was triggered by the success of high-yielding wheat and rice varieties that were released to farmers in the 1960s. In contrast, African agricultural projects had posted a stunningly high failure rate from the 1960s through the 1980s. It was no coincidence that research on the continent also trailed behind Asian research. In fact, donors tended to import Asian experience and models into Africa, but they held limited value in a continent of such dazzling variety. Africa has eight major staple food crops, eaten by people who speak 1,000 languages and live in heterogeneous rainfed production systems. Unsurprisingly, Asian crops, literally, did not take root. It was clear to the interested observer that to put agriculture back on its feet, changes had to be made.

It was no coincidence that research on the continent also trailed behind Asian research. In fact, donors tended to import Asian experience and models into Africa, but they held limited value in a continent of such dazzling variety.





A noticeable exception to the continent's lacklustre performance was in Zimbabwe in the 1980s, where smallholders were growing impressive surpluses of rain-fed maize. The national research organisation had been developing hybrid maize varieties since 1932. There was an excellent network of all-weather roads to give easy access to markets. Further, the government had a strong extension service and seed distribution system.

There was a lesson to be learned here. It seemed that what Africa needed was vibrant research and extension systems to streamline the adoption of the latest technologies, access to inputs and markets, and a solid infrastructure. There were three more crucial ingredients needed for the mix—none of this would happen without political will, commitment to action and greatly increased funding flows.

It would be wrong to think that the West had entirely ignored investing in agriculture in Africa. In 1985, a group of donors, under the leadership of the World Bank, created the Special Programme for African Agricultural Research (SPAAR). It was the outcome of an external review of the CGIAR Centers that had concluded that the organisation's research was good but ineffective, as it was not being disseminated through the National Agricultural Research Institutions (NARIs). 'The obvious question was why, with so much investment, CGIAR research wasn't useful. Well, according to the NARI scientists, they didn't have anywhere near enough money to validate, adapt and adopt the technologies being generated by the CGIAR Centers,' commented Dr Eugene Terry, a Sierra Leonean scientist, who

was the Director General of the West Africa Rice Development Association (WARDA), a CGIAR Center, and later worked with the World Bank.

While SPAAR's ultimate objective was to interlink food security and economic growth in a way that was environmentally friendly, the instruments for achieving this were the NARIs. SPAAR's principal mission was to encourage their reform so that they could operate at maximum potential. This meant strengthening regional research and its delivery. In other words, ensuring that there was a working connection among research, extension and the farmers. It was a noticeable shift away from the conventional aid paradigm of stand-alone projects (so many of which had not lived up to their promise). SPAAR was designed to persuade donors to invest in building local capacity and to share their programme plans to avoid project duplication.

Nine years later, in 1994, the donors took another enlightened step along the journey towards genuine North-South collaboration. Recognising that African institutions should and could be effective agents for development, they opened SPAAR's doors to Africans. The expanded membership converted SPAAR from an exclusive club into an inclusive coalition. It was an unremarked yet important milestone in the evolution of the aid culture. Africans had become equal players. For the first time, they were being asked to set their priorities when seeking funding for the agricultural sector.

New members of SPAAR included the fledgling SROs that acted as the umbrella organisations for NARIs. They were East and Central Africa's Association for Strengthening Agricultural Research in East and Central Africa (ASARECA), West and Central Africa's Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (CORAF) and Southern Africa's Southern African Centre for Cooperation in Agricultural and Natural Resources Research and Training (SACCAR).

Taking ownership

It was around this time that Mr Kim Jaycox, the World Bank's vice president for Africa, started pushing for further change. According to Terry, he said to the African members, 'It's time for you Africans to take appropriate action to guarantee your ownership of this organisation. Right now, you are far too dependent on the World Bank and any other donor who just happens to have some spare change as small as US$200,000. They will dictate direction and activities and you Africans will have very little leverage.' Jaycox also saw African ownership as a means of persuading African leaders to commit greater resources to agriculture.

'It was clear that the leadership in agricultural science had very little say in what was being done in their name. The people who held sway were those who had the money. Jeff Hill of USAID was very instrumental in whatever programmes were being supported under SPAAR and, by extension, the direction research should take. He too agreed with Kim that we should take our destiny into our own hands,' observed Terry.

Dr Moctar Toure

Dr Papa Seck

Dr Kanayo Nwanze

Dr Cyrus Nderitu

Dr Romano Kiome

Parallel to Jaycox's machinations, a home-grown movement was developing among a group of visionaries who could see that Africa's future lay in the soil. All of them were scientists, who lived and breathed agricultural research, and they shared another common denominator. They were senior administrators in ministries of agriculture, NARIs or one of the SROs. Almost all of them also enjoyed a regular working relationship with the Food and Agriculture Organisation (FAO) and CGIAR. They met each other on a frequent but irregular basis at regional and international meetings, brainstorming during the coffee breaks or at the end of the day on how to create a genuinely African voice for agriculture.

This group included Dr Joseph Mukiibi, who was fond of saying that he was the midwife at FARA's birth. [Now retired and living on the outskirts of Kampala, he was the Director General of Uganda's National Agricultural Research Organisation (NARO)]; Dr Moctar Toure, a Senegalese and World Bank career official, who was the executive secretary of SPAAR; Dr Papa Seck, his fellow countryman, who headed the Institut Sénégalais de Recherches Agricoles (ISRA) and took over as the Director General of WARDA from the Nigerian head, Dr Kanayo Nwanze, who, as the leader of WARDA, wrote the first FARA vision statement; Dr Cyrus Nderitu, who first headed the Kenya Agricultural Research Institute (KARI) and then was instrumental in establishing ASARECA; his KARI successor, Dr Romano Kiome, who had made his mark by calling for CGIAR alignment with African priorities; and Dr Florence Wambugu, another Kenyan, who was one of the founders of the NGO, Africa Harvest. (She was later to sit on the board of the Bill and Melinda Gates Foundation and won the Yara prize for her efforts in tissue-culture-banana technology in 2008.) Southern Africa offered three more dynamic women: Mme. Bongiwe Njobe, now a rising star in the corporate world, who was the Director General of South Africa's Department of Agriculture; Mme. Njabulo Nduli, who later succeeded her in the same position; and Dr Regina Gata, Director of Zimbabwe's Research and Specialist Services and President Robert Mugabe's sister. Finally, there was Dr Shadrack Moephuli, a South African, who at the time was in charge of the ministry's research department and who now heads the Agricultural Research Council.

These intellectuals had for some time been pushing for more attention to be paid to genuine African needs at the CGIAR meetings. They recognised that agricultural development would not seize the interest of politicians until it was proven to increase crop yields and raise the smallholder's median income level. There had to be a fundamental shift in the approach to spurring growth. It required, they all agreed, investment in human capital, new technology and institutional renovation.

How to do this to achieve optimal impact was the next question. On the one hand, Africa's many small countries meant there were nearly 400 distinct research agencies (eight times the number in the United States). On the other hand, there were agricultural research

profits from economies of scale. There was no sense in every NARS inventing a wheel. Africa is nine times the size of India and has numerous and varied local ecologies, a large number of which do not respect national borders. Universities commonly attract up to 25% of the student body from neighbouring countries. Other issues such as policy formulation for trade talks with the Organisation for Economic Cooperation and Development (OECD) countries obviously gained weight when collective bargaining was brought into the equation. Sharing experiences, learning processes and research breakthroughs, in fact information of every kind, was cost-efficient and a quicker route to solutions. Collaboration was the obvious way forward.

There was by no means any consensus on the creation of an African body. Most donors and NARS were for it.

'Those who championed the idea argued that there was ample room for collaboration as the NARS were weak but had problems in common such as soil depletion and drought,' said Mukiibi. But there were also dissenters. Gata protested that another organisation would add yet another layer of bureaucracy and divert funding from the NARS. It would also generate a power struggle between the continental body and the sub-regional bodies she warned.

'It was challenging because we were dealing with a concept that had not been tackled before. We needed a critical mass if it was to take off, but not all of us subscribed to it. For instance, the SROs were slow to give FARA their stamp of approval. We also had to convince our governments that this was a business we had to be in,' pointed out Moephuli.

These intellectuals had for some time been pushing for more attention to be paid to genuine African needs at the CGIAR meetings. They recognised that agricultural development would not seize the interest of politicians until it was proven to increase crop yields and raise the smallholder's median income level.

Dr Monty P. Jones

Dr Shadrack Moephuli

Mme. Njabulo Nduli

Mme. Bongiwe Njobe

Dr Florence Wambugu

If FARA was to be effective, its founders had first to rally the support of policymakers around the world – a somewhat daunting task.

Fortunately, the timing was such that the African scientists' and the World Bank's ambitions neatly converged. There was another reason for moving with urgency. The World Bank was being treated as the lender of last resort. It was being called upon to fill increasingly wider gaps in the SPAAR budget. Jaycox and his successor, Jean-Louis Sarbib, were under pressure to extricate the Bank from that unspoken obligation. At the 1996 SPAAR plenary session, the African caucus laid the groundwork for the creation of an apex body that could speak with a single voice for African research bodies at the Global Forum for Agricultural Research (GFAR).

On February 18, 1997, FARA was discussed at SPAAR's 17th plenary session in Bamako, Mali. The SROs convened FARA's Constituent General Assembly that same day to outline a protocol. Dr Maurice Onanga,

CORAF chair and director general of the Congo Brazzaville's Delegation Generale de la Recherche Scientifique et Technique (DGRST), was elected as chair. The executive committee comprised two members from each of the three SROs. The SROs were to provide the secretariat on a rotational basis. CORAF was the first to host the secretariat with SPAAR's assistance.

The future roles of FARA, SPAAR and the SROs and their interrelationship were still unclear. It was decided at the meeting to conduct a Second External Programme and Management Review led by the International Service for National *Agricultural* Research (ISNAR). The review and its structural recommendations would be presented at the next plenary session. The question that overshadowed the whole exercise was whether or not FARA and SPAAR should merge.

The debate on FARA's future has been variously described as 'lively', 'difficult' and 'extended'. It took place in 1998 at the 18th plenary in Arusha, Tanzania. Despite the external review's recommendation that FARA and SPAAR merge, the SROs and the FARA teams opposed it. A heated discussion ensued. When it came down to the vote, the majority rejected the idea. Instead, a FARA/SPAAR taskforce chaired by Dr Nwanze was asked to draw up a vision statement on the future direction of agricultural research.

In 1999, at the 19th plenary in Gaborone, Botswana, the *Vision for African Agricultural Research* was endorsed.

Dr Lucas Gakale of Botswana, chair of the Southern African Centre for Cooperation in Agricultural and Natural Resources (SACCAR), was elected as the new chair. He resigned shortly afterwards following his appointment as his country's permanent secretary for agriculture.

If FARA was to be effective, its founders had first to rally the support of policymakers around the world—a somewhat daunting task. It fell to Mukiibi to take to the road with the *Vision* report. In April 1999, he presented it to the agriculture ministers at the Global Coalition for Africa in Nairobi. The following month it was tabled before finance and planning ministers at the Economic Commission for Africa in Addis Ababa and at the CGIAR mid-term meeting in Beijing. To everyone's relief, the response was enthusiastic.

At the 2000 plenary session in Conakry, Guinea, it was agreed that FARA would serve the interests of the SROs and their NARS. The meeting was chaired by SPAAR with Mukiibi, Gakale's replacement, as co-chair. At the 2001 plenary in Addis Ababa, these roles were reversed and Mukiibi chaired the meeting. The three SROs —ASARECA, CORAF and SACCAR—signed FARA's constitution into existence. FARA was on its way to becoming an entity in its own right.

Dr Seyfu Ketema, Executive Director, ASARECA

At the 2001 plenary in Addis Ababa, the three SROs —ASARECA, CORAF and SACCAR—signed FARA's constitution into existence. FARA was on its way to becoming an entity in its own right.

Source: AfricaRice

Bintu had always somehow managed to eke out a living for herself and her family. Each season she planted dryland rice on land that she had slashed and burned, a method that temporarily released nutrients into the fragile soil.

Ghana becomes FARA's home

After nearly 50 years of independence, most of African countries entered the new millennium challenged by aid agencies on how to better channel development aid in the continent. Reports showed a staggering amount—US$4 billion per year—spent on consultancy services in the name of aid delivery for Africa. Donors were posing questions as to who was going to help African nations develop agricultural strategies that were visible, relevant and productive.

With such an environment among donors, having a secretariat in Washington DC to coordinate their investments in Africa was not going to help achieve the desired outcomes. But they were desperate to find a leader who would have the authority to talk to the African nations and get their endorsement, as well as talk to donors to convince them to continue their investments in African agricultural research, at a time when short-term results were more important than long-term investments.

The story at the ground level was quite different. These high-level discussions did not appear immediately relevant to the daily struggle of the ordinary farmer. Take Bintu's story for instance, which is representative of many farmers. She lived in Côte d'Ivoire and was taking part in a participatory research project on rice breeding, a new approach to technology transfer that was becoming popular among scientists.

Bintu had always somehow managed to eke out a living for herself and her family. Each season she planted dryland rice on land that she had slashed and burned, a method that temporarily released nutrients into the fragile soil. Pesticides and fertilisers were beyond the reach of her meagre budget. When the time came, she harvested her crop panicle by panicle, gathering less than one tonne per hectare. Bintu discovered that each time she planted in the same field, the yield reduced and the weeds grew in greater profusion. So each time she slashed and burned a new field after two or three crops.

Bintu's parents had let the land lie fallow for at least 10 years before planting again. But population pressure in the area around her village meant she did not have the luxury of that option. Neither could she grow one of the high-yielding rice varieties that drove Asia's Green Revolution. These semi-dwarf varieties could not compete with Africa's

They were desperate to find a leader who would have the authority to talk to the African nations and get their endorsement, as well as talk to donors to convince them to continue their investments in African agricultural research, at a time when short-term results were more important than long-term investments.

It is estimated that if just one out of four rice farmers in the major rice-growing countries of Guinea, Côte d'Ivoire and Sierra Leone adopts NERICA, those countries will save US$20 million on their import bills.

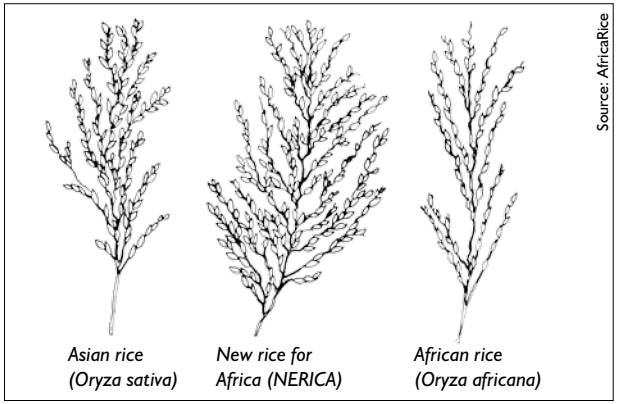
Source: AfricaRice

Source: AfricaRice

voracious weeds or tolerate the drought and pests that beset Cote d'Ivoire's rainfed smallholdings. Bintu was locked into a cycle of environmental degradation and poverty.

Then, in 1996, Bintu was invited to join in participatory research for a new species of hybrid rice. It had been developed by a team of scientists at WARDA, who had drawn on a gene bank of some 16,000 rice varieties for their work. For decades, researchers had been trying to combine the rugged features of African rice with the high-yielding potential of Asian rice. Success had been elusive because the two species had evolved separately for millennia and the genetic differences were great.

The team, led by Dr Monty Jones, used molecular biology to overcome sterility. By the mid-1990s they were testing these new varieties (New Rice for Africa or NERICA) in rainfed conditions. Their singular trait was hybrid vigour, which in lay terms means they grew



Source: AfricaRice

quickly, had high yields and were resistant to drought and pests. NERICA raised the 'yield ceiling' of upland rice by 50%.

During 1997 and 1998, SPAAR members, including the World Bank, the Japanese authorities and the Rockefeller Foundation, funded farmer-managed on-farm trials. By the dawn of the new millennium, NERICA had been adopted as the model by national programmes in 17 countries in West and Central Africa, at first using the foundation-supplied seed and then the seed produced by the community.

Today more than 200,000 hectares are under NERICA. It is estimated that if just one out of four rice farmers in the major rice-growing countries of Guinea, Côte d'Ivoire and Sierra Leone adopts NERICA, those countries will save US$20 million on their import bills. In 2008, African rice growers harvested a bumper crop of 26.2 million tonnes (which included other varieties), an 18% increase over the previous year. NERICA may also prove valuable to rice producers in the drier environments of Asia and Latin America.

The development of NERICA, which was led by WARDA, was one of the prime examples of the international research collaboration that FARA sought to encourage in agricultural research for development throughout the continent's NARS. Participation came from the International Rice Research Institute, the Yunnan Academy of Agricultural Sciences, the University of Tokyo, the Japan International Centre for Agricultural Science, the International Centre for Tropical Agriculture, the French Institute of Research and Development and Cornell University.

The man who headed WARDA then was Eugene Terry. Later Kanayo Nwanze, who was the architect of the seminal *Vision for African Agricultural Research,* was at the helm. The vision called for a 6% growth in agriculture across the continent, a rallying cry that has been adopted as the agricultural sector's mantra. Later it became the guiding framework for agricultural R&D in Africa and the blueprint for NEPAD's Comprehensive Africa Agricultural Development Programme.

FAO steps in

In 2000, the World Bank asked FAO for assistance in setting up FARA in FAO's Regional Office for Africa, in Accra. The task fell to Dr Isabel Alvarez, Chief of the Research and Technology Development Service. She cast around for an organisation on which to model FARA, but could find none. The most likely prototypes would have been the Association of Agricultural Research Institutes in the Near East and North Africa (AARINENA) and the Asia-Pacific Association of Agricultural Research Institutions (APAARI), but they were associations of research institutions rather than forums. At this stage, the establishment of FARA assumed a certain urgency. Its formation process had dragged on too long.

'With all this rush to get FARA established as soon as possible, it was decided that the fastest way to set up FARA was as a FAO project through an agreement between ASARECA and FAO. The funds were provided

The development of NERICA, which was led by WARDA, was one of the prime examples of the international research collaboration that FARA sought

Eugene Terry

Kanayo Nwanze

Monty Jones

Above: Myra Wopereis-Pura
Below: Ralph von Kaufmann

by SPAAR to ASARECA and FAO for implementing the project,' explained Alvarez.

The agreement between FAO and ASARECA was signed at the first FARA General Assembly in Maputo, Mozambique, in March 2002. Nearly 100 people from African and international research organisations as well as civil society organisations and investors attended the meeting.

The way was now clear to hire an executive secretary to run the fledgling secretariat. The recruiting panel put out the word that they were looking for a researcher whose skills extended well beyond science. The position called for a rare mix of leadership and management skills combined with vision, diplomacy and determination. A good dollop of bulldog tenacity would not go amiss either.

By July they had found the perfect candidate. It was Monty Jones, a Sierra Leonean who was deputy to WARDA's Nwanze and, of course, the man who had led the NERICA research team! (Time and again FARA's fledgling years were peopled by an extended family of scientists.) Jones had a compelling profile. A breeder by training, not only was he well aware of the difficulties in getting technology to the farmers but he also understood the importance of involving the farmers in variety selection. He had imbibed an intimate knowledge of every aspect of technology dissemination and implementation from petri dish to planting due to his involvement in the development, trials and launch of NERICA.

'Monty is a self-starter, very consultative and very hands on. FARA needs that. He's hardworking, honest, frank, passionate about the success of agricultural research. He really wants to see it take off,' observed Shadrack Moephuli.

Jones moved into the FAO regional offices in Accra, Ghana. In October that year, Myra Wopereis-Pura, a Filipino colleague from WARDA who had been instrumental in the dissemination of NERICA, joined him. Wopereis-Pura initially committed only to a consultancy, commuting on a weekly basis from Togo where she lived with her Dutch scientist husband. 'Don't be fooled by her size. She's very dynamic,' Jones would tell people who had yet to meet her.

The last to join FARA's founding triad was Ralph von Kaufmann. A Kenyan of German and British descent with a background in livestock, he had spent many years with the International Livestock Research Institute (ILRI). Kaufmann had worked with Jones at the 2002 World Conference on Sustainable Development in Johannesburg. It was Jones' first big conference as FARA's head. Kaufmann was in the midst of developing the Sub-Saharan Challenge Programme (SSA CP) for the CGIAR Centers. FARA was pursuing the SSA CP too as it was a solid and unique programme that would attract donors. Dr Carlos Sere, ILRI's director general, who was from Uruguay, well understood the importance of an overarching organisation to champion the causes of smaller countries. Sere agreed to let Kaufmann continue to work on the SSA CP even though it was now a FARA programme. In February 2003, Jones and Sere agreed that he switch to the FARA payroll to head the SSA CP taskforce. It was the start of years of frequent

commutes from Nairobi, Kenya across the continent to Ghana.

The World Bank had committed US$430,000 as one-year start-up money for the secretariat. As seed money, it was generous. Nevertheless it was a struggle to make ends meet. FARA was working out of four rooms in the FAO building. They were linearly located so that in order to reach Jones at his desk in the farthest office, a visitor had to pass through the neighbouring offices. It was less than ideal but none was complaining. However, Jones longed for increased autonomy. The donors, on the other hand, were happy that FAO's involvement meant a guarantee of international standards for FARA's control systems.

That August, a year after starting work for FARA, Jones moved the office and his staff of three into a house in the Accra suburb of Roman Ridge. They were Wopereis-Pura, secretary Josian Gaveh, who later became the purchasing officer, and driver Emmanuel Appiah, who continues to chauffeur Jones to this day. The move was typical of what was to prove to be Jones' operating style of 'action now not later'.

'It suddenly dawned on us that we had a lot to do. We had no legal status, no bank account, and it was just the four of us. We were working 10-hour days, seven days a week,' recalled Wopereis-Pura. ILRI helped by providing an interim FARA account within their system. They signed the cheques whenever they could, but local suppliers had to be paid in cash, which gave rise to some inevitable logistical problems. Jones' undeniable charm persuaded the ever-accommodating Ghanaian government to award FARA diplomatic status in record time. The agreement was signed that October.

More problematic was the relationship with potential donors. There was some controversy over the unusual financial arrangements and lack of a proper accounting system. It was a time when development partners were relaxing the controls on disbursements but, in return, they wanted to be reassured that beneficiaries were regulated by sound in-house financial controls.

Meanwhile FARA was standing on the edge of a fiscal canyon. It could either build a bridge across the gap or fall into it. The African Development Bank (AfDB) had committed nearly US$550,000 and the World Bank a further US$300,000 for core funding for 2003. There was also US$418,000 for the development of the SSA CP proposal. FARA had one year to build the credibility and reputation that would persuade donors that it was worth supporting.

'It suddenly dawned on us that we had a lot to do. We had no legal status, no bank account, and it was just the four of us. We were working 10-hour days, seven days a week,' recalled Wopereis-Pura

FARA's first project was the CGIAR SSA CP, which is now under Networking Support Function (NSF) 5. It was a rocky path to gaining approval. FARA took the CGIAR system head on, deliberately intending to break the mould of traditional scientific thinking. It was to be a hard-fought battle for an organisation that was still setting up shop and had no past performance record on which to peg its reputation.

Breaking with scientific convention

'It's nonsense to say there's good technology on the shelf. If it's not being taken up there's something down the line that has not been sorted out,' Ralph von Kaufmann, Director for Capacity Strengthening, FARA

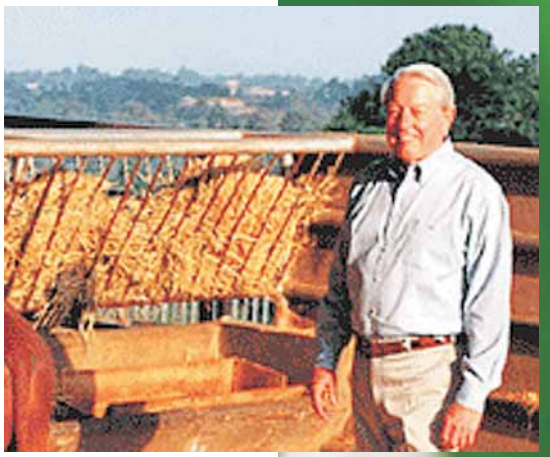
FARA's first project was the CGIAR SSA CP, which is now under Networking Support Function (NSF) 5. It was a rocky path to gaining approval. FARA took the CGIAR system head on, deliberately intending to break the mould of traditional scientific thinking. It was to be a hard-fought battle for an organisation that was still setting up shop and had no past performance record on which to peg its reputation. When the dust settled, a five-year programme of innovative and untried research methodology was launched. On top of that, FARA was the first and only non-CGIAR organisation to be mandated to manage a Challenge Progamme. Measured against any yardstick, it was no mean achievement.

In late 2001, ILRI's director general, Hank Fitzhugh, had pointed out to his colleague Ralph von Kaufmann, 'Do you realise that there are no Challenge Programmes for Africa? I think we should do something about that.' The Challenge Programmes were a new idea coming out of CGIAR. They consisted of high-impact research into complex issues that involved collaboration with partners inside and outside the CGIAR system. Three programmes were in the process of approval for launch on a pilot basis in 2003. As Fitzhugh had pointed out, none of them was intended specifically for Africa.

Fitzhugh had already discussed this with his CGIAR colleagues at a meeting in Ibadan, Nigeria. They agreed it was a grave omission. That was the green light for the two ILRI men to start brainstorming. The traditional linear process of passing research products on to the extension services and ultimately the farmers was inefficient. They wanted to come up with a participatory innovation systems approach to research, extension and education that involved everyone. What emerged were the bones of a methodology for instilling sustainability into agricultural production through tackling interlinking problems such as declining soil fertility, poorly functioning markets, unsupportive policies, inadequate infrastructure, weak institutional linkages and labour constraints.

Convinced that an African institution should lead the programme, Fitzhugh asked Joseph Mukiibi, the FARA chair, if he would consider presenting the concept note *Improving Livelihoods*

FARA was the first and only non-CGIAR organisation to be mandated to manage a Challenge Progamme. Measured against any yardstick, it was no mean achievement.



Hank Fitzhugh

FARA saw the SSA CP as a pragmatic means for transforming NARI research from the conventional linear approach into a more interactive, participatory one.

Joseph Mukiibi

and Natural Resources Management in Sub-Saharan Africa on behalf of FARA. Mukiibi agreed. It was an act of faith. Not only was it still in the throes of being set up, FARA was not even a legal entity in its own right.

In response to the 2002 call for pre-proposals, 42 concept notes were submitted to CGIAR's interim Science Council. Of these, the Council approved 13 for development into a full concept note; only the FARA submission was approved for development into a proposal. The Rockefeller Foundation committed US$240,000 in addition to the US$200,000 that CGIAR had budgeted for the development of each Challenge Programme. The Rockefeller support was another gesture that underscored donor optimism about an organisation that enjoyed a zero track record.

FARA saw the SSA CP as a pragmatic means for transforming NARI research from the conventional linear approach into a more interactive, participatory one. There were far too many pitfalls between that eureka moment in the laboratory and the point when food was placed on a shop shelf. So why not look to the experts in production and marketing systems – industry. Big business that sank millions of dollars into product R&D had their eye on the bottom line. Companies made sure that sales and distribution were part of the strategy. They certainly did not abandon their sizeable investments to the whims of the marketplace or unreliable distributors once the product was ready to be launched. There was a lesson to be learned here. In a departure from traditional research, the SSA CP would include the private sector and its sound business practices into its learning framework. It sought to be holistic and inclusive—universities, extension workers, policy makers, civil society and, above all, the farmers were an essential part of the process.

A new research paradigm

After months of discussion, it was agreed that the SSA CP would support research that integrated value-added production, natural-resource management, market access and agricultural policy. The idea was that multi-disciplinary and multi-institutional teams would implement the programme. This redefined the relationships of scientists and farmers and all the actors in between. While the problems—the volatility of food prices, inappropriate policies, environmental degradation—differed from those encountered in the corporate world, the approach was the same—pay attention to every step in the process of product development and marketing. It was a collaborative learning process, which was FARA's hallmark.

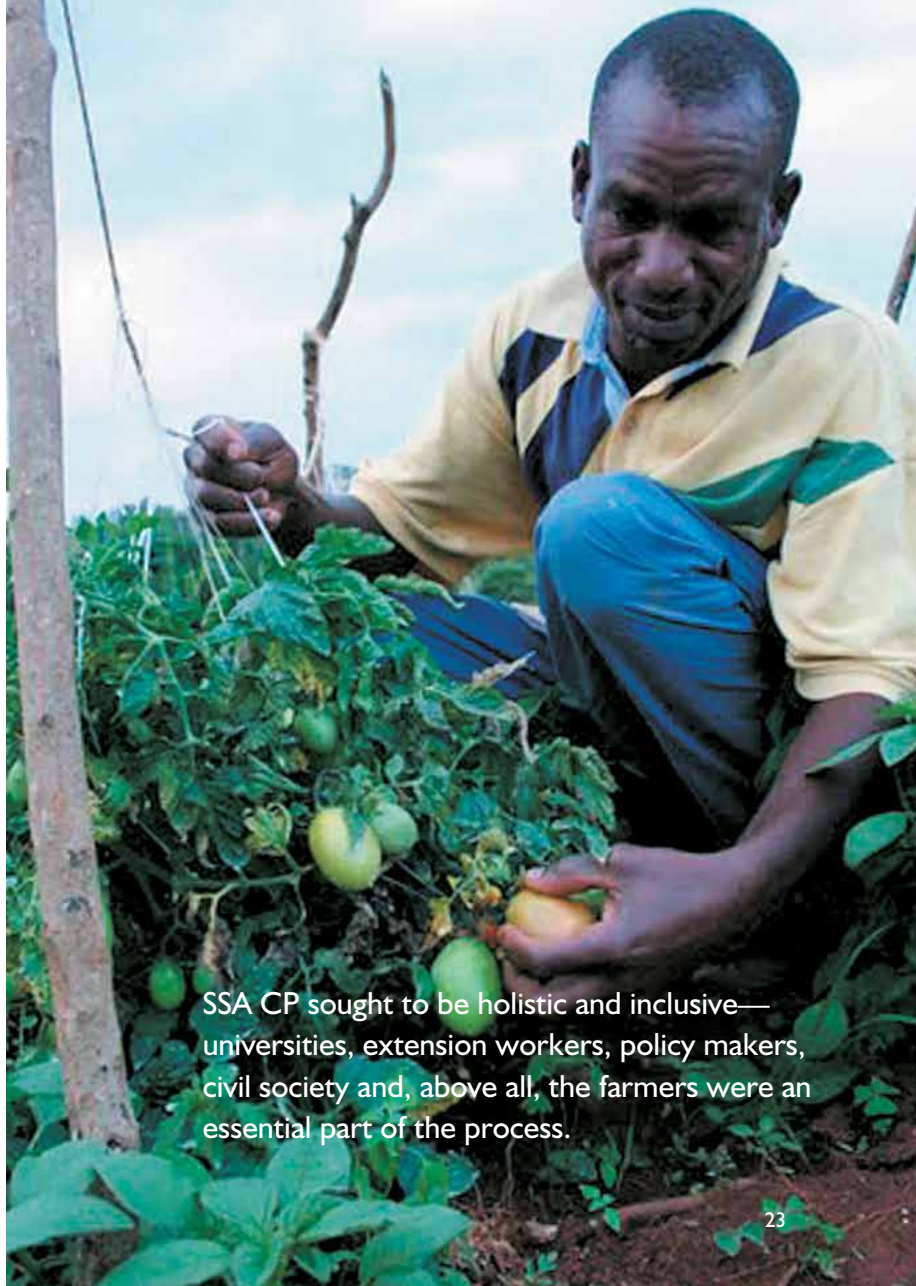
There was another component. The research conducted in the SSA CP was designed to create social capital through building capacity, improving management techniques and converting information into knowledge. To ensure that this fundamental shift in the research process was adopted by scientists and NARS, competitive grants were offered.

'It was a great out-of-the-box idea. But we didn't have a name for it,' explained Kaufmann. That was

soon resolved. At a proposal development workshop convened by FARA in Accra in March 2003, the term Integrated Agricultural Research for Development (IAR4D) was coined. Its objective was to eradicate food insecurity and poverty through research, policy support and capacity building. This new research paradigm concentrated on collaborative action to overcome the challenges that made it impossible for smallholders and pastoralists to improve their living standards. The same held true for others involved in the value chain such as transporters and retail agro-input dealers. The most pressing problems were market failures, inappropriate policies and natural resource degradation. At FARA's second General Assembly in Dakar, Senegal the following May, SSA CP was the hot topic for discussion. After all, it was the first integrated response to the Comprehensive Africa Agriculture Development Programme's (CAADP) call for action. It was generating a lot of excitement.

'We were entering a phase where relationships had become more mature. It was about everyone seeing the value in everyone else. The conversation was around collectively addressing what was needed in a collective way,' recalled Carlos Sere, who had succeeded Fitzhugh as head of ILRI in 2002. 'The SSA CP was timely. It moved right into that debate as did FARA. The institutional side matched up to the intellectual discussion.'

That August, the SSA CP proposal was submitted for review to CGIAR's interim Science Council. CGIAR



SSA CP sought to be holistic and inclusive—universities, extension workers, policy makers, civil society and, above all, the farmers were an essential part of the process.

‘There was a salient difference between this Challenge Programme and the others,’ added Sere, ‘it revolved around how you conduct science. Traditional reductionist science tries to address a specific problem in a focused manner. The SSA CP aimed to integrate knowledge and build local capacity to use that knowledge.’

promised their feedback to allow FARA to respond, but the deadline came and went and no queries had been raised. So when Monty Jones defended the proposal at the interim Science Council meeting in Berkeley, California that September, his mood was buoyant. All the signs pointed towards approval. However, the following day, Dr Emil Javier, the Council chair, told Jones that it had not gone through. There were points that needed to be worked on before it could be submitted to the CGIAR executive committee for consideration. The amendments were duly made but the proposal was not put into the pipeline. The Science Council was undergoing internal restructuring. It was not until the following year, 2004, that a reconstituted Council re-examined the SSA CP proposal.

Once again there was optimism in the air. FARA knew that the executive committee was keen on the idea of a

sub-Saharan project. But to its surprise, the committee was wary of IAR4D, which, they said, was a serious departure from what they thought the CGIAR should be doing. ‘CGIAR wanted us to first prove IAR4D, but how do you prove a concept that no one has worked on? The Science Council couldn’t equate research on processes—how to get things done—with the cutting edge science that they deemed appropriate for CGIAR. They were edging closer to fundamental science rather than looking around for innovative methodology to get more impact,’ said Kaufmann.

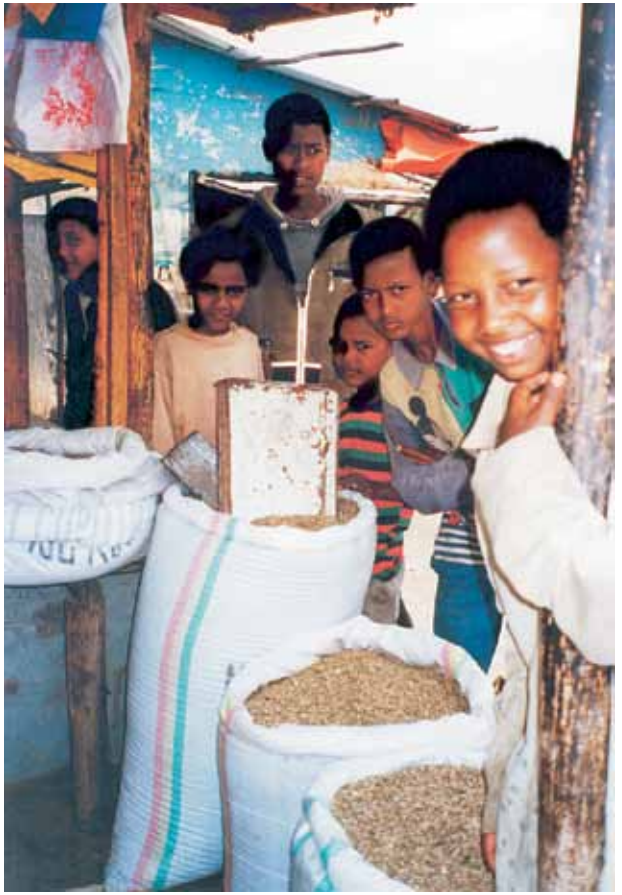
‘There was a salient difference between this Challenge Programme and the others,’ added Sere, ‘it revolved around how you conduct science. Traditional reductionist science tries to address a specific problem in a focused manner. The SSA CP aimed to integrate knowledge and build local capacity to use that knowledge. Of course, there are a lot of question marks—and a lot of skepticism—about how you can test these models. It’s the post-modern science approach. Give it a chance. See what comes out of it. Then have wider discussions on the analysis.’

It was a watershed moment for the newly formed secretariat. A global network of international research centres had expressed grave reservations about the SSA CP research approach. No donor money had been pledged for the following year, but the Europeans were showing keen interest, especially, Britain, Italy and the Netherlands. They saw the SSA CP as an entry point for more impact-oriented research from CGIAR. They

were even considering funding it as an independent FARA programme. The FARA family had pinned their hopes to the SSA CP's mast. Now its future was uncertain. Neither side was yielding ground. At the same time, FARA required funding to keep going. A solid programme with its genesis in a respected organisation was just what it needed.

For Jones, there was only one thing to do and that was not to renege on what FARA believed in. Compromise was out of the question. Development as well as research had to be intrinsic to the progamme. In the wake of an external review, CGIAR shared the comments, which Jones defended at the Science Council meeting in Rome, Italy in October 2004. The proposal was approved. IAR4D had emerged unscathed and intact. 'That was a milestone victory for us,' recalled Jones of the US$2.2 million project.

It was the first of several battles that FARA had fought and won against the conventional wisdom of the establishment. Years later this once controversial approach was vindicated by FARA's old friend, the World Bank. The 2008 *World Development Report* stated, 'To improve the efficiency and effectiveness of R&D, collective action and partnerships involving a variety of actors in an innovation systems framework are emerging as important. Such a framework recognises multiple sources of innovation, and multiple actors as developers and users of technologies, in a two-way (nonlinear) interaction.'



It was the first of several battles that FARA had fought and won against the conventional wisdom of the establishment.

NEPAD had been sanctioned as a framework for action at the 2001 Organisation of African Unity Summit.
It was as young as FARA and a cause for optimism as it intended to muster political support for agriculture just as FARA did.

The FARA-NEPAD partnership

During its first year of operation, FARA drafted its strategy: *Catalyzing innovation and change in agricultural research for development in Africa: the role of FARA*. It itemised FARA's five primary functions.

- Advocacy of the role of research
- Promotion of functional partnerships and strategic alliances with major stakeholders
- Accelerating sharing and exchange of knowledge on agricultural research and production in Africa
- Stimulating development and dissemination of new technologies and methodologies in natural and genetic resource management and biotechnology
- Stimulating agricultural policy and market development

However, at the Dakar General Assembly in 2003, it was agreed that for the time being FARA would concentrate on three aspects:

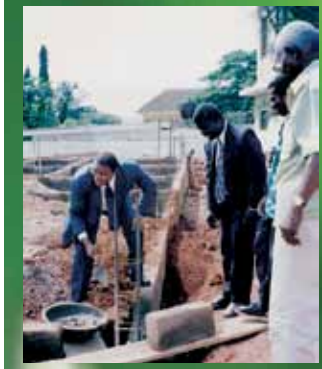
- Advocacy for investment in agricultural research
- Promoting partnerships
- Enhancing information exchange

The same month that it moved into its own offices—August 2003—FARA held the first SRO-FARA retreat. This annual occurrence has since become a vital forum for airing grievances, solving problems and renewing the relationship between FARA and the SROs. The first retreat was dominated by consultations that set the stage for implementing programmes and cultivating partnerships.

One of the first major activities initiated by the new Chairman and Vice-Chairwoman to the Executive Secretary was to invite the SRO leaders to a retreat, which took place in the newly established FARA Secretariat offices in Accra, Ghana, 26–27 August 2003.

The most important of these alliances was with the New Partnership for Africa's Development (NEPAD). NEPAD had

Ground-breaking for FARA's building, and below: the first FARA office



"We agreed that FARA would play a central role in the support of the CAADP process because it could provide the momentum to get us there. At the continental level, you need a movement of agricultural scientists to push agendas globally and within Africa," Mkandawire said.

Prof Richard Mkandawire

been sanctioned as a framework for action at the 2001 Organisation of African Unity Summit. It was as young as FARA and a cause for optimism as it intended to muster political support for agriculture just as FARA did. NEPAD had created CAADP, and as such, FARA and CAADP were obvious partners. FARA and CAADP co-incided with the Commission for Africa headed by Tony Blair and the UN Campaign to End Hunger in Africa.

At the 2003 African Union (AU) summit in Maputo, Mozambique, the CAADP action plan was adopted and agriculture ministers committed to increasing agricultural investment to a 10% share of their national budget. It was agreed that FARA would shape an action plan that conformed to NEPAD priorities. This encompassed economic and social transformation through poverty alleviation, food security, a productive and competitive agricultural sector, dynamic markets, active private sector participation and deployment of science and technology for the sustainable use of natural resources.

Prof Richard Mkandawire had been invited to speak at the FARA General Assembly held in Dakar earlier that year in his capacity as the head of CAADP within the NEPAD secretariat. He had heard little of FARA and had no clear idea of how it operated until Monty Jones approached him and explained what the forum did. 'The face of agriculture was changing. There was more pressure from politicians. They knew that it's (sic) a short step between food shortages and civil disturbance. When the heads of state endorsed CAADP it was a clear message from Africans that agriculture was the driving force behind poverty reduction. We agreed that FARA would play a central role in the support of the CAADP process because it could provide the momentum to get us there. At the continental level, you need a movement of agricultural scientists to push agendas globally and within Africa,' Mkandawire said.

At first, FARA's role in respect of NEPAD was to provide technical and scientific advice and support to both NEPAD and the Council of Ministers of Agriculture and Trade in Africa. Then later, in November 2005, FARA signed an agreement with the African Union and NEPAD at a meeting in Kigali, Rwanda that gave it the mandate to act as CAADP's technical arm for agricultural research and technology and the AU's adviser for its Department of Agriculture, Rural Development and Economy.

CAADP recognised that growth and poverty reduction required the cost-efficient absorption of new technology through linkages that encompassed research and extension systems and the African farmer. This meant delivery systems that called for cutting edge information and communication technology. It also meant instigating a renaissance of the NARIs. CAADP's Pillar IV research programme focused on four themes. All these areas needed scientific capacity building:

- Integrated natural resource management
- Adaptive management of appropriate germplasm
- Development of sustainable market chains
- Policies for sustainable agriculture

NEPAD mandated FARA to be the lead institution for CAADP Pillar IV because it was tailor-made for the job. The Secretariat's advocacy on behalf of CAADP became a key activity and the bedrock for FARA's networking activities. FARA's first task was to lead the participatory development of the Framework for African Agricultural Productivity (FAAP). It was a lengthy process that involved extensive consultations with NEPAD and FARA's constituency. FAAP was endorsed by the AU summit in June 2006. Its guiding principles were dynamic markets, export, food security and the conservation of natural resources. Like SPAAR it aimed at harmonised investment in agricultural research. The goal was to double spending on agricultural technology generation and dissemination. Its matrix, consistent with achieving 6% GDP growth in the agricultural sector, had survived unchanged from Kanayo Nwanze's *Vision for African Agricultural Research* that was penned in 1999.

It was generally agreed that Africa was sitting on the sidelines of the agricultural revolution because of declining investments in technology generation. In the light of this, FAAP and the concept of Multi-Country Agricultural Productivity Programmes (MAPP) developed concurrently with the lead taken in southern Africa by the Southern Africa Development Community (SADC) agricultural productivity programme to revitalise that region's NARIs.

MAPP sought to channel funds to SROs, NARS, national advisory services and the farmers themselves so that they could become involved in setting research agendas.

Even CGIAR Centers were included, with funding for system-wide initiatives and challenge programmes. It was hoped that this would enable agricultural systems to become flexible and competitive conduits of scientific innovation. MAPP's priorities had to be aligned to those of FARA and NEPAD. The MAPP concept was presented to the Africa Group at the 2002 CGIAR annual general meeting in Manila, Philippines. It was endorsed in 2003 at the 2nd FARA General Assembly in Dakar, Senegal.

There were two cornerstones to MAPP. One was demand-driven research and extension services based on national priorities that were designed to empower farmers with greater choice. The other was regional technology development and institutional capacity building. 'You are no longer thinking for the farmers. You are working with them as equal partners,' explained Jones.

'You are no longer thinking for the farmers. You are working with them as equal partners,' explained Jones.

Successful as NERICA rice had been in African conditions, its full potential had yet to be realised. The same held true for other technology advances for staple crops such as tissue culture bananas, drought-tolerant cassava and imidazolinone-resistant maize cultivars, a herbicide seed dressing technology for controlling the voracious weed *Striga*.

Value-added crops come to the countryside

FARA continued to keep sight of its mission to be a multi-faceted networking forum that exercised the principle of subsidiarity in everything it did. In addition to advocacy, it developed collaborative programmes that responded to the demands of SROs and other involved parties, which were carefully designed to advance scientific research and agricultural productivity in innovative and holistic ways. FARA realised that it was advantageous to shepherd the programmes in their early years. But this strategy of participatory oversight was clearly underscored with the intention of mapping out exit strategies once the projects had been internalised and could continue without FARA.

Acting as a facilitator but never a donor, FARA secured funding, which was passed on to the SROs for programme implementation. This management system ensured that variations of the same programme ran harmoniously in every region. Best of all, FARA was a prompt paymaster, so schedules were never held up through bureaucratic delays in the disbursement process.

However, by 2005, the SSA CP was still the only FARA-originated programme that was up and running. FARA had to prove to donors and the world at large that it was not simply a facilitator for CGIAR. At the same time, core funding from the AfDB was coming to an end in 2006. The question of how to move forward was tabled that June at the 3rd General Assembly in Entebbe, Uganda. Three years into its operations, it was time for FARA to recalibrate its sights. One of the ultimate outcomes was a generous pledge of US$23million from the AfDB to underwrite two new programmes. One of them was Dissemination of New Agricultural Technologies in Africa (DONATA), which comes under NSF 2.

Over the decades, NARS scientists, and farmers too, had developed promising technologies that significantly increased yields through improved germplasm and better husbandry. But adoption was modest because of shortcomings in training farmers and extension workers and the dissemination of planting materials—seeds, vines, tubers and cuttings. Successful as NERICA rice had been in African conditions, its full potential had yet to be realised. The same held true for other technology advances for staple crops such as tissue culture bananas, drought-tolerant cassava and imidazolinone-resistant maize cultivars, a herbicide seed dressing technology for controlling the voracious weed *Striga*.

The question of how to move forward was tabled at the 3rd General Assembly in Entebbe, Uganda.

DONATA can be distilled into four actions:

- Building a portfolio of tested technologies
- Assembling resources for dissemination
- Building capacity and sharing resources and techniques
- Joint learning by doing

The adoption of these technologies beyond their region of discovery was slow. FARA wanted to see NERICA rice thriving in the warm humid areas of coastal West Africa, the Great Lakes region of Eastern Africa and along the Mozambique coastal strip. The tissue culture technique used for bananas in the highlands of East Africa could be applied in the high rainfall areas of Central and Western Africa.

It was envisioned that these and other technologies would be scaled up through participatory approaches that involved farmers in the testing stage of any technology. This would allow farmers to select and adapt technologies that suited local soil and rainfall patterns which, coupled with indigenous knowledge, greatly increased the chances of success.

The idea was not only to introduce improved technologies, but to also ensure value addition. What was needed was an efficient delivery system. In other words, improvements in the value chain from laboratory to consumption. It was, as always for FARA, an ambitious vision that encompassed seed companies, traders, out growers, distributors, extension services, universities and tariff, and health and safety authorities.

Significantly higher farm yields coupled with targeted marketing projected a 20% increase in householder income. By organising themselves, farmers could slash input costs through collective procurement. The cost-benefit argument looked good on paper, but would it hold up in practice?

In 2006, FARA, in conjunction with NEPAD, developed DONATA. It was a way of ensuring that technologies that had been proven in programmes such as the SSA CP would be available to farmers throughout Africa. Apart from scaling up proven scientific research and farmer innovation, DONATA would serve to restore confidence in the ability of NARIs to deliver research into the field. The objective was to maximise the impact of investment in African agricultural R&D. In other words, it was a way of ensuring that the learning from the islands of R&D success that were scattered throughout the continent was shared. Another important aspect of DONATA was making improved seeds available to farmers.

'A dynamic system of innovation comprises private businesses, farmers, processors, regulatory bodies, and public R&D organisations operating in partnerships, networks or consortia.' This statement from the World Development Report 2008 could have been lifted from a DONATA brochure, so neatly did it reflect the programme's rationale.

Today DONATA is being implemented in eighteen countries by ASARECA, CORAF/WECARD and SADC-FANR (Food, Agriculture and Natural Resources Directorate). The stakeholders in each country decide which commodity or sector to choose as their critical building block for food security, higher income levels and good health. ASARECA promotes nutritious quality protein maize (QPM) and orange-fleshed sweet potatoes (OSP). CORAF/WECARD works on open-pollinated maize and improved cassava cultivars. SADC-FANR focuses on open-pollinated maize and sorghum value chains. Fieldwork began in 2008. A monitoring and evaluation (M&E) framework is being developed to

track progress and establish corrective measures as the project advances.

Demand-driven interventions

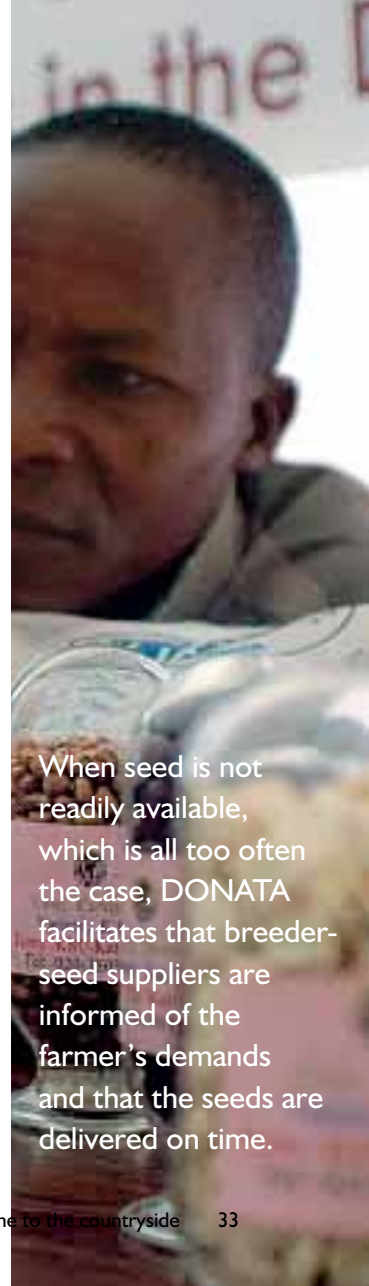
Dr Lydia Kimenye is the focal point for the nine DONATA projects in Eastern and Central Africa that are managed by ASARECA. Hers is a varied portfolio that ranges from working with the former combatants of the Lord's Resistance Army in northern Uganda to subsistence smallholders in the Democratic Republic of the Congo, Rwanda and Ethiopia and the more prosperous farmers of Kenya and Tanzania. The indicators of success have been quick in coming. For instance, one month after start-up, a commercial chicken breeder was already travelling to Gulu, Uganda to negotiate suppliers' agreements with former child soldiers who were growing the improved maize variety known as QPM.

The farmers are involved in participatory varietal selection and breeding approaches. They participate at every stage of developing and testing new varieties so that they can apply their indigenous knowledge to selecting and adapting technologies to local soil and rainfall patterns and to the socio-economic conditions. This structured and thoughtful approach can cut the protracted but necessary development and dissemination period from 7 to 10 years down to 5 to 7 years.

Initially, farmers are provided improved seeds free of charge, but subsequently they have to purchase the seeds with the proceeds of the previous crop. If they do buy seeds, it is a good indication that farmers are convinced of the benefits. Access to quality seed has been a perennial problem for farmers. Further, as everyone knows, (not least the farmer himself/herself) yield stability is critical when you are living at subsistence level. This is why one of Kimenye's priorities is to establish seed groups. These groups include not only farmers but also researchers and private companies if the crop is amenable to commercial seed (for example, maize). Farmers' associations are trained in production. These community-based organisations then hold demonstrations for other farmers on how to grow their own seed using the rapid multiplication and isolation method. Farmers are also trained in business skills so that they can sell seed surpluses to other farmers. In this way, a ripple effect is felt as more and more villages began to enjoy the benefits of the improved varieties.

When seed is not readily available, which is all too often the case, DONATA facilitates that breeder-seed suppliers are informed of the farmer's demands and that the seeds are delivered on time. This forms the basis for foundation seed and ultimately certified seed. All this takes time and slows down DONATA's programme implementation. As a result, private seed companies have become significant sources of improved hybrid varieties for smallholders.

Mrs Jacinta Wangu is one of the farmers who is participating in ASARECA's DONATA programme to promote QPM in Kenya. She lives on the edge of Mt Kenya's forest line down a narrow red-dirt lane flanked by stands of mango trees. Her six-acre farm speaks of prosperity. There are gutters around the stone house. Pigs squeal in their pens and Jersey and Guernsey dairy cows graze. Avocado and macadamia trees and tissue-



When seed is not readily available, which is all too often the case, DONATA facilitates that breeder-seed suppliers are informed of the farmer's demands and that the seeds are delivered on time.

'The kids like the porridge. It tastes sweeter. And I feel stronger since we started cooking with it,' she says with a smile.

culture bananas grow in profusion next to plots of coffee bushes, beans, vegetables and orange-fleshed sweet potatoes. Like the other 25 members in the Murimi Mwaro Self-Help Group, she is cultivating a demonstration plot of QPM and is already a convert. 'The kids like the porridge. It tastes sweeter. And I feel stronger since we started cooking with it,' she says with a smile. When asked how she learned to farm, she looked puzzled but did not hesitate to say, 'I grew up on a farm. It's always been there. It's in us.' Then after a pause she added, 'Of course, I attend refresher courses at the farmers' training centre.'

In the nearby town of Embu, the planning meeting for ongoing trials of QPM is in full swing at the Catholic Diocese offices. There has been no electricity since early morning and by 2 pm the meeting still has not broken for lunch. The men and women squeezed around the table—representatives from KARI, the Ministry of Agriculture and the Catholic Diocese—are not complaining. They are key players in establishing Embu's Innovation Platform for Technology Adoption and none wants to lose the momentum.

The Embu project has its particular challenges. The team will be working in three heterogeneous environments with marked variations in altitude, rainfall and soil type. The discussion centres around how to source a reliable supply of QPM seeds suited to each of these environments.

Scientists began developing QPM from a strain of Andean maize in the 1960s, but it was difficult to get a variety that resisted disease and offered a high yield while still tasting as good as the common maize. After lapsing for a while, the project was revived, particularly in Ghana, where local researchers developed a protein-added strain that matched traditional maize in taste, texture and colour. Maize seeds have since been taken from Ghana to be introduced in other countries in Africa. Kenya is one of five countries where DONATA is introducing QPM.

Ordinary maize is deficient in essential amino acids. QPM has a high protein content approaching that of skimmed milk. The World Bank has defined food security as 'secure access at all times to sufficient food for a healthy life.' This makes the point—long underscored by UNICEF with regard to giving children a head start in life—that food security includes the provision of food that is nutritious. One out of three children under five years of age in developing countries experience stunted growth due to a lack of micronutrients (vitamins and minerals) in their diet. Although absolute numbers of these children are on the decline worldwide, they have been increasing in Africa. Embu is typical of many farming communities where farmers must work with soil of average fertility. Crops grow well if properly managed but do not necessarily contain the micronutrients that children need to aid their growth and adults to maintain their immune systems and health.

The foundation partners of the Embu project are KARI, the Catholic Diocese, the Ministry of Agriculture and the farmers. KARI disburses ASARECA funds and oversees national coordination and M&E. As the implementing partner, the Diocese mobilises farmers into QPM villages and organises their training. The 'villages' consist of

farmers groups, marketing groups and groups involved in processing QPM to make value-added products. KARI's goal is to have 12,000 Kenyan farmers in QPM villages by 2012. Extension work, training of trainers and technology dissemination falls to the Ministry of Agriculture. The farmers provide the land, their labour and critical local knowledge. It is their job to manage demonstration plots, to do the processing and marketing and to create awareness in the communities regarding the benefits of QPM and its value-added products by conducting farmer-to-farmer training.

One of the DONATA principles is to add value to new technologies, as a part of which farmers are taught how to make porridge with QPM and grind it into flour for cakes and chapatis. Embu is densely populated and animals are reared by the zero-grazing method, so QPM also becomes a key ingredient in animal feed. The Ministry of Health, another partner in this system of mutually dependent relationships, promotes QPM baby food at mother-and-child clinics.

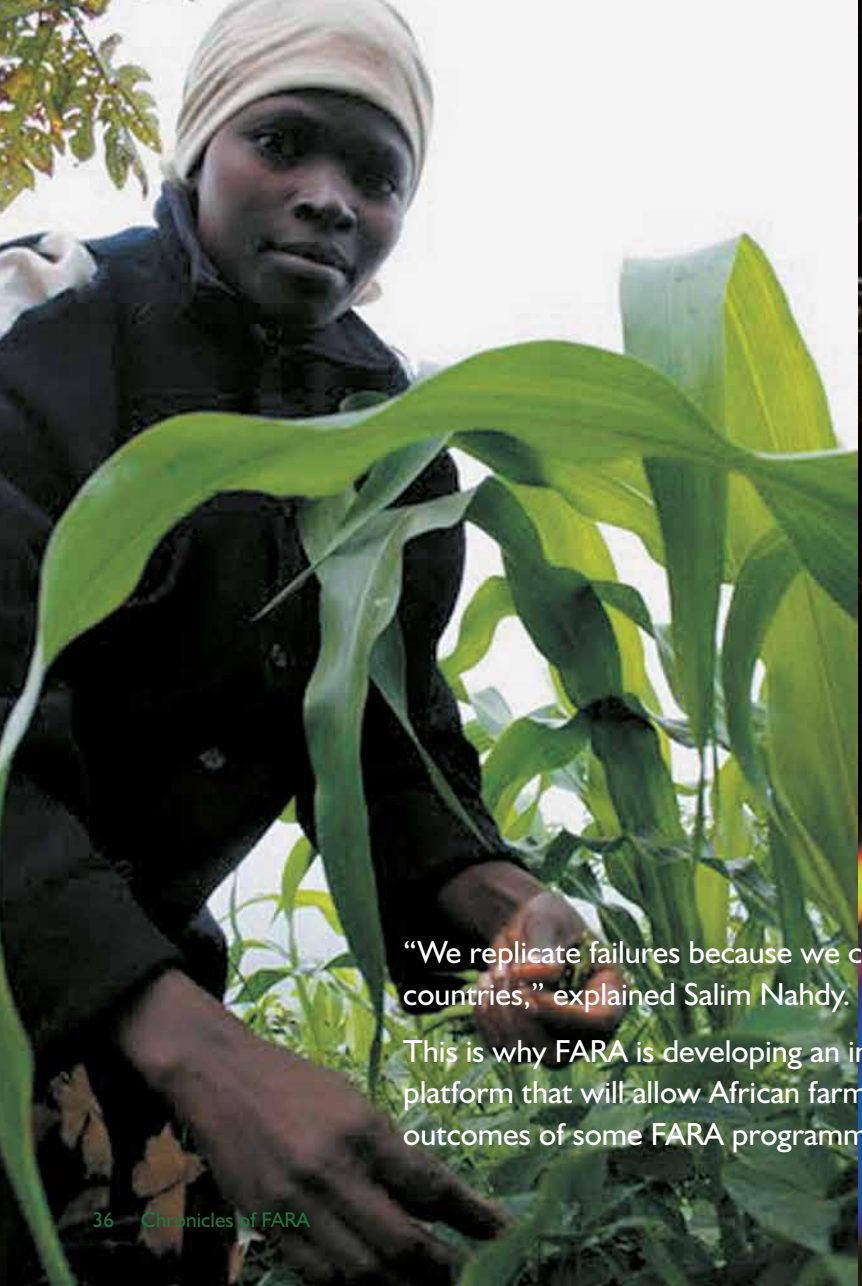
Another essential DONATA partner is the African Forum for Agricultural Advisory Services (AFAAS), which was established in 2004. It promotes networking in African agricultural services through meetings, conferences, symposiums, professional interactions, field visits and internet portals to share emerging innovations in advisory services. The objective is to ensure that agricultural extension programmes are efficient and effective. AFAAS is aligned with FAAP principles. It is a partner of FARA, which acts as mentor and, for the moment, provides a conduit for donor funds.

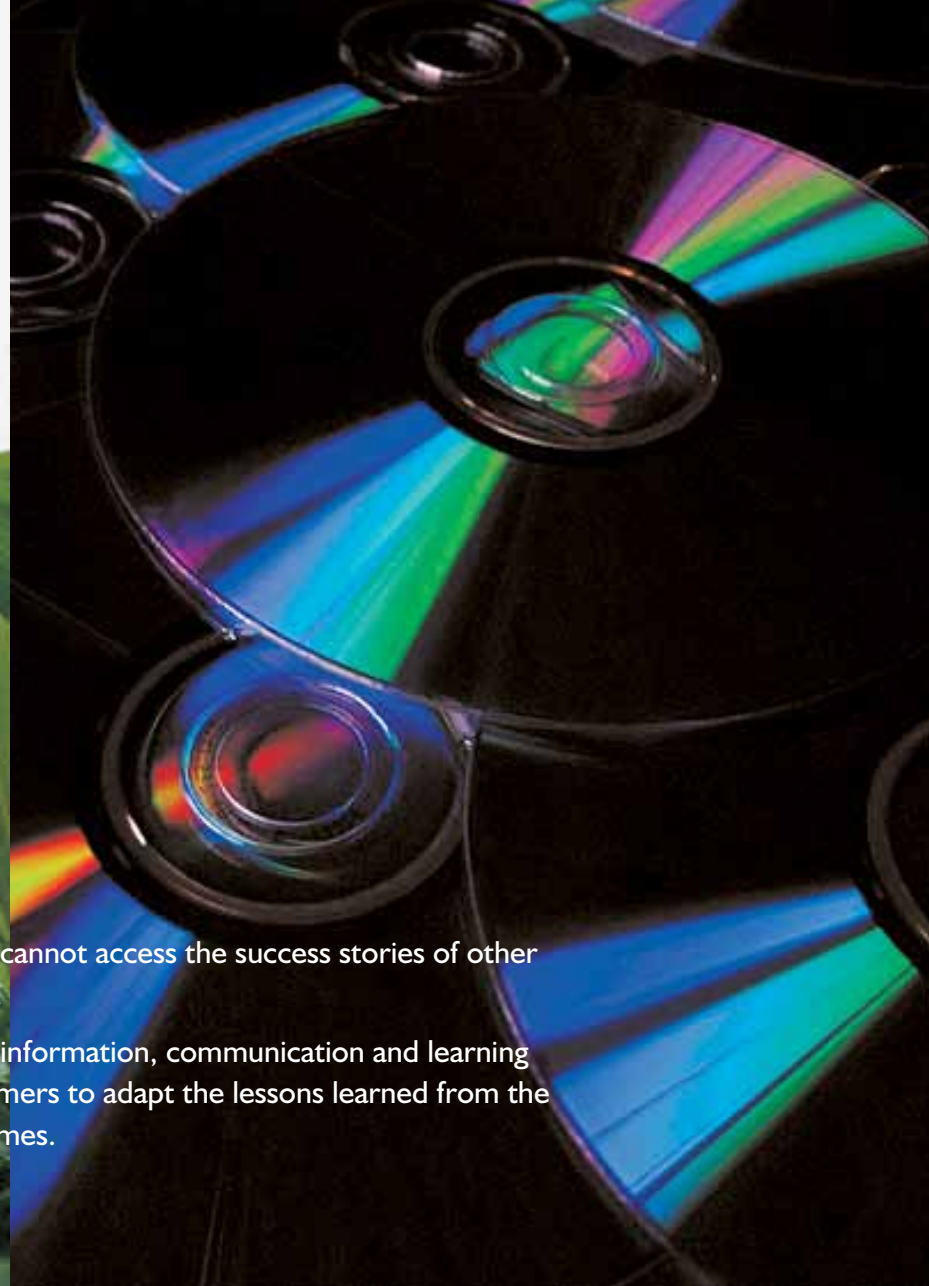
More and more, extension programmes are moving away from the traditional delivery model to empowering farmers to recognise how to take advantage of research innovations and economic opportunities. For instance, to implement DONATA projects effectively, extension workers' skills must cover the spectrum from mobilising farmers and tapping into market intelligence to understanding sales and marketing and their trends.

'We have prescribed for so many years, and things don't seem to be working. Now we are doing demand-driven interventions according to crop suitability and market profitability. Farmers do not make detrimental choices,' explained Dr Silim Nahdy, Executive Director of Uganda's National Agricultural Advisory Services.

However, the chain of connectivity does not end here. DONATA sponsors students to ensure that the research required for its projects continues. Christine Gacheri, a Kenyan who used to work as a research assistant for Egerton University's Tegemeo Institute, applied for and won a FARA scholarship extended through ASARECA. She is studying for her masters in agricultural economics at the University of Pretoria. Christine was given the choice of writing her thesis either on soil technology or a marketing issue. She chose the latter. When she returns to Egerton two years down the line, she will be well placed to help out with the problems faced by farmers such as those in Embu, who want to find the best outlets for their QPM. DONATA has 40 students like Christine. Ten are studying in Pretoria and South Africa's University of KwaZulu Natal. The rest will graduate from francophone universities such as the Al Hassan University in Morocco.

DONATA sponsors students to ensure that the research required for its projects continues.





"We replicate failures because we cannot access the success stories of other countries," explained Salim Nahdy.

This is why FARA is developing an information, communication and learning platform that will allow African farmers to adapt the lessons learned from the outcomes of some FARA programmes.

Transforming information into knowledge

'We are part of a cultural revolution to make information as free as the air we breathe,' Krishan Bheeninck, Regional Information, Communication and Training Officer, SADC-FANR ICART Project

Information has use only when it is transformed into knowledge. That happens when information is digested and understood. In other words, the reason why one thing works while another does not becomes a lesson learned when experiences of trial, error and success are shared. 'We replicate failures because we cannot access the success stories of other countries,' explained Salim Nahdy. This is why FARA is developing an information, communication and learning platform that will allow African farmers to adapt the lessons learned from the outcomes of IAR4D, the SSA CP, DONATA and other FARA programmes.

RAILS Workshop 2007

When the AfDB committed US$23 million over six years starting in 2007, it was not only for DONATA but also for another project that feeds into DONATA's objectives. This second project is designed to put the many people and organisations in the African agricultural sector in touch with each other and to let them communicate with the global agricultural community. As such, the Regional Agricultural Information and Learning System (RAILS) is an obvious and integral part of FARA's NSF 2.

RAILS was launched at a consultative workshop in January 2007, where those who attended contributed ideas, experiences and best practices that inspired the programme framework. It was agreed that FARA would coordinate RAILS while implementation would be carried out, as usual, by the SROs and NARS, but this time with the support of international service providers. RAILS is a concept that grew out of a need to have a platform to exchange ideas and lessons learnt in managing information and disseminating knowledge. It differs from other information systems framework in that it is a people's network. People who are engaged and involved in the agriculture sector should

RAILS was launched at a consultative workshop in January 2007, where those who attended contributed ideas, experiences and best practices that inspired the programme framework.

When the system was presented at the FARA 4th General Assembly, African Ministers were impressed with the amount of information available on the site.

be using RAILS as a conduit for information and learning exchange. FARA had been discussing the concept of RAILS since 2004. There had never been a continental information-exchange system in the agricultural sector designed by and for Africans. Yet everyone agreed that information exchange gave exceptional value for money.

In 2003, GFAR had a dream of connecting the research institutions around the world into one dynamic platform through the use of a webring, this was called the Global Regional Agricultural Information Systems (Global RAIS). It built on existing regional information systems being managed by various regional fora around the globe such as APARIS by APAARI. The Global_RAIS team almost completed its circle, except in Africa, where FARA was also just settling down. Jean-Francois Giovanetti was leading the team and approached FARA to lead the continental focal point of GFAR for this initiative. This was to be expected since FARA is the regional forum for Africa, and the invitation came at an opportune time, when FARA was deciding on how to execute its major function of disseminating information to its stakeholders. Myra Wopereis-Pura, who was then the Special Assistant of Monty Jones and was also handling all the Secretariat's communications, grabbed this opportunity to expand FARA's communications capacity and extend its outreach to its stakeholders.

FARA had the mandate to coordinate and facilitate such exchange of information, but it did not have the adequate resources (financial and human) to handle the huge responsibility. Through GFAR's support, the first stakeholder consultation was held in 2004, inviting relevant international institutions such as CGIAR, FAO, CABI and CTA having the experience and capacity to handle information systems. In addition, FARA brought on board African institutions This was the first time that African research institutions were gathered and advice had been sought from them on how to manage African agricultural information. They all agreed about the need for an African platform for information exchange, managed and owed by the African institutions, and thus RAIS was born.

In spite of the enthusiasm amongst the FARA-RAIS partners, it struggled to implement its activities because of limited resources. FARA then took advantage of existing systems that had an established track record

RAIS taskforce

with the Global_RAIS platform, one of which was the EARD Infosys+. FARA had profited from earlier investments in well-structured information systems. With limited investment, Infosys+ was expanded to contain a page for each FARA member country. It contained information about organisations and projects residing or functioning in each African country. When the system was presented at the FARA 4th General Assembly, African Ministers were impressed with the amount of information available on the site. The leaders of AfDB also saw the potential of such a system that could effectively inform relevant and appropriate partners about activities within a country. Functionalities could be added to enable the system in disseminating research outputs across the continent. Hence, in 2006, it decided to support the expansion of RAIS activities beyond organisational database to providing more holistic information and learning systems (RAILS) where African stakeholders could effectively contribute to the global knowledge exchange. Strengthening capacities through infrastructure and skills development was supported through the Promotion of Science and Technology for Agricultural Development (PSTAD) project, which supplements the DONATA project.

The FARA web portal (www.fara-africa.org), featuring user-friendly web2 tools, was launched before 700 delegates on 14 June 2007 at the 5th General Assembly in Johannesburg, South Africa. It was hoped that it would serve as a blueprint that would be adopted by the SROs and NARIs in due course. The content management system allows interactive use not only by

the FARA secretariat but also any visitor to the site. The idea is to develop a dynamic system that is a pathway to useful and current information to FARA's various partners and stakeholders.

Information dissemination has never found particular favour with governments, and there has been scant political support to fund scientists to access and disseminate research. Existing systems have been slow. For instance, information on Mozambique could only be accessed through the World Bank or FAO websites. At the time that RAILS was conceived, every FARA member was at a different stage of development with its information and communication system. Web-based information generation and digitalised information dissemination are the key ingredients in this process. Some research centres did not see the need to invest

The FARA web portal (www.fara-africa.org), featuring user-friendly web2 tools, was launched before 700 delegates on 14 June 2007 at the 5th General Assembly in Johannesburg, South Africa.

in the new technology. While others had procured the equipment, but staff members had not been trained in its use. RAILS has been calling for reform by advocating for national governments to increase investment in agricultural information and learning systems.

There was the cultural aspect too, with a lot of African scientists still thinking that information is power. Sharing of information with colleagues is seen as letting go of their most precious assets. Very few see the potential of sharing as a means to increase the value of their information, and that shared information creates a feedback loop, which is very critical to lesson learning. Such an attitude is also reflected in the way African research institutions protect their research output. They are always reluctant to share their research findings with scientists in other countries even though the benefits are obvious. It makes little sense for a scientist in Senegal to conduct parallel research to arrive at the same conclusion that somebody in Mali has already arrived at. In addition to the cultural aspect, infrastructure within institutions also reinforces the isolation because the communications infrastructure of many NARIs are under-funded and outdated. Today RAILS provides internet access, computers and training to two locations per country to bring synergy to regional and national systems and to facilitate communication at every level.

Similarly, there were obstacles in relaying scientific information to farmers in a repackaged format that was easily comprehensible and applicable to their needs. An important function of RAILS is to provide information and learning platforms that benefit pastoralists and smallholders. Its FARA predecessor, RAIS, recognised that there was no platform for agriculturalists to easily access information regarding how to increase cassava yields or the latest international abstract on a cassava research breakthrough for scientists. A policy maker would want to know what resources were required to increase national cassava production. Systems that provided all those answers did not exist in Africa.

RAILS has built on the success of its SRO experience with information and communication. ASARECA's Regional Agricultural Information Network (RAIN) had a strong network of experts in information management. RAILS has added on learning concepts and has expanded the network to include all those in the agricultural sector, not just scientists. CORAF has made advances in connectivity among nations using InfoSys+. RAILS has conducted training in network management and provided content for the information systems. Similarly, RAILS has added value to the content and management of SADC-FANR's information systems. These improved information systems are opening up new ways to synthesise complex and diverse data sets.

'If RAILS is successful,' says RAILS Coordinator Myra Wopereis-Pura, 'we will have built up the NARS in every country and written ourselves out of a job.'

In order to identify success stories, in 2008, RAILS analysed 60 farmer advisory services in Africa that were being designed, operating or had recently been terminated. The assessment tallied how many of the projects were implemented by, or in collaboration with, foreign organisations or institutions; the average duration of each project; how many were only pilots; where they were concentrated; and whether the services used local languages or only English or French. It then explored the impact of rural mobile phone services on agriculture—how effectively agricultural informatics had reduced the cost of acquiring information, influenced decisions, farmers' capacity to use the information, and the challenges to upscaling.

The study found that many projects were short-term pilot projects implemented by international organisations that often wound up after the original funding ended. It revealed both the potential of Information and Communications Technology (ICT) for delivering information to farmers in innovative ways and its limitations. Many of the initiatives were institutional and specific to particular products and platforms, such as, for example, a website on cotton in English. The low literacy of many African farmers, and their limited ability to use a foreign language, renders such models of information delivery largely ineffective.

Text and voice-based platforms

Most initiatives have been web-based or heavily text oriented, such as short message service (SMS) question and answer services. Seeking information from these

It makes little sense for a scientist in Senegal to conduct parallel research to arrive at the same conclusion that somebody in Mali has already arrived at...

...Today RAILS provides internet access, computers and training to two locations per country to bring synergy to regional and national systems and to facilitate communication at every level.

One Senegalese farmer who was interviewed for this book trekked to his local market in the Sahel on a daily basis during a period of cassava glut to see if it was worth harvesting his crop. His life would be transformed if he had a mobile phone.

platforms is an onerous task for farmers, as it entails ploughing through many publications and consecutive text messages or surfing a large number of web pages, which is utterly impossible for illiterate farmers. Web- and text-based resources are nevertheless very useful, provided that an easy way can be devised for farmers to navigate them.

The most successful SMS is the provision of agricultural market prices. A number of pilot projects abound. Before mobiles became popular, information grey outs distorted the marketplace. Farmers commonly fell prey to middlemen who gouged the true worth of farm gate prices. Thanks to the mobile phone, farmers can trade at today's prices and realise the profits they deserve.

One Senegalese farmer who was interviewed for this book trekked to his local market in the Sahel on a daily basis during a period of cassava glut to see if it was worth harvesting his crop. His life would be transformed if he had a mobile phone. He would be able to retrieve and send information on a constant basis so that his cassava would fetch the best price possible. It is called real-time trading. Farmers who do use mobiles have seen their incomes rise by 15% and more.

In the bustling, narrow dirt alleys of Nima market in Accra, Ghana, brightly robed women stand behind stalls stacked with vegetables. A woman perched on a stool interrupts a customer to glance at an incoming SMS. 'Offer to sell okra 1mt; negotiable, contact Teresah 02346377948. Offer expires 11 days.' She is one of the 10,000 subscribers to TradeNet, a West African trading platform that uses mobiles and the internet to disseminate market information. The company provides users with real-time prices for more than 80 commodities from 400 markets in 10 countries across the region. Feeds include market access information that states whether transport for perishable goods is delayed or on time. Soon weather will be part of the service too.

Farmers associations subscribe to another service that sends SMS reminders such as 'It's time to plant', or 'You should be weeding now'. The Ghana Agricultural Producers and Traders Organisation has been a major beneficiary. In 2006, it concluded trade deals worth US$60,000 with other producer and trader organisations in Burkina Faso, Mali and Nigeria. The

deals cut out the middleman for purchases of tomatoes, onions and potatoes, substantially reducing costs.

FARA facilitated a workshop with Esoko/Ghana—the African leader in Market Information Systems (MIS)—in April 2009 to exchange cross-country experiences with MIS using mobile text messaging. The exchange clarified for donors supporting MIS activities the potential for private companies to deliver market-price services, best practices and codes of conduct. During this workshop, Esoko presented to its partners its new portal. The portal includes an SMS gateway with a centralised computing power in combination with an extendable mobile application. The application can be adapted to a diversity of needs: agricultural surveys, weather applications, market information, etc.

With the widespread use of mobile phones, voice solutions combined with SMS should find more use, as they offer easy accessibility. Kenya launched a farmers' information service (www.nafis.go.ke) in May 2008 that allows the country's farming community to exchange and receive timely news and information on agriculture, weather patterns, and related matters through mobile phones. The service offers agricultural extension information through both the web and telephones. As field extension officers update the system on the web, the same information becomes accessible as an interactive voice response using any kind of phone.

In Zimbabwe, Freedom Fone (www.kubatana.net) addresses communities' requirements for simple, affordable communication technology. Freedom Fone stores audio files in a content management system that is updated through a simple-to-use browser interface. These audio clips populate an interactive voice response menu that callers navigate for information.

One challenge facing mobile phone projects is that SMSes can carry only a limited amount of information and requires basic literacy. Further, voice-based solutions are complicated to develop, as they require machinery to synthesise speech, and cannot offer detailed information or pictures unlike websites.

Voice, nevertheless, remains by far the most promising platform, as it can be customised for language and is readily accessible and natural, offering direct responses to specific questions.

Kenya launched a farmers' information service (www.nafis.go.ke) in May 2008 that allows the country's farming community to exchange and receive timely news and information on agriculture, weather patterns, and related matters through mobile phones.

Africa's unique challenges when it comes to self-reliance in agriculture is because it is not easy to transfer technologies from other continents, due to Africa's diverse ecologies and production systems, and also because many staples are 'orphan' crops, such as cassava, plantain, teff and yams, in which other parts of the world have shown scant interest.

A renaissance in agricultural education

Africa has certain unique challenges when it comes to agriculture. It needs to be self-reliant because it is not easy to transfer technologies from other continents. This is partially due to Africa's diverse ecologies and production systems. It is also because many staples are what is known as 'orphan' crops, i.e. crops in which other parts of the world have shown scant interest. These include cassava, plantain, teff and yams. Another reason for the slow pace of research is the absence of coordinated effort. Africa has many small, relatively poor countries, which means that research centres and their programmes are fragmented and under-resourced. Additionally, it struggles with its own unique set of pests and diseases; the situation is further complicated by accelerating and more severe drought cycles, degraded soil and a looming water scarcity as well as incompatible plant protection policies and regulations.

However, Africa has nearly 400 research agencies compared with 120 in India and only 51 in the United States. One would think that this would translate into R&D moving ahead by leaps and bounds. Instead, the reverse is true. During past decades, African research has stagnated and, as described in the previous chapter, there has been little collaboration across countries and regions, with scientists missing out on opportunities for deriving economies of scale. Neither has there been much national recognition of their efforts. This has dampened the enthusiasm of promising young scientists to join and stay with their NARS.

There is another reason too—the absence of political will. Public spending on research as a percentage of agricultural GDP shrank from 0.93% in 1981 to 0.69% in 1991. This cannot be attributed just to the tightening of the purse strings across the board. Spending declined because of shifting priorities and the governments' perception that research and extension held little value as productivity never seemed to increase. By the turn of the century, investment per scientist had reduced even further. In India, on the other hand, investment was 2.5 times greater and in the United States, it was four times more. The operating costs for NARIs were on the rise, but funding was not; it did not even keep abreast with inflation. Inevitably, salaries ceased to be competitive. There were fewer procurements for laboratory equipment. Under the structural adjustment programmes, recruitment was restricted and staff succession strategies were skewed, resulting in considerable numbers approaching retirement with inadequately prepared staff to take over responsibilities. It was not a setting likely to attract experienced researchers.

Africa has nearly 400 research agencies compared with 120 in India and only 51 in the United States. One would think that this would translate into R&D moving ahead by leaps and bounds. Instead, the reverse is true.

A myriad problems undermined Africa's agricultural universities, colleges and training centres...

...FARA's university constituents have responded to this shortcoming by developing a programme for revitalising and reinvigorating tertiary agricultural education within a framework for Building Africa's Scientific and Institutional Capacity (BASIC).

South Africa's Agricultural Research Council, which used to boast of more than 500 scientists, now employs only 169 scientists!

Similar myriad problems undermined Africa's agricultural universities, colleges and training centres. Curricula were not revised to reflect contemporary needs, which, in turn, diluted the quality and relevance of the teaching and training, discouraging both faculty and students alike. As more students were admitted to the old and new institutions, gender inequities surfaced—the number of women students grossly under-represented their contribution to the industry. Gradually, governments, in a self-fulfilling cycle, consulted the universities less and cared for them less.

FARA's university constituents have responded to this shortcoming by developing a programme for revitalising and reinvigorating tertiary agricultural education within a framework for Building Africa's Scientific and Institutional Capacity (BASIC). BASIC intends to establish a tripartite partnership between African and foreign universities and NARS to respectively ensure that curricula and teaching methods are brought and kept up-to-date and that course content is also research-based. It will call on NARIs and CGIAR Centers to produce course material that is relevant to local contexts. Courses will be tested and validated at one African university and then disseminated to other universities. The programme will also partner with the International Food Policy Research Institute's Knowledge, Innovation and Capacity Division, and the Natural Resources Institute (NRI) of the University of Greenwich UK, and other institutions that have been testing the concept of 'blended learning'. This involves a mix of electronic learning and teaching in classrooms and laboratories.

BASIC was conceptualised at a meeting of the deans of agriculture from East African universities that ASARECA and the USAID-funded Global Livestock Collaborative Research Support Programme (GL-CRSP) convened. Its agenda continues to be fine-tuned through consultations among African and non-African universities, NARS and CGIAR Centers. BASIC recognises the academia's important but largely unrealised responsibility to contribute to improving the livelihoods of small-scale pastoralists and farmers and agro-businesses. It is designed to stimulate coordinated planning and networking between universities that have never before collaborated with each other to eliminate inherent weaknesses in the educational system. Its purpose is also

to advance collaboration between university faculties of agriculture and business to jointly provide services to agro-businesses and agricultural research institutions to promote innovation in African agricultural value chains.

Reform required a generous flow of funds to foster a resurgence of high academic standards across the continent. Although it originated earlier, it was only with the establishment of FARA that an appropriate African champion with the right mandate emerged. Recognising the critical importance of building Africa's capacity for agricultural innovation, Jones imbued BASIC with a renewed momentum. He understood clearly the need to reinvigorate tertiary education in agriculture and raise the standard of education received by whole cohorts of students rather than, as was the case in traditional capacity strengthening collaborations, merely support a few students in a few institutions in a few subjects.

BASIC ran parallel to the work on the SSA CP. In September 2004, while Jones was in Rome defending the SSA CP before the CGIAR Science Council, Kaufmann was running a BASIC proposal development workshop in Addis Ababa, Ethiopia. FARA wanted the AU to be closely involved because of their working relationship with NEPAD, so AU members were invited to attend. AU gave its vote of confidence by insisting it hosted the workshop at its headquarters, and has continued to be engaged. BASIC is now one of the AU Commission's 16 priority Lighthouse Projects.

So far, pending any sign of funding , over 60 Vice Chancellors and Rectors have expressed interest in participating in BASIC. In November 2004, FARA and the African Network for Agriculture, Agro-forestry and Environment Education (ANAFE), the largest working education network in Africa with a membership of more than 120 universities in 34 countries, convened a meeting of 16 tertiary education networks such as Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) to assess whether BASIC duplicated or added value to existing approaches. At the meeting, which was hosted by ANAFE, BASIC was welcomed as an innovative programme that supported existing approaches.

Prof Adipala Ekwamu, RUFORUM's regional coordinator (above), says: "I've been trying to introduce reforms for the last 20 years and haven't achieved much. You can have beautiful ideas but without a catalyst such as FARA, they don't happen."

"There's great potential here. In academia it is very difficult to get things accepted into the system. I've been trying to introduce reforms for the last 20 years and haven't achieved much. You can have beautiful ideas but without a catalyst such as FARA, they don't happen," said Prof Adipala Ekwamu, RUFORUM's regional coordinator.

It is against this background that many of FARA's friends believed that the priority for FARA should be to strengthen the R&D system. 'It seems to me that the national systems are still too weak in many countries. Not just research institutes but the whole network that deals with agricultural research. There is acute under investment. Africa's a huge continent with complex agricultural systems, which makes it a job for many players,' observed Isabel Alvarez.

FARA saw the sense in this too. It was a problem that plagued the entire continent and required a wide-

"...Neither was there a culture of networking information through partnerships and collaboration. Financial management also fell short of expectations. Governments committed money to research institutions but were slow in its disbursement. Agriculture is a time-based activity. Crops and animals don't wait," Prof Anthony Youdeowei pointed out.

ranging solution. At the annual SRO-FARA retreat in 2005, it commissioned an evaluation of the NARS to pinpoint the weaknesses and to recommend how they could be rectified. The report, which was presented in 2006, identified severe limitations in human and institutional capacity in relation to the demand for high quality agricultural research in both management and science.

'You can strengthen people's capacities, but if there's no institutional framework in which to operate, it counts for nothing,' said Prof. Anthony Youdeowei, a Nigerian who worked on the assessment. 'Good management draws on political rather than technical skills and there was not enough of it around,' he continued. The assessment team came to the conclusion that NARIs did not have the ability to muster teams of competent, experienced scientists. Neither was there a culture of networking information through partnerships and collaboration. Financial management also fell short of expectations. Governments committed money to research institutions but were slow in its disbursement. 'Agriculture is a time-based activity. Crops and animals don't wait,' Youdeowei pointed out.

FARA collaborated with NRI to develop a proposal and presented it to DfID, a perennial champion of capacity strengthening. DfID approved UK£ 8 million over three-and-a-half years from January 2007 to underwrite a programme that is part of NSF 4 called Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA).

The programme has two main components: (i) strengthening the agricultural research manager's skills; and (ii) strengthening the scientist's research skills to invent tools that will have a sustained beneficial impact on farmers' production systems and livelihoods. SCARDA's activities are selected by means of holistic institutional

analyses that identify all the areas that need to be strengthened, and form the basis for tailor-made capacity strengthening programmes underpinned by purposeful change management action plans. Its research management component creates opportunities for training, mentoring, attachments and postgraduate training.

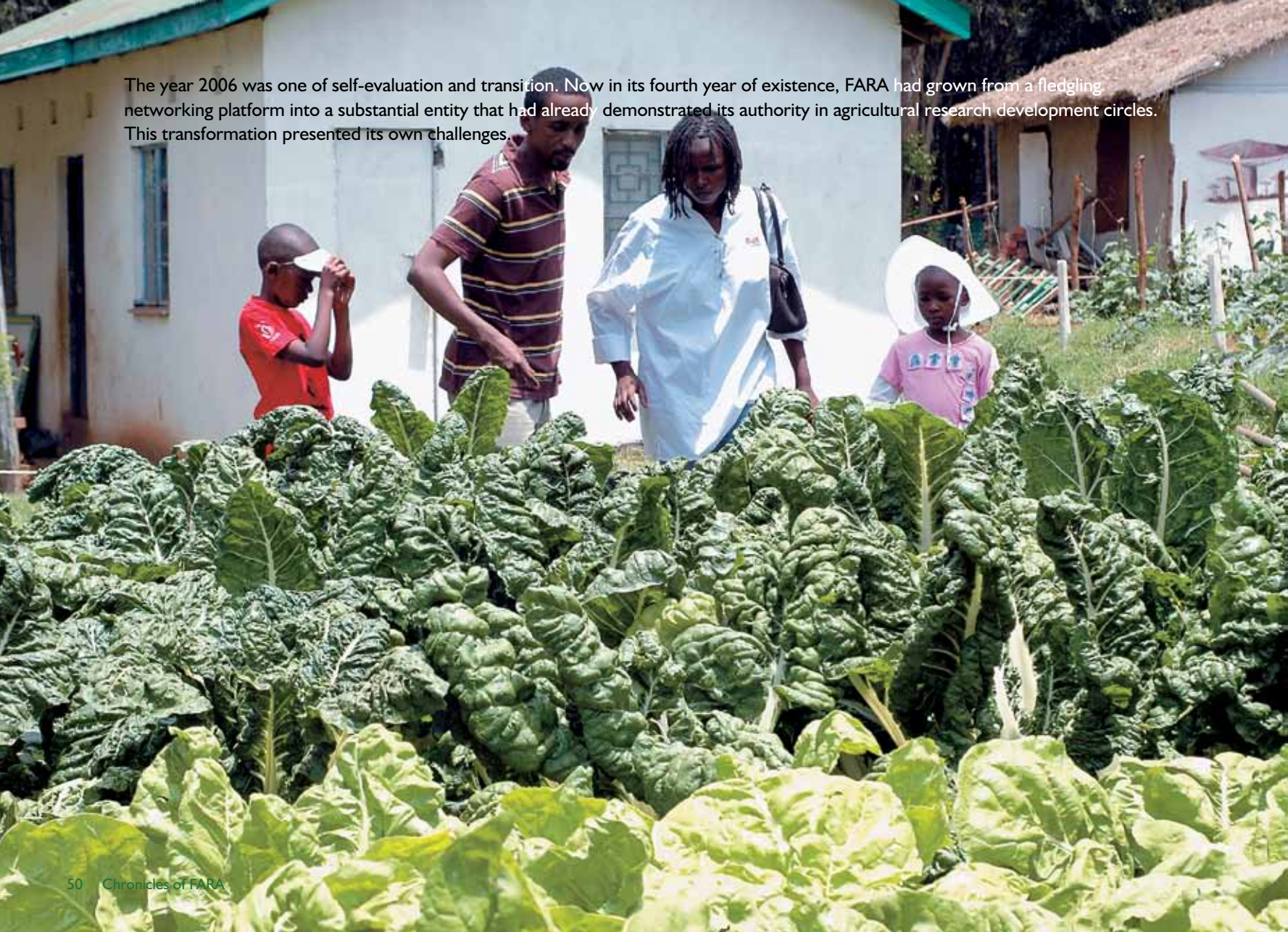
SCARDA's inception phase lasted through 2007 and involved three SROs, 12 consultants and six workshops. The participants delivered quality products on schedule and within budget. In parallel, partnerships were forged with ANAFE, RUFORUM and the US. That December, the SCARDA action plan was approved for implementation. It was clearly a very complex task that involved promoting learning in the focal and satellite institutions, and was in itself a learning exercise in how to implement a programme that strictly complied with the principle of subsidiarity. There were many delays until it was implemented, but the enthusiasm and commitment of the institutions for which it was intended never wavered.

SCARDA works through CORAF, ASARECA and FANR-SADC with 12 national R&D institutions. These NARIs, universities and colleges are in Botswana, Burundi, Congo-Brazzaville, the Gambia, Ghana, Lesotho, Mali, Rwanda, Sudan and Zambia. Their activities have been determined through detailed and fully participatory institutional analyses and scoping studies to ascertain priorities in research management and continued learning for researchers. These tailor-made packages reflect the needs of partners in the value chains along which research proceeds. This ensures that everyone is involved and everyone will benefit from newly robust national agricultural innovation systems. SCARDA also uses learning platforms to document and share best-practice cases for replication.

Dr Joyce Macala, who heads the SCARDA project for Southern Africa through SADC- FANR, has been conducting training workshops in farmer participatory research to introduce the SCARDA concept. Macala makes sure that experts in crop and animal production and representatives from extension services are invited. She encourages marketing people to attend as well. 'Teams are stronger than individuals but until now, researchers have been trying to dribble without passing the ball,' she said.

'We look for partners to bring about synergies. It's going to take a long time, but with the help of the partners we can install the systems while strengthening the individuals to create a critical mass that will make systems functional,' said Dr Irene Annor-Frempong, a Ghanaian professor who has developed teaching tools for lecturers and who is now the SCARDA Programme Officer at the FARA Secretariat in Accra.

'We look for partners to bring about synergies. It's going to take a long time, but with the help of the partners we can install the systems while strengthening the individuals to create a critical mass that will make systems functional,' said Dr Irene Annor-Frempong, a Ghanaian professor



The year 2006 was one of self-evaluation and transition. Now in its fourth year of existence, FARA had grown from a fledgling networking platform into a substantial entity that had already demonstrated its authority in agricultural research development circles. This transformation presented its own challenges.

Negotiating the hurdles of expansion

'*No organisation can remain vital and effective in achieving its goals if it does not adapt and change in response to the environment around it*,' Monty Jones, Executive Director, FARA Secretariat

By 2006, FARA had scored well as an active champion of agricultural R&D in Africa. It had raised the profile of agriculture in Africa and beyond, and its ideas for achieving increased agriculture productivity were being guided into realisation.

FARA had progressed from strategic planning to orchestrating the inception of five regional initiatives—the SSA CP, DONATA, SCARDA, RAILS and BASIC—through CORAF, ASARECA and SADC-FANR, the successor to southern Africa's SACCAR. It was also on the way to engendering robust NARS that included universities and civil society as well as research institutes. In 2004, Monty Jones had been awarded the prestigious World Food Prize at a U.S. State Department ceremony for his outstanding work in developing NERICA and encouraging its cultivation in African fields, an acclaim that had bolstered FARA's stature in the international arena.

The year 2006 was one of self-evaluation and transition. Now in its fourth year of existence, FARA had grown from a fledgling networking platform into a substantial entity that had already demonstrated its authority in agricultural research development circles. This transformation presented its own challenges. The secretariat retained its clarity of purpose but it needed to fine tune and consolidate its internal controls, planning, strategy and funding base.

At US$4.7 million, the consolidated expenditure of the secretariat and its initiatives such as the SSA CP was four times greater than the start-up budget. The secretariat staff had expanded from its original four to 50. Funding problems that were slowing down programme implementation had already begun to show up in 2005. Inevitably, the question arose as to how to keep FARA afloat.

The donors too, like FARA, were concerned about the sustainability of the secretariat's initiatives. They also sought reassurance that FARA's involvement with the newly created FAAP was relevant to its mandate. FARA drew up a US$205 million consolidated financial plan (2006–2010) to be used as the basis for lobbying donors for long-term financial support for the secretariat and FARA-mentored programmes. It was presented to the development partners in London, England that April.

In 2004, Monty Jones had been awarded the prestigious World Food Prize for his outstanding work in developing NERICA and encouraging its cultivation in African fields, an acclaim that had bolstered FARA's stature in the international arena.

It was a milestone in the establishment of FARA as a truly African organisation that speaks with a genuinely African voice.

The meeting was fruitful. FARA explained that FAAP would be a tool in its advocacy to persuade governments to honour their commitments to allocate 10% of their budgets to agriculture, ensure it was optimally utilised, and also track how effective the process was in achieving 6% growth in productivity. The concept met with donor approval. (African heads of state endorsed FAAP at an AU summit the following June). In the wake of the meeting, AfDB undertook to support DONATA and RAILS for six years. DfID pledged to support SCARDA for three-and-a-half years, including the inception phase. Later that year, Denmark approved US$361,000 for SSA CP.

The idea of a multi-donor trust fund (MTF) was raised during a second donor meeting in December 2006 in Washington DC. It was recommended that FARA be given core support in the form of a 'basket' of money that would allow it to get on with the job as it saw fit. This concept aligned donor commitments with national priorities rather than the agendas of development partners. There were other benefits too. It would reduce transaction costs through central accounting, reporting and review and evaluation processes. Donors would forego external evaluations and leave it to FARA to conduct its own M&E system. It was a milestone in the establishment of FARA as a truly African organisation that spoke with a genuinely African voice.

However, before this could be implemented, there was work to be done. FARA's vision and mission had to be revisited in the context of its continued relevance. By the time the exercise had been completed, FARA had undergone several evaluations, written a new strategic plan and drawn up a medium-term operational plan.

It had been agreed in London that there would be a Canadian International Development Agency (CIDA)-led external evaluation to assess FARA's governance and institutional relationships, secretariat operations and programme development and implementation. At the same time, CGIAR contracted an independent panel to evaluate the SSA CP's inception phase. Both reviews were generally favourable. CGIAR recommended that the SSA CP continue for another three years under FARA's guidance to provide proof of concept before expanding to more pilot learning sites.

The FARA board also commissioned its own evaluation, which was carried out in 2007. 'We thought FARA had done a great job in a short time,' said Dr George Otim-Nape, a member of the evaluation team and a former head of Uganda's NARO. The review prompted FARA to undertake a restructuring exercise that brought about cost and efficiency reforms. A programmatic approach was adopted that gave focus to interventions and also spread the secretariat's workload more evenly. There were to be annual meetings of the executive committee,

but general assemblies were to be convened every three years instead of every two. The chair's election already rotated by region. Now its term of office was extended from two to three years to coincide with the general assemblies.

It was around this time that the secretariat decided there should be a term for describing FARA's activities. Like most good ideas, it was arrived at outside the work environment. Ralph von Kaufmann and Eugene Terry were flying from Dakar to Accra. Terminology that would accurately encapsulate FARA's activities as a facilitator—and not an implementer—was exchanged across the aisle during the trip. They wanted to convey the concept that FARA supported and worked for its vast network of partners. But they were mindful that FARA is a forum. To use the term 'network' could give the wrong impression. Then shortly before landing the two men leaned toward each other, 'What about networking support functions?' suggested one. 'Perfect', said the other.

FARA had been aware for some time that R&D scenarios were changing rapidly. This was underscored by the external reviews. FARA's operational context had altered to such a degree that a new strategy was called for. Since its inception in 2002, FARA had been following a 10-year plan that had been formulated by SPAAR before the secretariat had come into existence.

By 2005, during the 3rd General Assembly in Entebbe, Uganda, delegates were already questioning the plan's relevance. They felt that constraints on technology dissemination were not being adequately addressed. Further, there was no provision to respond to an emerging issue of crucial importance to the future of Africa's agricultural development. It was felt that FARA should take the lead in advocating for a united African stance on biotechnology and biosafety policies. The floor also demanded that FARA pay more attention to two factors that had been neglected in the past but which were essential for vibrant growth—markets and enabling policies.

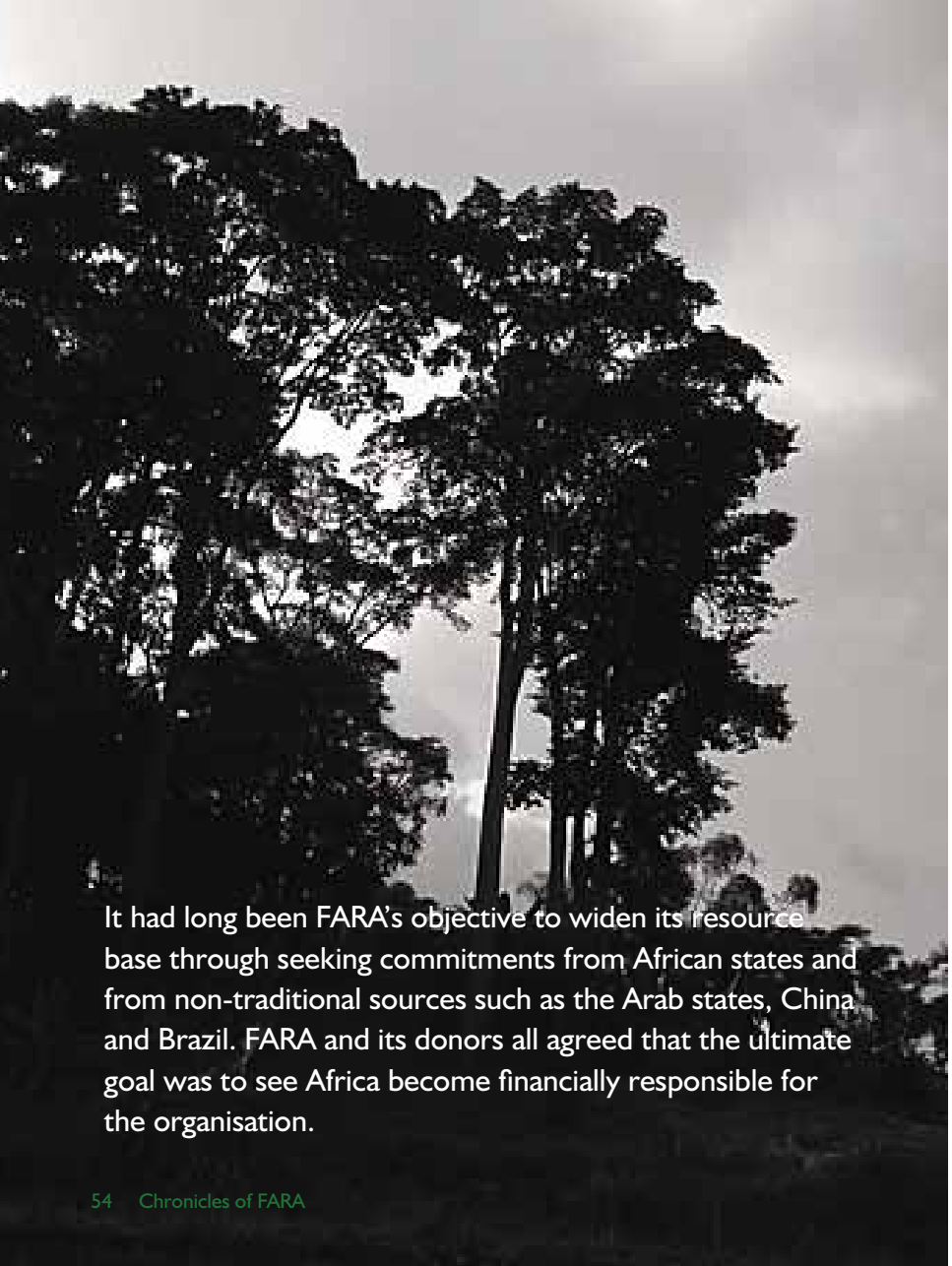
FARA's stakeholders had traditionally set its agenda. CAADP Pillar IV and FAAP called for reform in agricultural institutions and services, greater investment in productivity, and coordinated financial support. First CORAF/WECARD and then ASARECA had revised their strategic plans in 2007 to accommodate this evolution in research approaches. It was time for FARA to retool its vision too. The SROs were to be instrumental in shaping the matrix of FARA's new strategic plan.

The 2007–2016 Strategic Plan reflected CAADP targets and addressed those constraints facing the SROs that could be alleviated to a continental level. It also took into account the strategic plans of the SROs. The plan adopted the holistic approach of including farmers' organisations, NGOs and private enterprise. Above all, it gave FARA the flexibility to respond to the accelerating pace of change while maintaining focus and direction. It was endorsed at the 4th General Assembly in Johannesburg, South Africa in 2007.

But there were other hurdles ahead. The donors requested a clear work plan of how FARA intended to improve broad-based agricultural productivity,

It was around this time that the secretariat decided there should be a term for describing FARA's activities. Like most good ideas, it was arrived at outside the work environment. Ralph von Kaufmann and Eugene Terry were flying from Dakar to Accra.

'What about networking support functions?' suggested one. 'Perfect,' said the other.



It had long been FARA's objective to widen its resource base through seeking commitments from African states and from non-traditional sources such as the Arab states, China and Brazil. FARA and its donors all agreed that the ultimate goal was to see Africa become financially responsible for the organisation.

competitiveness in the marketplace and access to markets. In October 2007, FARA and the donors met again in Washington DC to discuss the development of a mid-term operational plan (MTOP). It was agreed that the MTOP should cover five years rather than three to allow time for quantifiable results. This had to be approved and set in place as a precondition to full commitment to the MTDF. FARA set about meeting this target too, which took a year to achieve. The US$113 million MTOP (2008-2012) was endorsed in 2008. It detailed how FARA would implement its strategic plan over the next five years consonant with the planning ambitions of its major constituents and investors.

The MTDF was to be administered by the World Bank, which in turn required a MoU with each of the participating donors before it could become operational. This proved to be a lengthy process and was not concluded until March 2009. DfID and EC had said they would provide funds regardless of the MTDF. By the time FARA held its 3rd board meeting in September 2008, the MTDF had received pledges for US$45.9 million of the US$58.5 million that had been agreed upon.

'We can't ask donors and FARA to be ready in two years to implement a smooth and efficient system. I think it's important to recognise it's a long process,' observed Dr Jean-Luc Khalfaoui, Executive Secretary of the European Initiative for Agricultural Research for Development.

The hold up thrust FARA's budgets into a parlous state. The 2007 budget stood at US$3.5 million with

commitments of only US$2.2 million, leaving a funding gap of US$1.3 million. CIDA and DfID came to the rescue with US$666,000 and US$790,000 respectively, with USAID committing a further US$350,000. Ireland committed US$210,700 while Netherlands provided US$185,000 in 2007. The 2008 budget was of even greater concern. Of the US$9.5 million budgeted, just under a quarter had been committed thanks to CIDA and the Netherlands. The projected deficit stood at $7.3 million.

'This was a problem we had never experienced before. We were struggling every month to pay the salaries. We wouldn't have expanded so quickly if we had known what was to happen,' commented Dr Monty Jones.

Deeply concerned by this state of affairs, in July 2008, he began touring Africa looking for alternative funders. South African had already led the way by underwriting the Johannesburg General Assembly with US$1 million. It had long been FARA's objective to widen its resource base through seeking commitments from African states and from non-traditional sources such as the Arab states, China and Brazil. FARA and its donors agreed that the ultimate goal was to see Africa become financially responsible for the organisation. Jones approached Libya, Tunisia, Nigeria, South Africa and Burkina Faso. All expressed interest in supporting FARA, but definite commitments were not forthcoming.

The current strategic plan and the MTOP was developed through close and continuous consultation with the SROs. The different and distinct roles of FARA and the SROs had to be clearly defined so that there was no duplication of activities. Even so, there were times during its making when no one seemed to be in agreement. 'There will always be tension. It's logical whenever you have organisations at different levels. It happens with the EU and the member states. It's not a negative thing. One just has to manage it. There are always grey areas that overlap in strategic plans,' commented Dr Paolo Sarfatti, who at the time was in the EU Directorate for Development Cooperation and in charge of agricultural research for development.

This tension and uncertainty over respective responsibilities was a motif that threaded the early FARA years and was noted in the external reviews. They recommended that the constitution be changed to make SROs voting members of FARA—a change that was implemented.

'As FARA becomes successful and gets a track record, a lot of people who have anything to do with agricultural research will gravitate towards it. FARA has to be careful not to become overloaded. It has to be very clear about its mandate and vision. A lot of debate centred around how the SSA CP was to be organised. In the event, the SROs implement it while FARA coordinates. With hindsight, if an organisation like FARA was not already in existence to play that role, it would have had to be created,' observed Eugene Terry, who was on one of the 2007 FARA external review teams.

Otim-Nape agrees. 'There sometimes have been unrealistic expectations from the SROs and NARS.

"With hindsight, if an organisation like FARA was not already in existence to play that role, it would have had to be created," observed Eugene Terry, who was on one of the 2007 FARA external review teams.

The principle that guides FARA's relationship with the SROs is subsidiarity. FARA was created to empower the SROs and through them the NARS.

Project implementation is not FARA's role. It is tempting to deliver goods to build a reputation, but this is not FARA's function,' he said.

The principle that guides FARA's relationship with the SROs is subsidiarity. FARA was created to empower the SROs and, through them, the NARS. FARA adheres to this principle in everything it does. When FARA fundraises, less than 20% stays with the secretariat. The remainder devolves down through the SROs to the NARS, which receive about 70% of the funding. 'We look for the money. The SROs implement the program(me). But the bulk of funding reaches down to national level. FARA writes its exit strategy into every initiative. That's how we function,' said Dr Jones.

With its unique advantage as a continental body, FARA is well placed to complement and add value to the strategies and programmes of its partner SROs. For instance, it is better equipped to provide and respond to continent-level policy and market analyses. It leads the way in fostering partnerships with African and non-African R&D institutions and forums. Further, it is in a position to synchronise methodologies and data standards and to improve access to knowledge and technologies.

Nevertheless, in the early years tension ran high. 'I was surprised. It was very serious. In 2004, we started an annual retreat where we can sit down and air our grievances. It seems to succeed. We work together amicably now. The SROs realise we aren't going to usurp their authority,' recalled Dr Jones.

On several occasions, he stood his ground, exercising calm diplomacy and, once he saw the merits of a position taken by a SRO, was amenable to helping them break new ground in the way donors operated. When AfDB released the first tranche for ASARECA's DONATA programme, there was no provision in its *modus operandi* to include the CGIAR Centers Centro Internacional de Mejoramiento de Maíz y Trigo (CYMMIT) and Centro Internacional de la Papa (CIP) as partners. ASARECA was adamant that it could not implement the programme without the research centres that had developed QPM and orange-fleshed sweet potatoes (OFSP). The AfDB funds sat untouched in ASARECA's bank account for a year, while its Executive Director, Dr Seyfu Ketema, persuaded Dr Jones of the logic of the argument. Once he had been won over, he persuaded AfDB to make an exception to its funding guidelines. CYMMIT and CIP became partners in ASARECA's DONATA programme.

In FARA's early days, only ASARECA and CORAF/WECARD existed as robust SROs, representing East, West and Central Africa. The second A in FARA stands for Africa. As such, it was clear that North and Southern Africa should also be represented. SACCAR's functions had been taken over by SADC-FANR, which since it is a directorate of SADC and not an agricultural research institution, diluted Southern Africa's voice. FARA and others fought long and hard to ensure that it was replaced by an organisation that could speak on the region's behalf with a strong voice. By 2009, this goal materialised with the formation of the Centre for

Agricultural Research and Development in Southern Africa (CARDESA).

That same year North African countries stretching from Mauritania in the west to Djibouti in the east joined the FARA family. All members of the Near East and North Africa's AARINENA, they felt strongly that as Africans, they would benefit from attending meetings and sharing information with other Africans. North Africa's inclusion was raised at the 2003 General Assembly in Dakar. It was endorsed in 2005 at the Entebbe General Assembly and launched as the North African Sub-Regional Organisation (NASRO) in April 2009.

The second A in FARA stands for Africa. As such, it was clear that North and Southern Africa should also be represented...

By 2009, this goal materialised with the formation of the Centre for Agricultural Research and Development in Southern Africa (CARDESA).

That same year North African countries stretching from Mauritania in the west to Djibouti in the east joined the FARA family.

Tissue culture is first-generation biotechnology and is considered a boon to productivity. But the third generation —following on from second-generation, marker-assisted selection—is as controversial as stem-cell research.

Policy makes the world go round

Africa must produce more food and other agricultural commodities, but just relying on high-input farming to raise yields per acre can have unintended negative consequences as it typically involves large amounts of fertiliser and pesticides. Injudicious use of these inputs pollutes water bodies (fertiliser) and poisons humans, animals and plant and insect life (pesticides) and does not sustain soil health and quality.

Farmers who plant traditional crop varieties are hostage to random disease outbreaks such as the bacterial wilt that has ravaged banana trees in East Africa's Great Lakes region. Bananas are a staple there and losses have been measured in hundreds of millions of dollars.

This is when research breakthroughs become the equivalent of the cavalry appearing on the horizon. In the case of bananas, it was tissue culture propagation. The traditional smallholder practice of transferring banana suckers from one farmer to another triggered the bacterial wilt epidemic. The use of the tissue-culture techniques to produce disease-free planting material prevents the spread of the disease.

Tissue culture is first-generation biotechnology and is considered a boon to productivity. But the third generation —following on from second-generation, marker-assisted selection—is as controversial as stem-cell research. Transgenic or genetically modified organisms (GMOs) have received a gene or set of genes with specific traits from another species, often a very different one. This genetic engineering uses the techniques of molecular cloning and transformation to alter the structure and characteristics of genes directly and not everyone is in favour of that.

Whether or not GM food poses risks to the environment and to people's health—that is, its biosafety—has been at the centre of stormy debate and civil protest. The controversy over whether or not to adopt GM crops to improve productivity is as lively in Africa as it is elsewhere in the world. Some countries are against it while others are its champions. Egypt, South Africa, Kenya, Ghana, Malawi and Uganda have consented to field trials. In 2008, Burkina Faso began growing GM Bt cotton commercially. This is cotton which has received a gene from a bacterium which confers on it resistance to an insect pest. Other countries have not yet made up their minds. In some cases, this may be because they do not have access to sufficient information on this sensitive issue that straddles ethics as well as science.

The controversy over whether or not to adopt GM crops to improve productivity is as lively in Africa as it is elsewhere in the world. Some countries are against it while others are its champions. Egypt, South Africa, Kenya, Ghana, Malawi and Uganda have consented to field trials.

The challenges of developing continental biotechnology standards are being addressed through FARA's NSF 3 —regional policies and markets. The need for this was first raised in Dakar at the FARA General Assembly in 2003.

FARA Plenary 2003, Dakar, Senegal

The challenges of developing continental biotechnology standards are being addressed through FARA's NSF 3 —regional policies and markets. The need for this was first raised in Dakar at the FARA General Assembly in 2003. As a result, a working group was created from the SROs, NEPAD, FAO and (African Agricultural Technology Foundation) AATF to formulate an action plan, which was presented at the Entebbe General Assembly in 2005. This was the genesis of the African Biotechnology and Biosafety Initiative (ABBI).

When the second strategic plan for 2007–2016 was written, it included a successor to ABBI, the African Biotechnology Biosafety Policy Platform (ABBPP), which seeks to bring the actors together to reflect on the biosafety issues for GM crops with a view to developing harmonised policy recommendations for biotechnology application in the various sub-regions of Africa. ABBPP was launched in 2009 with an initial US$2.265 million in funding, spread over three years, from the Syngenta Foundation.

The end result that ABBPP seeks is enhanced—and biosafe—production with higher net returns to farmers. Producers at the SSA CP pilot learning sites will, for example, be able to plant drought-tolerant varieties to meet the challenges of increasingly frequent drought in West Africa. Further, GM technology for varieties, such as the OFSP, which is combating the lack of beta carotene in local diets, is being disseminated through DONATA. The farmers adopting these improved varieties will act as change agents to spread the message to their neighbours.

ABBPP helps African countries develop common standards for handling GM crops and their research and safe dissemination. One of the priorities is to build political understanding of biotechnology's potential for combating hunger and providing the wherewithal to achieve food security. The meetings, workshops and dissemination of ABBPP studies will enable policy makers to arrive at objective decisions whether or not to adopt GM crops.

Armed with common standards and policies, African governments will be better able to take united and strong positions on biotechnology and biosafety when negotiating treaties and debating application of appropriate standards with entities like the World Trade Organisation and the Conference of the Parties to the Convention on Biological Diversity.

Of course, one of the things that a conscientious government would need to be assured of before allowing GM crops to be introduced into its country is that that there would be virtually no risk of contamination of conventional or wild relatives of crops growing in close proximity. Water-efficient maize with resistance to drought and sorghum with added vitamins and nutrients are research breakthroughs, but applying such technologies depends on first putting biosafety regulations in place. No country should grow GM crops in the field without appropriate laws, but only a handful of African countries have enacted such legislation. Biosafety applies to research institutes too. Genetic engineering must be conducted in laboratories that comply with the appropriate levels of containment in accordance with the Cartagena Protocol on Biosafety and on the continent with the African Model Law on Biosafety.

ABBPP is promoting a biosafety framework to facilitate intra-regional trade in biotechnology products. Among its targets is to have at least two sub-regions adopt harmonised biosafety regulations within the three-year life span of ABBPP's project.

For anyone interested in finding out who is doing what in the GM arena, who the experts are and where they can be found, ABBPP provides a platform for information dissemination on GM issues through a web portal and a database.

Biotechnology has great promise, but investment has tended to be concentrated in the private sector, which is constrained by commercial considerations from

fully taking into account the needs of the poor. FARA encourages and facilitates public-private partnerships of commercial corporations and public institutions such as the AATF chaired by FARA's Prof Walter Alhassan. Corporate collaboration with national research institutes on developing GM crops has the potential for increasing the profits of commercial farms and smallholders by reducing operational losses caused by pests, diseases, droughts, salination and other biotic and abiotic constraints. Improved seeds that are sold commercially are to date still the best way of making GM technologies available to producers. Such technology transfer to smallholders is a pro-active way of combating poverty. 'It's a win-win situation. Here in Kenya we call it nation building,' said Ms Lucy Muchoki, interim chair of the Pan African Agribusiness Consortium, who represents the private sector on the FARA board.

For anyone interested in finding out who is doing what in the GM arena, who the experts are and where they can be found, ABBPP provides a platform for information dissemination on GM issues through a web portal and a database.

The introduction of GM crops into Africa may be largely about policy, but not all policy is about biotechnology. Policy concerns embrace a wide range of fundamental issues that underpin the future of the agricultural sector from markets and subsidies to climate change and biofuels.

The value-chain approach adopted by Africa Harvest Biotech Foundation International is consonant with DONATA. It links farmers to nursery providers of quality planting materials all the way to their markets. This is underpinned by providing advice on good agronomic practices and improved post-harvest handling.

The introduction of GM crops into Africa may be largely about policy, but not all policy is about biotechnology. Policy concerns embrace a wide range of fundamental issues that underpin the future of the agricultural sector from markets and subsidies to climate change and biofuels. Sound policy is the cornerstone for agricultural growth. This is why, in 2008, FARA established a NSF for policies and markets (NSF 3).

After the Second World War, the government of Japan realised that agricultural expansion was essential for a healthy economy. This is not unique to Japan. It also underpinned early development in Western Europe and the United States and, more recently, the agricultural revolutions in China and India have been credited with triggering these countries' rapid industrial expansion and being a major factor in poverty reduction.

Trade barriers and poor transport infrastructure have long constrained the delivery of reasonably priced inputs and the African farmer's ability to get the produce to markets. Africa's countries suffer the most because the poor infrastructure results in their farmers paying three to five times more than farmers in other nations for the inputs. This is another reason why Africa needs to have well-informed policymakers who can negotiate effectively to bring down trade barriers and eliminate tariffs.

African farmers also suffer disproportionately from climate change, and the remedies are not equitably accessible to them. For instance, carbon trading transfer payments for conserving forests as applied, for example, in Central America have not had much impact in Africa. Soil carbon credit standards are being worked out for the USA, but more work will be needed to make such a scheme work for smallholders and pastoralists in Africa, which covers a much greater area of the earth's surface. 'If we do nothing to position ourselves in the post Kyoto debates, Africa stands to lose. We must press for a climate solution that recognises that every carbon counts in climate mitigation,' said Dr Lindiwe Sibanda, a FARA adviser on policies and markets, who is the chief executive officer for SADC's Food, Agriculture and Natural Resources Policy Analysis Network.

FARA's policies and markets section intends to stimulate policy debates on a wide range of policy and market issues by commissioning reviews and convening workshops, conferences and seminars. It will liaise closely with the AU Commission to ensure that these issues are put on the agenda of ministerial meetings and summits of African heads of state and government and high-level regional meetings.

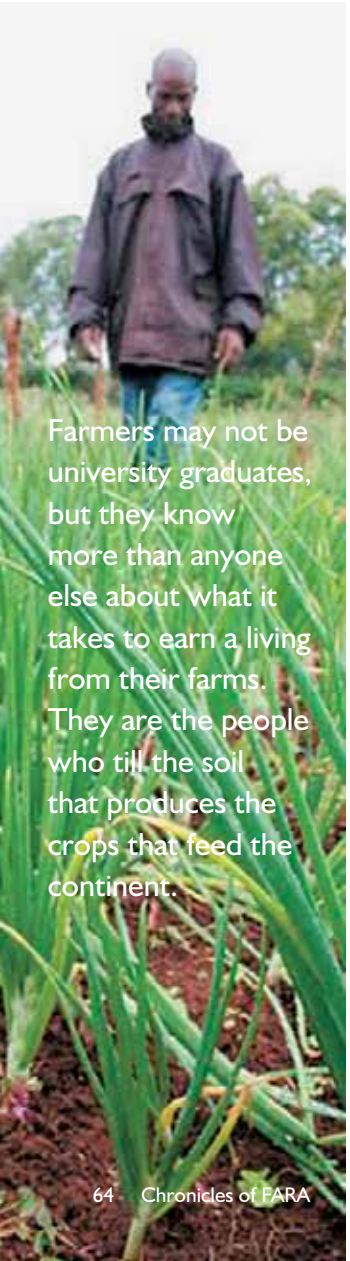
Conclusion

FARA's work is abstract in the sense that we change people's mindset. Our five networking support functions are designed to enhance their operational environment.' Myra Wopereis-Pura, Director of Access to Knowledge and Technology

In a sun-soaked marketplace in Senegal, Papa Cisse chats with Assane Ndiaye. The discussion centres around that day's price for cassava. Cisse, who does not own a mobile phone, has trekked into town from his smallholding to ascertain whether the figure has moved from yesterday's position. 'It has taken me 20 days to sell my crop,' he laments, 'When I think the price is good, I rush back to harvest. But I don't harvest all at once because the price might be better tomorrow.'

Ndiaye heads the local farmers' association. It has 3,200 members. He is prosperous. and travels in a four-wheel-drive and never leaves the house without his mobile. Unlike Cisse, Ndiaye is part of the DONATA project that is being implemented in seven countries in West Africa. Cassava was chosen as an ideal crop in the face of the encroaching desert, climate change and soils depleted of nutrients. Ndiaye has planted some of his fields with four varieties of an improved cassava known as Tropical Manioc Selection (TMS). 'Each plant gives a minimum yield of five to six kilos. Our local cassava weighs one to two kilos maximum at harvest,' he points out. Ndiaye's father and grandfather before him have been tilling the same sandy, rainfed fields since the 1930s. 'We used to grow peanuts, millet and maize, but the droughts are causing me problems. I'm switching to this cassava because it is drought-resistant and it doesn't get diseased.'

'We used to grow peanuts, millet and maize, but the droughts are causing me problems. I'm switching to this cassava because it is drought-resistant and it doesn't get diseased.'



Farmers may not be university graduates, but they know more than anyone else about what it takes to earn a living from their farms. They are the people who till the soil that produces the crops that feed the continent.

Ndiaye's success as a farmer now poses its own problems. He and his fellow farmers would like to get better prices for their crops and have been casting around for new markets. They have even received enquiries over the internet from Guadaloupe and Martinique. 'We don't know what to do about transport. There are opportunities, but we don't know how to grasp them in the hand. We are in transformation,' he said. FARA through its RAILS programme would like to contribute to filling this digital divide between Africa and the rest of the world.

Farmers may not be university graduates, but they know more than anyone else about what it takes to earn a living from their farms. They are the people who till the soil that produces the crops that feed the continent. At the other end of the continuum are the postgraduate scientists who research solutions to the farmers' perennial woes. The ultimate objective of every activity that FARA undertakes is to ensure that technology is generated with input from everyone in the value chain. The end users' participation will ensure that they will both want to and be able to adopt the research products. Ndiaye's trials with TMS is an example of this.

This approach has been adopted for all the improved technologies that have been selected for dissemination through the DONATA project through participatory processes facilitated by the SROs.

FARA recognises that the economic, social and environmental functions of smallholder agriculture are interlinked. It views the agricultural sector as a multi-faceted continental industry that transcends the boundaries of nations and regions. When FARA was first mooted, agricultural research for development—in tandem with agriculture productivity—was in decline. Only four sub-Saharan countries had sustained annual growth rates of above 2% for agricultural GDP per capita of agricultural population. Today this is changing. FARA has witnessed significant shifts in the culture of farmers, scientists and everyone with whom they interact. It is a sea change that is unleashing Africa's human and institutional potential.

Information is being shared generously as advocated by the RAILS learning teams instead of being hoarded. Research institutions are being accorded the importance and, hopefully, the funding they deserve. One of the likely results is a critical mass of enthusiastic scientists with adequate equipment and up-to-date qualifications and skills in fields relevant to solving contemporary problems. The conventional approach of scientific enquiry pursued in isolation is gradually being replaced. IAR4D's nonlinear trajectory incorporates local knowledge and skills during all phases of the research to adoption continuum to ensure outcomes that have practical applications for the farmer.

'FARA has surpassed our expectations. It has done a wonderful job as a voice for Africa. Its achievements are substantial. African agricultural research has become prominent in the international arena. The SSA CP opened the eyes of researchers and policy makers to new ways of conducting the business of

agricultural research for development. IAR4D is now widely embraced in Africa. Uganda's NARO has been restructured along the lines of IAR4D,' said Otim-Nape.

FARA is a platform for advocacy on crucial but historically neglected issues that have constrained growth. These include the harmonisation of regulatory and legislative frameworks, the development of trade route infrastructure, cooperative marketing and the elimination of tariff barriers. It is developing an informed and common stand for the continent in the debates on topics such as climate change and biotechnology so that Africa can speak with one voice in the global arena. FARA is also advancing global objectives. It has always been dedicated to helping African countries achieve the Millennium Development Goals to eradicate poverty, empower women, conserve the environment and foster a global partnership for development. Its position papers and scientific publications have given it a strong individual identity.

'FARA is one of the most advanced regional forums. It is proactive. That's part of its success. It likes to explore new ways of tackling persistent problems. That makes it a very good partner. One of its most significant achievements is the high level of recognition by African leaders and political bodies of the crucial role of agricultural research for rural development. It's done a good job of priority setting and in its role as the technical arm for CAADP. Without blessings from politicians, the policy makers would not have supported the organisation. FARA's role at the continental level in

FARA is a platform for advocacy on crucial but historically neglected issues that have constrained growth. These include the harmonisation of regulatory and legislative frameworks, the development of trade route infrastructure, cooperative marketing and the elimination of tariff barriers.

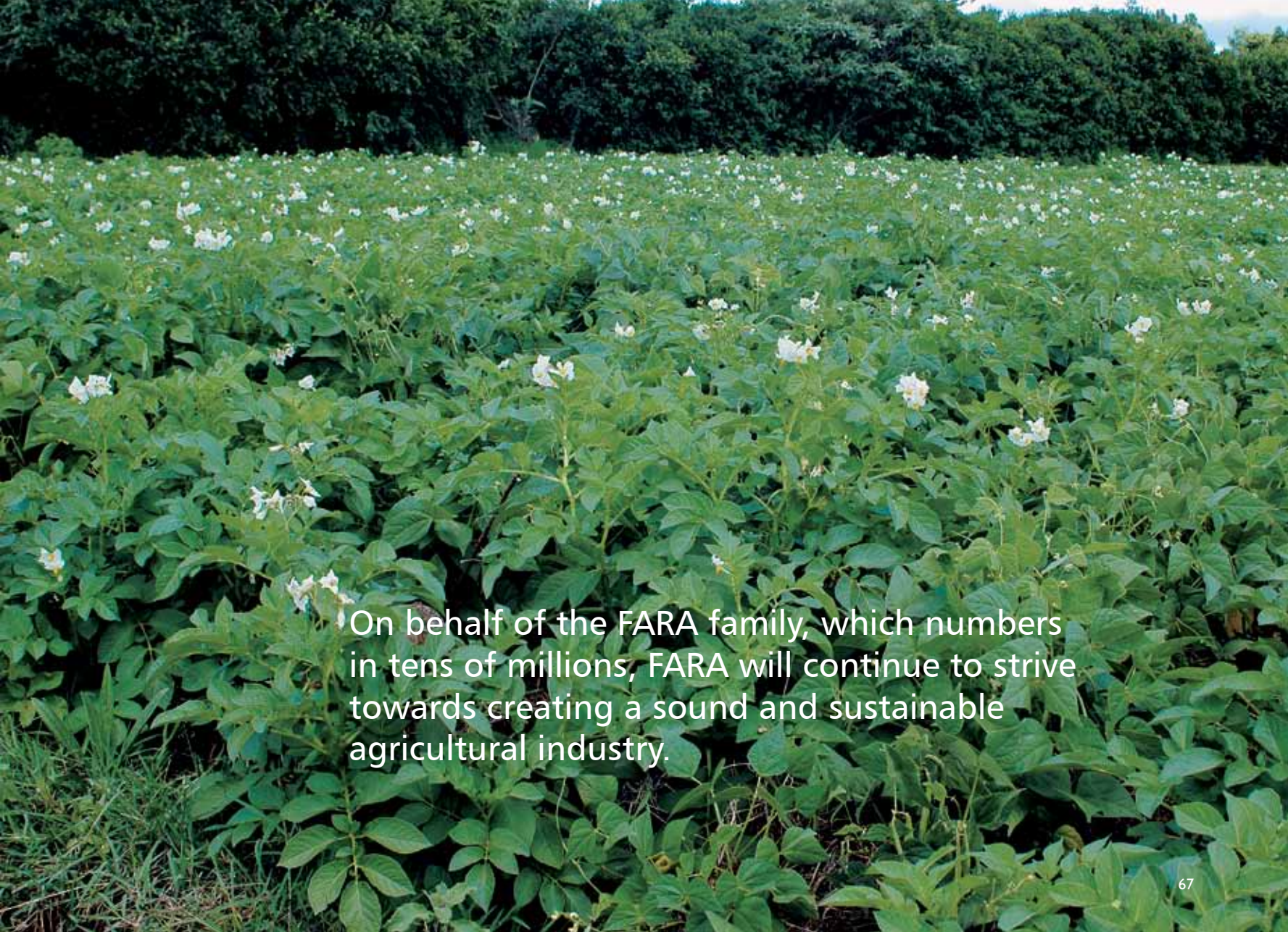
"I think that FARA is a great organisation. It is structured and efficient. The other regions are looking at it as an inspiration." — Paolo Sarfatti.

boosting agricultural research is widely acknowledged,' observed Jean-Luc Khalfaoui.

There have been other notable achievements which coalesced during the secretariat's evolution from a fledgling organisation of four people in the FAO offices to the substantial entity it is today. The discussion on FARA trust funds was a seminal point in FARA-donor relations. The secretariat's relationship with its SRO partners has moved through uncertainty to become one that is both sound and effective. The Forum, with the support of the Secretariat, has been building a constituency that embraces not only NARS but also the farmers, their associations, civil society, the private sector, ministries of agriculture including extension workers, and above all, politicians and policy makers.

'I think that FARA is a great organisation. It is structured and efficient. The other regions are looking at it as an inspiration. FARA's dialogue with civil society, the private sector and policy makers is a significant advance. For example, the Asian Development Bank is working with APAARI to develop a dialogue with NGOs and the private sector looking at FARA as a model,' said Paolo Sarfatti. GFAR is also consulting with FARA to see how some of its achievements can be applied to agriculture in Asia.

On behalf of the FARA family, which numbers in tens of millions, FARA will continue to strive towards creating a sound and sustainable agricultural industry.



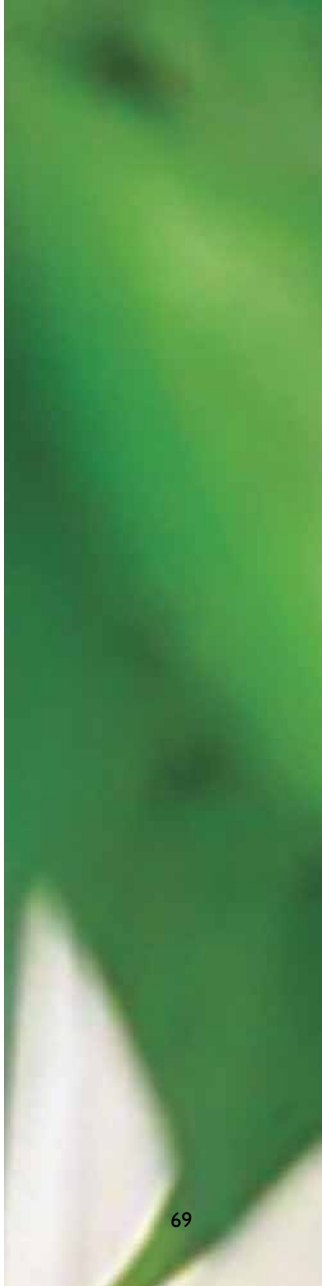
On behalf of the FARA family, which numbers in tens of millions, FARA will continue to strive towards creating a sound and sustainable agricultural industry.

FARA Governance (from SPAAR to 2002)

FARA Board position	Name	Institutional affiliation
Chairman	Joseph Mukiibi	Director General, NARO, Uganda
Vice Chair	Adama Traore	IER, Mali
Members		
- NGO/Foundation representative	Florence Wambugu	Executive Director, A Harvest Biotech Foundation International, Kenya
- Farmer's organization	Ann Wambaa	
- Private Sector representative	Gisele d'Almeida	President, INTERFACE, Senegal
- Southern Africa Research community representative	Keogile Molapong	Head, Training Section, FANR, SADC, Botswana
- ASARECA region representative	Seyfu Ketema	Executive Secretary, ASARECA, Uganda
- CORAF region	Paco Sereme	Executive Secretary , CORAF
- Scientific Partners	Kanayo Nwanze	Director General, WARDA, Cote d'Ivoire
- Donor Community	Moctar Toure	World Bank, USA
- ex-Officio	Monty Jones	Executive Secretary, FARA, Ghana
Sub Regional Organizations		
ASARECA	Romano Kiome	Director General, KARI, Kenya
CORAF	Sie Koffi	Director General CNRA, Cte d'Ivoire
SADC/FANR	Margaret Nyirenda	Director, FANR- SADC, Botswana

FARA Executive Committee (2003–2005)

FARA Board position	Name	Institutional affiliation
Chairman	Abdoulaye Pape Seck	Director General, ISRA, Senegal
Vice Chair	Njobe Bongiwe	Director General, NDA, South Africa
Members		
- NGO/Foundation representative	Florence Wambugu	Executive Director, A Harvest Biotech Foundation International, Kenya
- Private Sector representative	Gisele d'Almeida	President, INTERFACE, Senegal
- Southern Africa Research community representative	Keogile Molapong	Head, Training Section, FANR, SADC, Botswana
- ASARECA region representative	Seyfu Ketema	Executive Secretary, ASARECA, Uganda
- CORAF region	Paco Sereme	Executive Secretary, CORAF
- Scientific Partners	Kanayo Nwanze	Director General, WARDA, Cote d'Ivoire
- Donor Community	Afework Aklilu	Principal Agricultural Economist African Development Bank, Tunisia
- ex-Officio	Monty Jones	Executive Secretary, FARA, Ghana
Sub Regional Organizations		
ASARECA	Amlesom Semere (2003-2004) George Otim-Nape (2004-2005)	Chairman/Director General Department of Agricultural Research and Human Resource Development Ministry of Agriculture, Eritrea Director General, NARO, Uganda
CORAF	Emmanuel Owusu-Bennoah	Director General CSIR, Ghana
SADC/FANR	Margaret Nyirenda	Director, FANR- SADC, Botswana

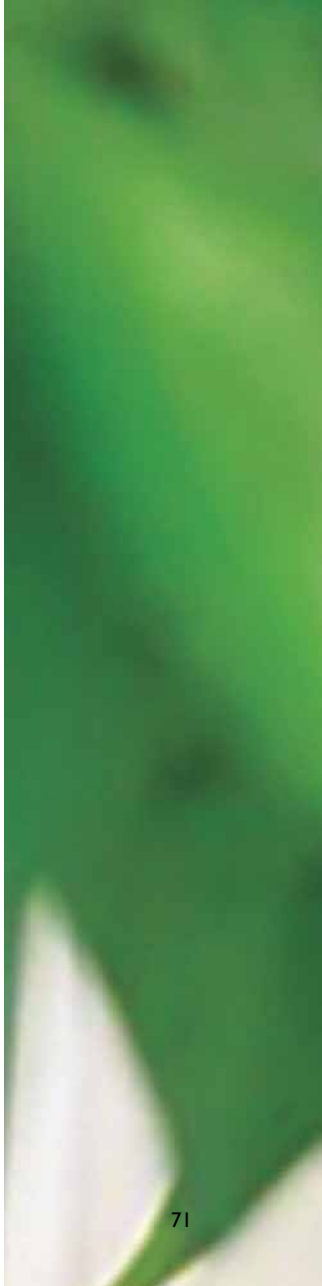


FARA Executive Committee (2005–2007)

FARA Board position	Name	Institutional affiliation
Chairman	Njabulo Nduli	Deputy Director General, NDA, South Africa
Vice Chair	Denis T. Kyetere	Director General, NARO, Uganda
Members		
- NGO/Foundation representative	Sylvie Mbog	
- farmer's organization	Désiré Porquet	Association Nationale des Organisations de Producteurs Agricoles de la Cote d'Ivoire ANOPACI, Cote d'Ivoire
- Private Sector representative	Gisele d'Almeida	President, INTERFACE, Senegal
- Southern Africa Research community representative	Keogile Molapong	Head, Training Section, FANR, SADC, Botswana
- ASARECA region representative	Seyfu Ketema	Executive Secretary, ASARECA, Uganda
- CORAF region	Paco Sereme	Executive Secretary , CORAF
- Scientific Partners	Dennis Garity	Director General, ICRAF, Kenya
- Donor Community	Frank Simona Kufakwandi	Principal Forestry Officer African Development Bank, Tunisia
- ex-Officio	Monty Jones	Executive Secretary, FARA, Ghana
Sub Regional Organizations		
ASARECA		
CORAF	Emmanuel Owusu-Bennoah	Director General CSIR, Ghana
SADC/FANR	Margaret Nyirenda	Director, FANR- SADC, Botswana

FARA Executive Board (2007–2010)

FARA Board position	Name	Institutional affiliation
Chairman	Denis T. Kyetere	Director General, NARO, Uganda
Vice Chair	Tiemoko Yo	Director General, CNRA, Cote d'Ivoire
Members		
- NGO/Foundation representative	Sylvie Mbog	
- farmer's organization	Désiré Porquet	Association Nationale des Organisations de Producteurs Agricoles de la Cote d'Ivoire ANOPACI, Cote d'Ivoire
- Private Sector representative	Lucy Muchoki	President, PanACC, Kenya
- Southern Africa Research community representative	Margaret Nyirenda	Director, FANR, SADC, Botswana
- ASARECA region representative	Seyfu Ketema	Executive Secretary, ASARECA, Uganda
- CORAF region	Paco Sereme	Executive Secretary, CORAF
- Scientific Partners	Pape Seck	Director General, AfricaRice, Benin
- Donor Community	Allan Tollervey	DFID, UK
- African Union	Abebe Haile-Gabriel	Director, Rural Development Economy and Agriculture, African Union
Sub Regional Organizations		
ASARECA	Ephraim Mukisira	Director General, KARI, Kenya
CORAF	Tiemoko Yo	Director General, CNRA, Cote d'Ivoire
SADC/FANR		CARDESA
NASRO	Amor Chermiti	Director General, INRAN, Tunisia
- ex-Officio	Monty Jones	Executive Director, FARA, Ghana



Management training for NARS, SROs, and FARA stakeholders, March 2008, Accra, Ghana.

Dr Monty Jones with Agriculture Ministers of Rwanda and Uganda at the CAADP Day, July 2009, in Tripoli, Libya.

Board meeting with the Burkina Faso Minister of Agriculture in preparation of the 5th FARA General Assembly, BurkinaFaso to be held in July 2010.

FARA Chairpersons over the years

Dr Joseph Mukiibi SPAAR–2002

Dr Abdoulaye Pape Seck, 2003–05

Mme. Njabulo Nduli 2005–07

Dr. Denis T. Kyetere 2007–10

FARA Board and FARA Donors' group, September 2008.

About FARA

FARA's new premises

FARA is the Forum for Agricultural Research in Africa, the apex organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa.

FARA is the technical arm of the African Union Commission (AUC) on rural economy and agricultural development and the lead agency of the AU's New Partnership for Africa's Development (NEPAD) to implement the fourth pillar of the Comprehensive African Agricultural Development Programme (CAADP), involving agricultural research, technology dissemination and uptake.

FARA's **vision**: reduced poverty in Africa as a result of sustainable broad-based agricultural growth and improved livelihoods, particularly of smallholder and pastoral enterprises.

FARA's **mission**: creation of broad-based improvements in agricultural productivity, competitiveness and markets by supporting Africa's sub-regional organizations in strengthening capacity for agricultural innovation.

FARA's Value Proposition: to provide a strategic platform to foster continental and global networking that reinforces the capacities of Africa's national agricultural research systems and sub-regional organizations.

FARA will make this contribution by achieving its *Specific Objective* of **sustainable improvements to broad-based agricultural productivity, competitiveness and markets**.

Key to this is the delivery of five *Results*, which respond to the priorities expressed by FARA's clients. These are:

1. Establishment of appropriate institutional and organizational arrangements for regional agricultural research and development.
2. Broad-based stakeholders provided access to the knowledge and technology necessary for innovation.
3. Development of strategic decision-making options for policy, institutions and markets.
4. Development of human and institutional capacity for innovation.
5. Support provided for platforms for agricultural innovation.

FARA will deliver these results through the provision of networking support to the SROs, i.e.

1. **Advocacy and resource mobilization**
2. **Access to knowledge and technologies**
3. **Regional policies and markets**
4. **Capacity strengthening**
5. **Partnerships and strategic alliances**

FARA's major donors are The African Development Bank, The Canadian International Development Agency, European Commission, the Governments of the Netherlands, United Kingdom, Italy, Ireland, Germany and France, the Consultative Group on International Agricultural Research, the Rockefeller Foundation, Bill and Melinda Gates Foundation, the World Bank, and the United States of America Agency for International Development.

1. Groundbreaking for FARA's first building.

2. A FARA family celebration

3. The FARA family in 2004

4. Celebrating SSA CP





Forum for Agricultural Research in Africa (FARA)
12 Anmeda Street, Roman Ridge
PMB CT 173, Cantonments, Accra, Ghana
Telephone: +233 21 772823 / 779421
Email: info@fara-africa.org
Fax: +233 21 773676
Web site: www.fara-africa.org

ISBN 978-9988-1-1062-6 (print)
ISBN 978-9988-1-1063-4 (pdf)