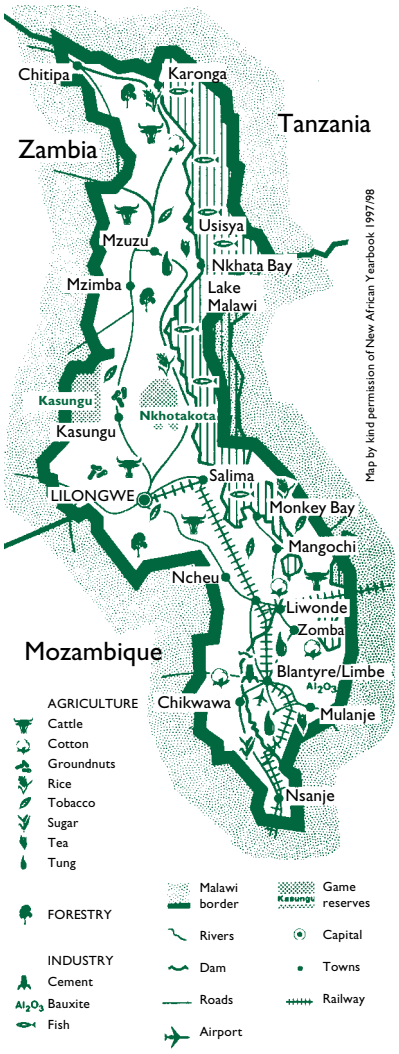
Feeding the Future

NEWSLETTER OF THE SASAKAWA AFRICA ASSOCIATION ISSUE 13, FEBRUARY 1999

SG 2000 starts up in Malawi

The Government of Malawi and SG 2000 have embarked on a joint project to intensify food crop production in the smallholder sector.



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SG 2000 will backstop efforts by the Ministry of Agriculture and Irrigation and various agricultural research and extension organisations to introduce to small-scale farmers productivity-enhancing technologies for maize, grain legumes, and roots and tubers. The project has been established at the request of Aleke Banda, Minister of Agriculture and Irrigation, who is determined to see a transformation in the smallholder food production systems of his nation.

"SG 2000's programme in Malawi," says the Sasakawa Africa Association (SAA) General Manager, Masa Minagawa, "will be led by Dr José Antonio Valencia, who presently is the SG 2000 Country Director for Nigeria."

"SG 2000 field activities," Valencia reports, "have already begun in 1998." Some 280 maize demonstration plots were established in October-November in four Agricultural Development Divisions (ADDs).

SG 2000 will focus on crop management training courses for field officers, emphasising early land preparation and optimum planting designs, fertiliser use, weed control and crop protection. The 'management training plot' or MTP will be the tool to train and re-orient farmers, as well as frontline extension staff, subject matter specialists, and researchers through practical, hands-on participation.

Dr John Kumwenda has been named by the Ministry of Agriculture and Irrigation to serve as its counterpart national co-ordinator with SG 2000. Overall, the Ministry/SG 2000 project is being supervised by Dr Ellard Malindi, Permanent Secretary of the Ministry and Harris Chanza, national Director of Extension.

The SG 2000 programme in Malawi builds upon excellent recent research and extension work, especially in maize and grain legumes production, and soil fertility restoration and maintenance. Many organisations have been involved in this work, including the Malawian national research organisation; the International Maize and Wheat Improvement Centre (CIMMYT), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Centro International de Agricultura

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New leadership in Ghana

Benedicta Appiah-Asante, left, became SG 2000's National Co-ordinator in April 1998. See full story on page 2.

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Tropical (CIAT) and several other international centres; and the Rockefeller Foundation. In addition, the European Union has recently approved funding for several food crops intensification campaigns, designed to reduce national deficits in staples such as maize as well as to increase smallholder incomes.

Malawi has a growing private sector, including dynamic private seed and fertiliser enterprises that can do much to support the Government's smallholder agricultural development programmes, if properly mobilised.

"All of the pieces are there for a rapid expansion in national food production and a reduction in rural poverty," says SAA President Norman Borlaug. "What is needed is to put these technological pieces together into a co-ordinated programme of public, private and NGO sector co-operation."

ABOUT SASAKAWA-GLOBAL 2000

Agricultural projects of Sasakawa-Global 2000 are operated as joint ventures of two organisations – Sasakawa Africa Association (SAA) and the Global 2000 programme of The Carter Center in Atlanta. SAA, whose president is Dr Norman E Borlaug, serves as the lead management organisation for the SG 2000 projects in Africa. Working through The Carter Center's Global 2000 programme, former US President Jimmy Carter and his advisors provide policy advice to national political leaders in support of programme objectives. Funding for SG 2000 projects comes from the Nippon Foundation whose president is Yohei Sasakawa.

New challenges for Ghana programme

Benedicta with local farmers in Ashanti region.

Benedicta Appiah-Asante became National Co-ordinator of SG 2000's Ghana programme in April last year, after four years' study for her doctorate at the Agricultural University, Wageningen, The Netherlands, which she expects to receive early this year. Her dissertation compared the merits of four agricultural intervention programmes, including SG 2000. "My experience at Wageningen helped me have a deeper understanding of the complex nature of rural development," she says.

Now home, she faces important challenges during SG 2000's Phase II mode of operation, where budgets are smaller and greater selectivity is needed in determining programme priorities.

The Government of Ghana recently announced its decentralisation policy in which the District Assemblies have direct responsibility for local development. "This organisational change," says Wayne Haag, Ghana Country Supervisor, "has major implications for the Ministry of Food and Agriculture (MOFA) and for SG 2000."

"Although the District Assemblies were set up in 1977," Benedicta notes, "they had little power. It is only now that the Government is also putting in place both administrative and financial decentralisation. When these two go hand-in-hand, decentralisation might be sustainable."

SG 2000 will therefore work closely with district level institutions, and with the newly privatised Ghana Agricultural Development Bank (ADB), on such matters as agricultural credit, inventory credit, and nucleus outgrower schemes. The modalities are still being sorted out between the extension services, the Government and ADB.

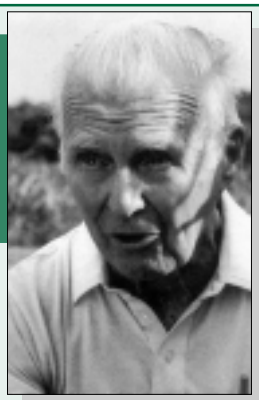
Because of the decentralisation of government services, there was some disruption in the 1998 field programme. Credit and input supplies were delayed resulting in a smaller number of demonstration plots during the major season. Nevertheless, approximately 1000 Extension Test Plots (ETPs) were planted during the year.

During the major season this year, Benedicta hopes to persuade the District Assemblies to finance more ETPs. "The District Assemblies will have to monitor both the front line staff and farmers," she says. "Large numbers of farmers want to participate in the ETPs. More than we can handle. We must not let them down."

Benedicta holds a MSc in Animal Nutrition from the Agricultural University at Hohenheim, near Stuttgart in Germany. On her return to Ghana in 1974, she worked in the Department of Animal Husbandry before her husband was transferred to Kumasi in 1979. She became regional agricultural extension officer in Kumasi region, where she first became involved with SG 2000. In September 1993, she was chosen by SAA and MOFA to study for her doctorate in agricultural extension.

Editorial

Norman E. Borlaug
SAA President



BUILDING EFFECTIVE PARTNERSHIPS

During the 1960s and 1970s, the crisis of hunger was in Asia. Today, it is in sub-Saharan Africa (SSA), where food-insecurity underpins much of the political and economic instability we are seeing today.

Improved food production is the 'engine of change' that permits – and catalyses – economic expansion in other sectors. More efficiently produced food improves family income and contributes to economic and political stability. Agriculture's role in economic growth is demonstrated by the Asian economies over the past two to three decades. It was agriculture that preceded and led the economic growth in the manufacturing and service sectors.

Unexploited potential

SSA has a huge potential to increase food production, using currently available technology, too much of which has still not been put into use. Another serious constraint is the poor rural transport systems of most countries, which make it costly to deliver bulky inputs, such as fertiliser, to the farmgate, as well as to transport farm surpluses to cities.

When the Green Revolution unfolded in Asia and Latin America three decades ago, more foreign aid was available to help finance agricultural development than is the case today in SSA. Moreover, many SSA governments are saddled with large debts from past expenditures on military and failed government business enterprises. Unfortunately, when most African countries gained their independence, the Cold War was in full swing. Irrespective of whether they became aligned with the East or the West, the new African nations were encouraged to spend too much on armaments and the military; and too little on education, roads, railroads, public health, and agricultural development.

The march toward market-oriented economies is now underway, with much hope placed in the emergence of the unshackled African entrepreneur. Certainly, the private sector will make a major contribution to the region's future economic development. But effective government institutions will also be needed to carry out many complementary activities in support of smallholder development, both on the farm and in business.

New institutional mix

In September 1998, SG 2000 staff sat down with representatives of key agricultural organisations – ministries of agriculture, research institutions, private agribusinesses, donor agencies, and other NGOs – to review case studies and discuss how to build more effective operational partnerships for the benefit of Africa's farming communities.

Workshop participants saw many ways in which their respective institutions could collaborate more actively in the future. Most important of all, successful alliances are built upon shared objectives and visions.

For its part, SG2000 pursues partnerships that could be called 'advocacy alliances' – educating decision-makers and the influential public about the need, ways and means to achieve a Green Revolution in Africa while protecting the natural resource base; also strategic alliances established with other organisations which have complementary skills; and, finally, 'financial alliances' with donor organisations, which should been seen as investors, seeking a positive return on their investments.

Researchers and extension workers need to focus their programmes on increasing crop production and farm income, while reducing farm drudgery. Governments must give priority to intensifying food production on the best lands for farming. Emergent small-scale commercial farmers need training in business management, and regular access to reliable market information.

Let's hope that a new institutional mix is in the making in SSA, one in which real 'working alliances' are forged between public, private, and NGO organisations – to generate new technologies, give training in their use, and help establish the agribusinesses needed to support a modern agriculture.

SAFE

Reforming university agricultural education

The Sasakawa Africa Fund for Extension Education (SAFE) and its partner, the Winrock International Institute for Agricultural Development, are tackling a major challenge facing agricultural extension services in sub-Saharan Africa – the need to upgrade the skill-levels of Africa's agricultural extension practitioners. More than three-quarters of the 150,000 extension staff currently working in sub-Saharan African countries have not had the opportunity of reaching degree level.

SAA launched the SAFE programme in 1992, initially as a scholarship programme for individuals, mainly at foreign universities. However, says Chris Dowswell, SAA Director for Programme Co-ordination, "the programme has changed radically, and is now mainly concerned with institutional capacity-building at African agricultural universities."

The first institution to develop an innovative university course for mid-career extension workers was the University of Cape Coast (UCC) in Ghana in 1993-94. Since then, three other universities – Alemaya University of Agriculture in Ethiopia, Sokoine University of Agriculture in Tanzania, and Uganda's Makerere University of Agriculture – have also joined hands with their national ministries of agriculture to develop BSc courses for mid-career extension workers.

Anna Naggaye working on maize production and animal traction at her off-campus farmer-focused Supervised Enterprise Project (SEP) in Uganda's Npigi district. On her left is Zariah Kaggwa, her co-supervisor from the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF), Dr Semana, Head of the Department of Agricultural Extension Education at Makerere, and SAA's Deola Naibakeleo.

GHANA
Increasing gender focus

Female admission at UCC has increased from 21 per cent in 1993 to 35 per cent in 1998. Seventy-nine students were enrolled during the year, and 27 (including two Nigerians) completed their studies in October. A new batch of 29 students – including one from Mozambique and three from Nigeria, were enrolled in October for the 1998 academic year.

"We were particularly pleased at the high level of female participation," comments SAFE's Deola Naibakeleo. "This will help increase the number of trained female extensionists for leadership in Ghana's extension services."

Plans are underway, in collaboration with MOFA, UCC, SAA, and Winrock, to launch a SAFE diploma programme at Kwadaso Agricultural College in Kumasi, which is being upgraded to a diploma-granting college. Kwadaso will train extension staff with certificates to diploma level, while UCC will focus on training diploma-holders up to BSc. A curriculum review meeting was planned for January, and the diploma course is expected to start in September.

"The new diploma course for extension practitioners will complete the missing link in the SAFE programme," notes Chris Dowswell, since more than 50 per cent of extension workers in Africa have no more than a certificate in agriculture. The new two-year diploma course will be built upon the same learning-by-doing principles as the BSc course. "It will become the first step in a career development path for outstanding African extension workers in which normal work assignments can be alternated with innovative training opportunities to upgrade skills and for career advancement."

The SAFE programme in Ghana is also providing direct support for the master's degree programme in agricultural extension at the University of Ghana, Legon.

Participants in the strategic planning workshop on SEPs at Sokoine in September. Seated second from left is Sokoine's Deputy Vice Chancellor, Professor Msolla.

ETHIOPIA
First graduates in 1999

At Alemaya, the first batch of 29 students embarked on their Supervised Enterprise Projects (SEPs) – the off-campus farmer focused part of the programme undertaken in the field – at the beginning of February last year after three semesters of intensive course-work. They finished their SEPs at the end of September 1998 and returned to university to write and defend their projects and complete their remaining course-work. They will complete their degree programme at the end of January, graduating in June.

The second batch of students at Alemaya University are

currently embarking on their third semester before undertaking their off-campus SEPs in February. The third intake, comprising of 26 men and four women, started their BSc course in October last year – the first time that women, with a home science background, have taken part in the programme.

UGANDA
New course underway

The BSc mid-career programme at Makerere started at the beginning of the 1997/8 academic year with a first batch of 11 students, including one from Kenya. After their first year of courses, the students were attached to farms and communities to do preliminary work towards their SEPs. This was completed in September. A second batch of 20 students started their course in October 1998.

TANZANIA
New course launched

Sokoine, in Tanzania, launched its new BSc course in October 1998 with funds secured through Winrock. The university also hosted a strategic planning workshop on SEPs in September – with participants from Ethiopia, Uganda, Ghana, Tanzania, Winrock and SAA contributing to "an excellent networking occasion, through exchanges of information and experience," says Deola Naibakelao.

There are plans to establish a SAFE university programme in Francophone Africa in 1999. This followed a SAFE-sponsored visit to UCC in April 1998 by a delegation of ten representatives of ministries of agriculture and universities in Mali and Burkina Faso.

COTTON IN AFRICA
– the benefits are spilling over into food production

Cotton is produced by more than 30 countries south of the Sahara. During the 1990s, attractive world cotton prices led these African countries to expand their seed cotton area by nearly one million hectares.

Attractive world cotton prices have not only driven area expansions, they have also prompted farmers to use improved seed, fertilisers, and crop protection chemicals, in search of higher yields. Growth has been especially strong in most of Francophone West Africa, and in many SG 2000 project countries.

company to supply growers with inputs on credit with the relatively good security of getting repaid.

"Input credit by the private ginning companies is generally restricted to the cotton crop but it could be expanded to support the food crop input and marketing needs of their growers as well."

The Government of Mozambique has contracted some rural development activities to private cotton companies reports Wayne Haag, SG 2000 Country Director for Mozambique. "SG 2000 is now engaged in some cotton validation trials", Haag notes, "to gain a better understanding of how best to manage cotton and maize production systems."

The French textile company, CFDT, and its various national Francophone joint venture partner companies, also offer a range of agricultural development services to its cotton growers, reports Marcel Galiba of SG 2000 who has responsibility for Mali, Burkina Faso, and Benin. "We are working with the agronomists and extension workers from the CFDT-affiliated national cotton companies, with SG 2000 focusing on the production of maize and other food crops, and the cotton companies concerned with the cotton crop."

Benin's near-tripling in cotton production during the 1990s has greatly facilitated the rapid development of the 'savings-based' microfinance institutions (CREPs) supported by SG 2000. "Cotton profits also have benefited food crops," says Chris Dowswell. "Farmers are investing more in fertilisers, seeds, crop protection chemicals, and postharvest and agroprocessing equipment. Finally, there are also important environmental and economic benefits to be gained in using integrated insect and soil fertility management systems when growing cotton and food crops."

Expansion of seed cotton area in SG 2000 Project Countries.

Area, 000 ha Country	1990	1998	% increase
Benin	123	375	205
Burkina Faso	166	277	67
Ethiopia	50	43	-14
Ghana	28	49	75
Guinea	4	15	261
Malawi	43	72	67
Mali	190	464	144
Mozambique	65	90	38
Nigeria	410	240	42
Tanzania	389	350	10
Togo	80	125	56
Uganda	69	130	88
Developing SSA	2,903	3,869	24

Source: FAOSTAT

The continued development of SSA's cotton sector should have positive spillover effects on domestic food-production sectors. Small-scale farmers who grow food crops and tend livestock also grow most of Africa's cotton.

"Cotton has the peculiarity that the crop doesn't have value unless it is ginned," says SAA President Norman Borlaug, "and this makes it possible for the cotton ginning

WORKSHOP '98

Finding the shared goals

"Strengthening Partnerships for Rural Development in sub-Saharan Africa" was the theme of the CASIN/SG 2000 Workshop '98, held at Villars-sur-Ollon, Switzerland, in September last year.

The workshop brought together 80 representatives from key organisations with which SG 2000 works – senior officials from ministries of agriculture in project countries, donor agencies, international agricultural research centres, private agribusinesses, and other non-governmental organisations.

"Recently the words 'ownership' and 'partnership' have become keystones to success in African development efforts. Projects that don't incorporate these concepts will surely have problems when it comes to sustainability. I am proud to say that we made partnership and ownership integral parts of our programme from its very beginning."

Yohei Sasakawa, President, Nippon Foundation

With the central objective of reviewing and deepening the partnerships that share the common goal of increased agricultural production in Africa, particularly small-scale farmers, speakers delivered case studies on agricultural research, technology generation and transfer; agricultural extension; market development for inputs and output, and access to credit. These then become subject to more focused discussion in smaller working groups.

Bill Foege, Fellow and Senior Health Adviser at the Carter Center, described the key to developing successful partnerships as "finding the shared goal." As he explained, "we need to agree on a common goal; work out the milestones; figure out how to review and revise the milestones as needed; also how to change your plan as you go."

Chris Heye, an Area Manager of Novartis Agro AG in Africa, took up the theme of shared goals, noting that the over-riding goal should be "to create a win-win situation for farmers." He used the example of fertiliser. "Increased yields and productivity are both goals and yardsticks of measuring success in a fertiliser partnership."

Rod Evans, Managing Director of Homegrown, one of Kenya's most successful exporters of horticultural produce, talked about an early partnership with GTZ to develop better crop protection systems. "Homegrown provided land for experiments on seed dressings supplied by GTZ," Evans told the meeting. "The results of this work saved our small-scale farmers money, gave them better germination, and helped create an export business for Kenyan farmers, notably with British supermarkets."

GTZ's Günter Dresrüsse said that there was a need to develop "a common learning process, which is more partner oriented, both within GTZ itself, with other organisations, and with our clients." He also referred to the value of exchange programmes. For example, "let somebody from the Congo go with us to Brazil to get to know how tropical forest management is done in that country, because we, in GTZ, are able to have projects all over the world. We are creating experience all over the world – and we need to make that experience available."

Sustaining dialogue

One key recommendation emanating from the working groups, as described by Frank Hicks of Technoserve, was the importance of continuing dialogue in successful partnerships. "All of us must become far more pro-active in initiating and sustaining dialogue in order to achieve shared goals, focus, objectives, and agreed responsibilities.

"Governments and NGOs should recognise the potential for partnerships with the private sector," Hicks added, "to increase production and benefits for small-scale farmers through market links with large commercial entities. These links can provide access to markets, inputs, technical extensions, technology transfer and the necessary infrastructure for production, processing and marketing. In the past, there has possibly been some ambivalence on the part of NGOs in establishing these links. Increasingly, with the globalisation of the world economy, such links with the private sector will become more and more important."

"Partnership needs commitment, conviction and a drive for results, trust, respect for social and cultural values, humility and an ability to communicate. It brings people from different horizons, different backgrounds and different agendas around a common set of objectives, interests, vision and action programmes."

Moctar Touré, Executive Secretary, Special Programme for Agricultural Research, World Bank.

"We cannot get away from the fact that agriculture and rural development are complex areas which necessitate a woven relationship between governments, public and private institutions, different professional groups, cultures, different levels of leadership, among others. A successful development programme calls for identification and establishment of good working relationship between all the development partners."

Steve Obimpeh, former Minister of Agriculture, Ghana.

In his concluding remarks, Ed Schuh, Chairman of ACE, described SG 2000 as "a family, one which comprises some of us working closely together – the country directors, the board, the people who manage at the central level. But, increasingly, SG 2000 and SAA have realised that the family is much broader. The workshop theme was chosen after we realised how many organisations and people we are working with. In that sense, this was a family workshop because all of you, in one way or another, are involved in our work."

Proceedings of the workshop, which include the various case studies presented of successful partnerships, will be published later this year.

CARTER CENTER'S NEW HEALTH INITIATIVES

The Carter Center is expanding its scope in the international health arena. In addition to leadership of the global Guinea worm disease eradication effort, and its key role in the worldwide campaign to control river blindness, the Center is adding three new programmes that will fight lymphatic filariasis, schistosomiasis, and trachoma.

"The success of our existing health programmes gives The Carter Center a firm foundation upon which to expand our public health efforts," says former US President Jimmy Carter. "Each new programme also will work with governments, health workers, and villagers to establish community-based drug treatment plans. Carter Center field staff will continue to emphasise health education and the training and supervision of local village health workers."

Lymphatic filariasis is a tropical disease often called 'elephantiasis', transmitted to people by the bite of an infected mosquito. "Victims are afflicted with grotesque swelling of the limbs or genitals," says Dr Donald Hopkins, associate executive director of The Carter Center. "Inside the body, adult parasite worms produce embryos called microfilaria, which circulate in the blood and are now known to frequently damage internal organs as well."

Experts estimate that 120 million people in 73 countries already are infected with the parasites that cause lymphatic filariasis, and another 900 million people are at risk in Africa, the Pacific Islands, South and Central America, India and Asia.

LINK WITH RIVER BLINDNESS

The Carter Center is beginning its lymphatic filariasis programme in Nigeria, linking it with the already-existing river blindness programme. Currently, the Center's Global 2000 River Blindness Programme (GRBP) helps community-based distribution systems to dispense the drug Mectizan which controls river blindness when one dose is taken orally once a year. In 1997, GRBP helped to provide more than 5 million Mectizan treatments, 77 per cent of which were in Nigeria. The same mechanism used by the river blindness programme will provide annual treatment for lymphatic filariasis.

Trachoma victim – the disease has a major impact in rural villages.

The Carter Center also plans to fight schistosomiasis, often called 'snail fever'. "Schistosomiasis is the second most important parasitic disease in tropical countries, after malaria, in its impact on rural economies and public health," says Donald Hopkins. "People become infected when exposed to water contaminated with the parasite larvae that emerge from certain snails." The larvae penetrate the skin of the person, and the grown parasite lives for years in veins near the person's intestines and bladder. During its lifetime, the parasite lays thousands of spiny eggs that tear and scar human tissue in the intestines, bladder, liver and lungs. The result is chronic debility and, sometimes, premature death.

Experts estimate that 200 million people in more than 70 countries are infected by schistosomiasis, and about 100 million live in Africa. Other affected regions are Southeast Asia, the Middle East, and South America.

ORAL DOSE

Like river blindness and lymphatic filariasis, schistosomiasis also can be treated by one oral dose of medicine once a year. The Carter Center plans to launch its new schistosomiasis programme in Nigeria, in the same area where lymphatic filariasis and river blindness are being targeted for treatment.

Finally, The Carter Center is undertaking a programme to control trachoma, which is the world's leading cause of preventable blindness. A chronic bacterial infection, trachoma is spread easily from person to person. Inflammation of the upper eyelid causes scarring, and the scarring results in in-turned eyelashes, which cause painful abrasion of the cornea and then blindness. "Worldwide, only cataracts cause more blindness than trachoma," says Donald Hopkins. "However, unlike cataracts, trachoma can be prevented. In fact, simple hygiene is the primary tool used against trachoma."

Today, 98 per cent of the 146 million trachoma cases worldwide exist in developing countries, particularly in arid areas where water is scarce, such as in Africa's Sahel region. In rural agricultural villages, less than 20 per cent of farmers blinded from trachoma are able to continue farming.

The Carter Center is working with the World Health Organisation (WHO) and several other partners to control trachoma. It will focus on three areas of the WHO strategy – (1) antibiotics to treat early trachoma infections; (2) basic cleanliness at village level, such as face and hand washing; and (3) environment changes to improve water supplies and sanitation. It is now launching its trachoma initiative in three African countries.

Results of lymphatic filariasis on young people.

ACE UPDATE

During 1998, ACE and the World Bank co-sponsored two successful workshops in Africa – a policy workshop in Uganda and a microfinance workshop in Benin. ACE Chairman Ed Schuh was assisted by his associate economist, Fidèle Ndayisenga, several consultants, and the SG 2000 headquarters and field staff in organising these events.

Agricultural intensification in Uganda

A national agricultural policy workshop was held in Kampala in May 1998, in collaboration with the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF), and the World Bank.

Some 30 people attended the one-day meeting, which was chaired, for the entire time, by Speciosa Wandira Kazibwe, Vice President of Uganda and Minister of Agriculture. Ed Schuh, Graeme Donovan, World Bank, and Michael Foster, the SG 2000 Director for Uganda, were primarily responsible for organising the event.

Participants, which included Norman Borlaug and Dale Hathaway, the former US Assistant Secretary of Agriculture, addressed four sets of issues:

1) current agricultural development problems in Uganda;
2) how to accelerate the agricultural modernisation process;
3) the potential of international trade to promote economic development; and
4) ways to accelerate the development of the non-farm rural economy.

Agricultural intensification was a major theme. SG 2000 and World Bank speakers urged the government to give higher priority to increased fertiliser use on food crops, coffee and cotton. Moreover, transport costs to the nearest ports should be lowered, and agricultural diversification and export goals encouraged.

Ed Schuh, Regents Professor at the University of Minnesota.

Agribusiness Forum meets in Uganda

Following the policy workshop, an SG 2000 Agribusiness Forum meeting was held. Chaired by Speciosa Wandira Kazibwe, it was attended by high government officials, agribusiness representatives, World Bank officials, and SG 2000 staff.

Andy Agle, Director of Global 2000 Operations at the Carter Center, reports that "Uganda is the second of the in-country agribusiness forum meetings that we have held, the first being in Ethiopia in 1997. Our aim is to help facilitate increased investments in food and agriculture in sub-Saharan Africa." SG 2000 private sector partners from Monsanto, Cargill, Novartis, Norsk Hydro, and Pioneer Hybrid International attended the meeting – along with senior government officials responsible for trade, commerce and economic development.

Discussions focused on opportunities for the agribusiness sector in promoting agricultural modernisation and development of the non-farm rural economy, especially food and feed agroprocessing activities. The private companies gave their points of view on investing in Uganda. Government officials responded to private sector concerns and presented their plans for the private sector in agriculture.

Microfinance in Benin

SG 2000 and the World Bank co-sponsored a 'Microfinance Professional Forum', 18 -21 May 1998 in Cotonou, Benin, which was attended by more than 100 participants from 15 African countries.

Two-thirds of the participants were practitioners from microfinance institutions in Francophone West Africa supported by the World Bank. Thirty participants came from SG 2000 project countries, either from ministries of agriculture or parastatal agricultural development banks.

Cecile Fruman, Laurance Hart and Carlos Cuevas from the World Bank; Fidèle Ndayisenga, Marcel Galiba, and Hervé Akueson from SG 2000; and Bernadin Glehouenou from the Ministry of Rural Development (MDR) were the primary workshop organisers.

A one-day field day was organised to visit local microfinance institutions. Participants were organised into groups of ten and sent to review various microfinance institutions. All the groups visited a CREP, the rural savings and loans associations in Benin that SG 2000 has helped to establish among farmer groups, in collaboration with MDR staff. Different groups also visited other microfinance institutions (FECECAM, PADME, CAVECA/CBDIBA), some catering for urban lending.

Interest in microfinance institutions (MFIs) has grown rapidly during the 1990s. The World Bank's Consultative Group to Assist the Poor (CGAP) estimates that there are 8,000-10,000 MFIs in the developing world with 1,000 members or more. Many of these are NGOs.

Tom Dichter, one of the workshop's speakers, summarised a major workshop conclusion, when he said, "microfinance, especially in the hands of NGOs, has given too low a priority to ensuring positive interest rates, aggregate output, and to building an institutional and human infrastructure for sustained development. This means a functioning MIS system and sufficiently trained cost-conscious management which will ensure that funds are protected and costs are kept under control."

Workshop participants concluded that sustainability in MFIs is possible with positive real interest rates, a good management information system, and tight cost-conscious management, which focuses on high repayment and volume growth.

The SG 2000 policy secretariat (ACE) provides policy advice to President Carter, Dr Borlaug and SG 2000 directors. ACE is led by agricultural economist G Edward Schuh, Regents Professor at the University of Minnesota, and managed by Andy Agle, Global 2000 Director of Operations at the Carter Center.

SG 2000 country profiles

A round-up of project activities in project countries

BENIN

The SG 2000 project has been in 'Phase II' mode since 1996, with progressively smaller budgets and an increasingly narrow range of activities.

In the field programme, SG 2000 continued to support Ministry of Rural Development (MDR) extension staff in their work to demonstrate improved rice production packages, the benefits of using green manure crops (mainly Mucuna) to improve soil fertility and control noxious weeds, and to introduce quality protein maize (QPM).

In rice farming, some 100 farmers planted demonstration plots covering 80 ha. Two improved rice varieties were used – one for the northern region and another for the centre and south of the country. Average yields for these demonstrations were 3,500 kg/ha.

A further 2,920 Mucuna demonstration plots were planted by small-scale farmers during the year – with 4,400 kg of Mucuna seed being distributed. Mucuna seed was sent to other SG 2000 countries – Burkina Faso, Mali, and Guinea. Other green manure crops (*Dolichos lablab* and *Canavalia ensiformis*) were evaluated in the northern part of the country, which has drier environments.

The QPM variety Obatanpa was introduced into the field demonstration programme in 1997, with demonstrations continuing in 1998. Yields were competitive with normal protein-quality maize varieties.

The postharvest programme worked with farmers to establish another 135 demonstration sites with drying cribs in Atlantique and Oueme departments.

The primary SG 2000 programme activity in 1998 has been the 'CREP' movement – village savings and loan associations – established by farmers and other members of the local community. Forty CREPs with more than 20,000 members have received MDR/SG 2000 assistance. This has included a grant for materials to construct a small building, a safe (strong box), and various types of training for CREP leaders. Accumulated savings from 1992 to 1998 amount to the equivalent of US$ 3.73 million, with withdrawals at US$ 2.8 million.

Since 1996, SONAPRA (*Société Nationale des Produits Agricoles*), a semi-private input company, has sold some 2,000 t of fertiliser at wholesale prices and on a credit basis to individual CREPs.

The SAA/IITA agroprocessing project is working closely with the CREP movement to demonstrate and encourage the use of agroprocessing equipment at village level – the CREP movement financing the purchase of agroprocessing equipment by CREP members. Women groups, in particular, have benefited from equipment to process fermented cassava flour (gari), thereby providing new income-earning opportunities.

The CREP movement in Benin – accumulated savings and withdrawals from 1992-98

Departments	Savings US$	Withdrawals US$
Borgou	1,351,897	1,173,093
Oueme	1,107,826	821,061
Zou	609,639	349,732
Mono	514,623	423,829
Atacora	128,266	58,083
Atlantique	19,206	10,038
TOTAL	**3,731,457**	**2,835,836**

"The focus in 1999 will be to consolidate the CREP movement," says Marcel Galiba, Benin Country Supervisor. SG 2000 will provide financial support for FENACREP, the newly created national association which will offer a range of technical services to individual CREPs, as well as to search for external sources of supplementary credit lines.

BURKINA FASO

Crop production was down in Burkina Faso in 1997, due to the late and erratic rains. Nationwide, 18 provinces out of 45 had reduced cereal production. By 1998, national grain reserves had dropped to only 15,095 t. Luckily, the 1998 rains were very good in Burkina and bumper cereal harvests are expected.

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SG 2000 National Collaborator, Jean Badu (right), with a maize farmer growing the QPM variety Obatanpa in Burkina Faso.

BURKINA FASO
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During 1998, some 3,700 production test plots (PTPs) were planted with maize, sorghum, millet, rice, cowpea, and groundnuts, including 500 PTPs with the QPM variety Obatanpa from Ghana (renamed "Masongo" or "good mother" in the local language). Soil fertility improvement continued with 280 ha prepared with dykes, 600 plots with compost and phosphate rock, and 500 plots for fallow improvement.

"We learnt a lot from the 1997 and 1998 growing seasons," says Country Director Marcel Galiba. "Maize and rice are good sources of revenue for farmers. Excellent technology exists for these crops and we will continue to expand the PTP programme. In maize, we will focus on the QPM Masongo variety, since it is nutritionally superior to normal maize."

Galiba feels that millet and sorghum PTPs have not proved entirely successful, and the technology packages are being revised in 1999 in collaboration with research and extension advisors. Lower amounts of fertiliser are likely to be recommended. The new technological packages will boost millet and sorghum yields by 30-50 per cent, but with much lower risk levels.

Fallow land planted with green manure legumes and phosphate rock will probably be switched to legumes like groundnuts which are able to generate income. Lablab and Mucuna green manure species will be used with livestock where they can also contribute to animal feed.

The SG 2000 programme has concentrated on soil fertility improvement in a country where water and wind erosion cause serious soil degradation. Some 168 ha were protected by dykes or rock bunds – an essential step in stopping erosion. However, farmers in Burkina took less kindly to fallow improvement schemes preferring more immediate forms of income generation. Compost enriched with phosphate rock was more readily accepted. A watershed catchment of 10,000 m^3 of water was built for women in order to generate income during the 'off' season.

The year saw the launch of the CREP movement in Burkina, with four CREPs being established with a total membership of 322. Managers and board members are being trained so that banking activities can begin.

Mrs Sono visits Burkina Faso

Mrs Ayako Sono, Chairperson of the Nippon Foundation – which funds the SG 2000 programme – visited West Africa in late August and early September 1998. Her visit took her to Burkina Faso where, accompanied by Japanese government officials, journalists, and representatives from the Nippon Foundation and SAA, she met with the political leadership, including President Blaise Campaoré, the Prime Minister and the Minister of Agriculture. She also reviewed field activities of the SG 2000 project, interacting with farmers and MOA staff.
Here she receives gifts during the visit to a village-based savings and loan association in Reo district. On her right is Marcel Galiba, SG 2000 Country Director for Burkina Faso.

ERITREA

The Government of Eritrea has given substantial support to an ambitious plan to disseminate improved agricultural technology to farmers, using the SG 2000 technology-transfer approach. Last year 100,000 farmers were included in this Government-financed agricultural intensification programme. SG 2000 and the Food and Agriculture Organisation (FAO) also sponsored some farmers to grow demonstration plots. In 1999, the Government wants to expand the programme significantly, possibly doubling these numbers.

SG 2000's Eritrean project began in 1996 in two administrative regions with a total of 192 extension management training plots (EMTPs) involving 290 farmers. By 1997, the number of farmers increased to 2,023 in three regions and, by 1998, to 2,928. The main crops in the demonstration programmes have been maize with supplementary irrigation, and rainfed wheat, tef, sorghum and barley. Yields obtained by farmers on the demonstration plots are two to three times higher, when compared to traditional practice.

In 1999, SG 2000 will continue to support around 2,000 demonstration plots in. The main crops to be targeted are barley, tef, sorghum and millet. A few wheat and maize demonstration plots will be established.

Eritrea's climate – with rainfall highly unreliable in quantity and distribution – will always be a serious constraint to sustainable agricultural production. "The country will enjoy one of its best harvests yet," states Country Director, Marco Quiñones. "The Government is committed to agricultural development and there is considerable enthusiasm among the farming community to adopt new technology. But Eritrea still only produces 60 to 70 per cent of its cereal food needs – so there is still a long way to go before self-sufficiency."

ETHIOPIA

Production prospects for the 1998/99 crop season are encouraging, with record food production forecast. Fertiliser distribution, particularly in remote areas, tended to be late. The production and distribution of hybrid maize seed, in the face of increasing demand, needs improvement. Micro-finance institutions in the regions are now replacing commercial banks as a major source of input credit for small-scale farmers.

Over this period, Ethiopia's national extension programme – which is using the SG 2000 technology transfer approach – will involve some 2.5 million farm families. Two million extension-assisted plots are being planted with food crops – maize, tef, sorghum, wheat, barley, pulses, potatoes and other minor crops – with the rest divided into various other extension activities, such as soil conservation and high-value crop diversification.

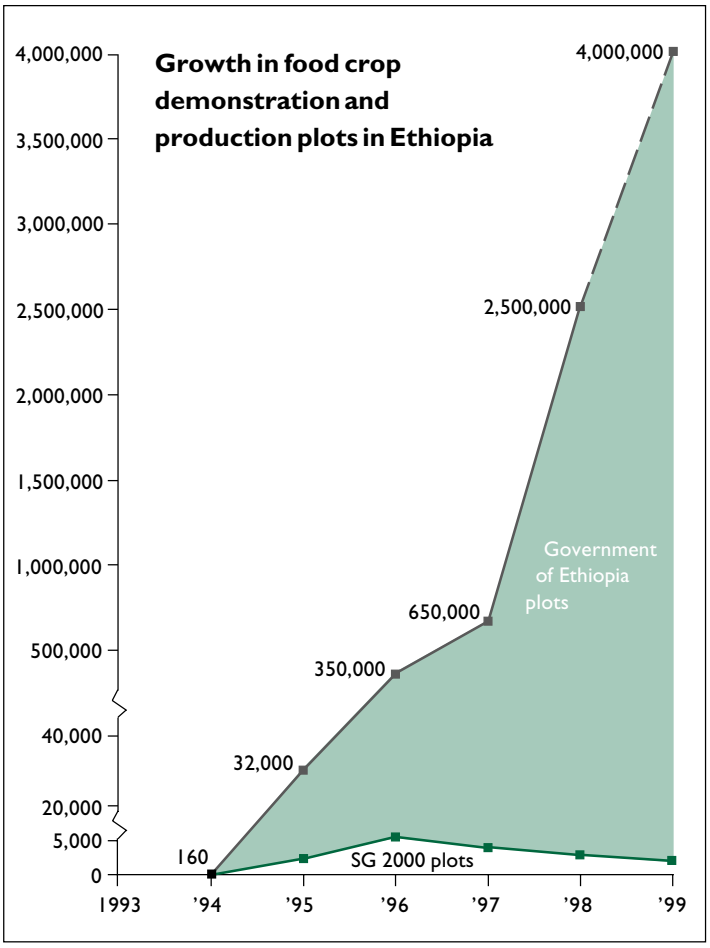
As the Government of Ethiopia's large agricultural intensification programme is well underway, SG 2000 uses its resources in a complementary way to evaluate – with farmers – new crop technologies and components.

For example, SG 2000 provided technical and financial support for the multiplication of the seed of Striga-resistant, open-pollinated sorghum varieties developed by Purdue University in the United States. This was done through the INTSORMIL research network and researchers at the Ethiopian Agricultural Research Organisation (EARO).

A total of 371 sorghum demonstration plots with the new Striga-resistant varieties were planted in infested fields under farmers' management, with the advice of EARO scientists. "If these trials prove successful," says Marco Quiñones, SG 2000 Country Director, "the sorghum researchers may speed up the process for releasing these varieties, which would make a major contribution to sorghum production. Nearly one million hectares are planted with sorghum in Ethiopia and the parasitic weed Striga is a serious problem."

Tef is Ethiopia's preferred staple, grown on two million hectares of land. This food grain has a grass-like appearance and is susceptible to 'lodging' even when minor dosages of N fertiliser are applied. If the stems can be stiffened, more fertiliser can be used and yields substantially increased.

Evaluation trials have been conducted on tef with a plant growth regulator commercially known as Moddus, which stiffens the stem. The trials involve collaboration between the Novartis Company, EARO's tef research team, the Oromia Region extension service, SG 2000, and 135 participating farmers. The final report on these trials is being produced.



In 1998, Ethiopia added conservation tillage to its strategies to reverse the continuing degradation of its soil-resource base. Some 77 maize farmers in the Southern and Oromia regions participated in conservation tillage evaluation trials involving the commercial glyphosate herbicide, Round-Up. For the 1999/2000 crop cycle, wheat will be added to these experiments.

SG 2000 is also promoting the planting of wheat in lines (rows) as an effective method to control weeds and improve yields. Seventy-one wheat plots were established with farmers during the year to evaluate this planting method.

To improve the productivity of the heavy clay, black vertisols found in the Ethiopian highlands, SG 2000 has been promoting the use of an ox-drawn plough, the broadbed maker (BBM), developed by the Ministry of Agriculture, Alemaya University, the International Livestock Research Institute (ILRI), and the International Crops Research Institute for the

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Benefiting from the greatly increased maize harvest in Ethiopia.

Photo: Tony Freeth

ETHIOPIA
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Semi-Arid Tropics (ICRISAT). The BBM enables farmers to prepare the heavy clay soils by making raised beds before they become waterlogged. This allows for early planting – and improved yields. For three years, SG 2000 has sponsored training for extension staff and farmers in the use of the BBM. It is estimated that more than 25,000 BBMs are in operation in Ethiopia.

Potatoes are an important food crop in certain highland areas. The late blight-producing fungus must be controlled either through the use of fungicides or blight-resistant varieties. SG 2000 is therefore supporting the multiplication of new, high-yielding and blight-resistant potato varieties.

Nineteen farmers in the Southern Region are multiplying these varieties, which were released by EARO's potato research programme and are based upon germplasm received from the International Potato Centre (CIP) in Peru.

Postharvest training activities are now being integrated in agricultural extension programmes in the various regions, as mounting harvests make post-production issues increasingly important. SG 2000 is supporting training seminars for regional extension staff in postharvest technology.

SG 2000 is also promoting local manufacture of appropriate postharvest machinery. One promising prototype developed by IITA is a multi-crop threshing machine which can efficiently thresh maize (with or without husks), wheat, barley, sorghum, rice, tef and pulses.

A prototype of the machine was brought back to EARO. Twelve machines have now been completed with three more being produced. Market demand is presently being assessed. The SAA/IITA agroprocessing programme is helping to support this work.

IITA's multi-crop threshing machine in action – threshing tef, Ethiopia's staple food crop.

GHANA

Country Supervisor, Wayne Haag, and SG 2000's new National Co-ordinator, Benedicta Appiah-Asante, have been adjusting programme activities to accommodate the institutional decentralisation policy announced by the Government (see page 2).

"We expect to work very closely with the Agricultural Development Bank's nucleus farmer outgrower scheme," says Wayne Haag. "Extension test plots (ETPs) would become part of this scheme, facilitating credit recovery and input delivery while focusing better on the extension services."

Wayne Haag reports that fertiliser use in Ghana has begun to increase, following a bottoming out a few years ago at 10,000 t a year. The input retail distribution system is also expanding. "However," Haag adds, "things are moving too slowly." More effective public-private partnerships need to be forged to accelerate the process."

Ghana's small-scale private sector seed production system continues to grow, with a record programme of maize seed in 1997 when 1,200 t of seed was certified for sale. Unfortunately, 1998 seed sales were slow due to erratic rains, resulting in large seed carry-over stocks and storage problems. Hermetically sealed 'cocoons' for bagged storage are being introduced on an experimental basis to facilitate the storage of carry-over stocks.

The conservation tillage programme for small-scale farmers is gathering momentum, with new expansions in the northern sector of the country. Dizengoff (the distributor of Round-Up and Lasso herbicides) have reported significant increase in herbicide sales. There has also been a very significant increase in the sales of knapsack sprayers. The

Seed growers/conservation tillage collaborators in Kumasi – this programme for small scale farmers is gathering momentum.

Ghana Seed Growers' Association has adopted no-tillage systems in virtually all the multiplication lands. The Crops Research Institute (CRI) experimental station has planted all crops using conservation tillage techniques.

The Monsanto/Crops Research Institute/DAES/ SG 2000/Dizengoff Ghana collaborative venture was recognised by Monsanto during its annual corporate meeting for its contributions to small-scale agricultural development in Ghana. Wayne Haag was invited to St Louis to receive an $10,000 award from Monsanto on behalf of the participants in the no-till project in Ghana.

The QPM hybrid, known as Mama-Ba, has now been planted in 250 ETPs in Brong-Ahafo and Ashanti regions with promising results. Yields have significantly exceeded those of the QPM open-pollinated variety, Obatanpa. Efforts to increase hybrid QPM seed production are underway, but with modest results. This is the first time Ghanaian seed growers have been exposed to the rigours of hybrid seed production. A target of 50 t of hybrid QPM seed has been set for the 1999 growing season.

At CRI, Dr Peter Sallah has taken over responsibility for the QPM programme from Dr Twumasi-Afriye, who is currently CIMMYT's highland maize breeder in Ethiopia. Ben Dzah continues to manage SG 2000's support for QPM research and development.

Meanwhile a QPM nutrition study, led by a nutritionist from the Ministry of Health, Abena Akuamoa-Boateng, is being conducted in the Ejura-Sekyedumase district of Ashanti region. The study will compare four treatments to examine the effect of QPM and the use of malt on the growth of weaning children.
This work receives technical support from The Carter Center, particularly from Dr William Foege and Andy Agle.

GUINEA

The SG 2000 project in Guinea has expanded rapidly since its establishment in 1996. In 1997 there were 1,400 farmers in the programme. Last year the figure had risen to 4,742. The number of plots is lower than the number of participants because of the programme's emphasis on working with groups. For example, a group of 30 to 40 farmers might have one production test plot (PTP) of three to four hectares. It is expected that PTP numbers and participating farmers will more than double in 1999.

During 1998, the programme expanded into six regions and 27 districts. Over 80 t of fertiliser and 20 t of improved seed were distributed in the field demonstration programme; and PTP input credit accounts were opened in the six regions.

Rice is the principal crop focus. In 1999, SG 2000 is poised to assist with the rapid multiplication of promising new lines developed by the West African Rice Development Centre (WARDA). As a result of collaboration between WARDA and Guinean researchers, varieties have been identified that can mature in less than 90 days with good yields. Country Director Tereke Berhe believes that introduction of the green manure crop Mucuna into rice-based cropping systems, will allow Guinean farmers to harvest 2-3 t/ha of unhusked rice, with only limited use of purchased fertilisers. More than 50 per cent of the SG 2000 budget in Guinea is allocated for rice.

Maize is also an important crop in the field programme where SG 2000 is promoting the use of quality protein maize (QPM). The Ghanaian QPM variety, Obantanpa, is well-adapted to Guinean conditions, yielding an average of 3.5 t/ha. Initially, SG 2000 imported 500 kg of Obatanpa seed. Now, SG 2000 is supporting national Obatanpa seed production on 20 ha with the aim of producing at least 40 t for 1999. QPM is being popularised in nutritional training for women at the village level. Talks are also underway with the Ministry of Livestock and Fisheries in order to link poultry and small ruminant producers with QPM growers.

"The final key crop in the SG 2000 programme is Mucuna," says Tareke Berhe. One tonne of Mucuna seed was imported into Guinea in 1996. Now Mucuna is grown on 300 to 400 ha and it is expected that the area will reach 600 ha in 1999. "Increasingly, farmers are recognising the benefits of Mucuna," Berhe confirms. "Apart from improving soil fertility and soil management, they also appreciate Mucuna's ability to control two noxious weeds – speargrass and Striga."

Ten Guinean extension officers were sent to Ghana last year for training in narrow crib production. Since returning, they have begun to construct demonstration sites with cribs and drying patios for training in on-farm grain storage. This group will become the specialists for a much larger training programme for frontline staff during 1999. Agroprocessing technology and enterprise development will also be addressed by this programme.

The Women in Agriculture Development programme involves participation in the PTP field demonstrations in vegetable production, cassava processing, and improved nutrition (production and utilisation of QPM and soybeans).

Happy QPM seed producer, Thierno Boubacar Kalo, at Soumbalako, Mamou region, in Guinea.

Other objectives for 1999 include starting a small-scale private certified seed production programme which utilises the experience and support of SG 2000 in Ghana. The postharvest programme will gather momentum with the expanding local manufacture of

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GUINEA

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a multicrop thresher while narrow cribs will be constructed in areas where QPM is grown.

Efforts are also needed to begin development of an input distribution system that will reach down to at least the small towns, if not villages. The objective must be to get fertilisers and improved seeds near to farmers' fields. Input stockists can be private entrepreneurs, farmers' associations, and other NGOs. Ways to develop a network of local stockists, supported by larger national distributors, is a major concern of SG 2000. In 1999, SG 2000 will seek to help establish effective private-public-NGO partnerships to build an input delivery system in Guinea.

"One reason for the success of our programme is the enthusiastic collaboration we receive from Government officials, and especially those from the National Directorate of Extension Services," says Tareke Berhe. "At our Postharvest and Agroprocessing Field Day in September 1998, 650 people attended – from farmers to a Deputy Minister of Agriculture, a Cabinet Director, and a Counsellor in the Prime Minister's office."

Comparison of rice, maize and Mucuna PTPs, Guinea 1998

Crop	Number of PTPs	Number of farmers
Rice	449	2,796
Maize	200	767
Mucuna	123	287
Total - 3 crops	**772**	**3,850**
Total - all crops	**894**	**4,742**

Woman farmer in Guinea with a basket of Mucuna seed.

MALI

A farmer near Segou, Mali, participating in the SG 2000/Novartis programme to introduce Apron Plus to control downy mildew on millet.

The SG 2000 programme was in its second full year of operation in 1998. The field programme featured demonstration plots of millet, sorghum, and maize. Some 6,000 demonstration plots were planted, with maize accounting for 2,000 plots, and sorghum, millet, cowpeas, and groundnuts the remaining 4,000 plots.

SG 2000 continues to learn from its MOA colleagues and farmers about the appropriate technological packages for the different food crops. The maize package is well-suited to the south-eastern zone, the highest rainfall area of the country. While the rains were erratic in 1997, they were quite good in 1998, and Mali expects to produce more than 350,000 t of maize.

Improved technologies also exist for sorghum and millet, but the yield gains are not nearly so large as in maize. "The rainfall pattern is by far the most limiting factor in the Sahel region," comments Country Director Marcel Galiba. "On sorghum and millet, farmers are often reluctant to invest in fertilisers when rainfall is so uncertain. Most are reluctant to use the whole package. In fact, less than five per cent used the full package." Still, yield gains of 30-50 per cent are possible through a range of crop management interventions.

Most of the maize plots were planted with seed of the quality protein maize variety (QPM), Obatanpa. In 1997, Obatanpa yields ranged between 1,800 and 2,200 kg/ha. In the first off-season in 1997 (January to March) Obatanpa yields, under irrigation, averaged between 3,500 kg/ha and 6,000 kg/ha.

In 1998, 70 farmers tested Obatanpa and the normal-protein maize variety Sotubaka in southern Mali for the first time. Yields ranged from 1,800 kg/ha to 4,400 kg/ha for Obatanpa and from 2,100 kg/ha to 4,500 kg/ha for Sotubaka. More than 2,000 kg of Obatanpa seed was produced under irrigation at Baguineda, with Hydrochem.

Apron Plus, developed by

Demonstration plots in Mali, 1997/1998.

Activities	PTP expansion from 1997 to 1998	
	1997	1998
Millet/Intensification	180	450
Millet/Norvatis	-	1,200
Sorghum	116	200
Maize	558	2,000
Rice	67	80
Groundnut	58	70
Cowpea	53	80
Lablab	128	300
Mucuna	6	-
Compost	100	360
Total*	**1,300**	**6,014**

*Dykes are expressed in ha

Norvartis to fight downy mildew, is being demonstrated in the Segou region on hundreds of farms, in collaboration with SG 2000. Novartis has a long-term relationship with the Institute for Economic Research's Cinzana Station, which has developed the Apron Plus seed dressing recommendation for millet and sorghum. In disease 'hot spot' areas this crop protection chemical can increase millet and sorghum yields by 25-30 per cent.

SG 2000 is also working with the MOA on a soil conservation programme. Some 85 fallow improvement plots were prepared and 34 ha were protected, with dykes, against soil erosion. In addition, various green manure crops and crop rotations involving grain legumes are being tested extensively through farmer evaluation trials.

Efforts to establish a village-based, savings and loan network (CREP movement) are expanding rapidly in Mali. There are now 13 CREPs, each with a membership of between 150 and 500. Nine CREPs have held their first general assembly, formalising their constitutions, and establishing office holders.

"We intend to give more assistance to women's groups in 1999," says Marcel Galiba, "particularly with vegetable production – mainly green beans."

MOZAMBIQUE

Four hundred and thirty-five maize demonstration plots were planted in Mozambique in the 1997/98 season – 185 in Manica, 160 in Nampula, and 90 in Cabo Delgado provinces. Rainfall was erratic during the season. While production, on average, was nearly three times greater than traditional maize yields, demonstration plot yields were also erratic. Yields from 107 demonstration plots in Manica averaged 2.4 ha, while in neighbouring farmers' fields, yields were only 0.9 t/ha.

Fear of drought due to the 'El Niño' effect prompted the use of earlier-maturing (and lower yielding) maize varieties in the field testing programme during 1997/98. In Manica and Nampula provinces, maize varieties SEMOC-1 and Matuba were used. In Cabo Delgado, the variety Manica-SR was used. All three varieties were developed by the national research organisation (INIA) and the national seed corporation (SEMOC). A quality protein maize (QPM) trial was conducted throughout the country jointly by INIA, SEMOC and the NGO Food for the Hungry (FHI).

The rice programme saw the planting of 54 demonstration plots in Bilene district of Gaza province and 34 in Sofala province's Dondo district. In Gaza the improved rice variety ITA-312 was used, while in Sofala the variety C4-B3 was used. "Both of these are high-yielding rice varieties and well-liked by farmers," says Country Director, Wayne Haag. "Again, yields are typically three times greater than with traditional practices.

Threshing rice in Bilene district, Gaza province.

"We are also introducing, at an early stage, the use of glyphosate herbicide to clean up fields with heavy perennial weed infestation prior to land preparation and planting. We have also introduced the use of follow-up herbicides."

A major effort is underway to introduce no-till technology to farmers, in partnership with Monsanto and the local distributor, Agroquimicos. While yields are in the same range as conventional preparation methods, labour needs for weed control are much reduced. Extension staff are also furnished with insecticides to combat termite attacks, by far the worst pest problem encountered to date.

SG 2000 is also intensifying its postharvest activities. The Citizens Network for Foreign Affairs (CNFA), DNER (the rural extension directorate), SG 2000, INIA and the local private sector sponsored a course on postharvest handling of maize grain for extension staff, input retailers, and farmers. CNFA also organised a course on input-output marketing for retailers and private company representatives in Manica and Nampula provinces.

Visits from SAA President Norman Borlaug last March and former US President Jimmy Carter in April, helped to strengthen the national profile for agriculture.

The International Fertiliser Development Centre (IFDC) has been working a fertiliser sector development plan – co-sponsored by USAID and SAA –which should lead to a full-scale project to develop the input marketing system in Mozambique. The International Fertiliser

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MOZAMBIQUE
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Association (IFA) held its Africa regional workshop in Maputo in June 1998, co-hosted by MAP, SG 2000 and the Fertiliser Society of South Africa, to further develop awareness of the importance of fertiliser use.

The 1998/99 field demonstration programme will be considerably expanded (see table). The number of maize plots will be increased to 1,000 and rice to 400. There will be 100 plots of beans and, for the first time, 50 demonstration plots for cotton which is an important cash crop for many smallholders.

Planned demonstration programme for the 1998/99 season, Mozambique.

Province	Rice	Maize	Beans	Cotton	Total
Gaza	300				300
Sofala	100	25			125
Manica		425	50		475
Nampula		400	50	25	475
Cabo					
Delgado		150		25	175
Total	**400**	**1,000**	**100**	**50**	**1,550**

NIGERIA

SG 2000 expanded its geographic coverage in 1998 with the inclusion of Gombe and Bauchi states in the field demonstration programme which operates during two seasons each year. In the summer season, May to October, maize Management Training Plots (MTPs) were grown in Kaduna, Kano, Jigawa, Katsina, Gombe and Bauchi states. Over 2,000 MTPs were grown during this season.

High MTP maize yields (1997 average = 4.2 t/ha) has made the programme very popular with farmers and with private sector seed companies, which report a 200 per cent increase in sales.

However, during the 1997/98 winter season, serious fuel shortages kept many farmers' water pumps silent. From a total of 1,440 farmers growing wheat MTPs in Kano, Jigawa, Katsina and Bauchi states, only 758 produced successful results. "Unfortunately, during this last wheat season," says Country Director José Antonio Valencia, "Nigeria suffered a chronic scarcity of fuel. Many farmers could not buy fuel and, consequently, were not able to pump water to their wheat." Even so, where water was available, farmers still achieved excellent MTP wheat yields (see table).

Average wheat yields in four states, 1997/98 season, Nigeria.

State	Number of farmers	Area ha	Yield range t/ha	Average yield t/ha
Kano	256	64	6.3 - 1.2	3.8
Jigawa	401	100	6.0 - 1.6	3.8
Katsina	83	21	5.2 - 2.2	3.1
Bauchi	18	5	4.8 - 2.4	2.6
Total	**758**	**190**		

During the 1998/99 winter season, 1,520 wheat MTPs have been established in Kano, Jigawa, Katsina, Bauchi, and Gombe states. SG 2000 will support crop production training courses for extension agents and farmers at the Kano State Agricultural and Rural Development Authority (KNARDA) school at Kadawa, Kano.

SG 2000/KNARDA has played an important development role in the introduction and spread of the new wheat variety, Seri, which has now become the main variety grown in Nigeria's northern wheat area.

In 1998, five tonnes of Seri seed were harvested from the SG 2000/KNARDA wheat multiplication programme at the KNARDA field block at Kadawa. The seed will be sold in the 1998/99 season to farmers for seed multiplication under the supervision of National Seed Certification Service. This seed production programme will result in 140 t of improved wheat seed available for farmers in the 1999/2000 season.

In collaboration with IITA and Amadu Belo University (ABU), SG 2000 is promoting improved cowpea varieties, with high-yield potential; some also have tolerance to the parasitic weed, Striga. In 1998, 82 cowpea MTPs were established – double the number of the previous year. SG 2000 is also collaborating with ICRISAT and ABU in evaluation trials in Kano of promising new sorghum and millet varieties.

Neem products have proved effective in grain and seed storage in controlling aphids, locusts, and armyworm. These products are being promoted among farmers, in collaboration with several of the state agricultural extension services.

SG 2000's postharvest programme has focused mainly on demonstrations to rural women farmers of new cooking recipes using wheat, maize, soybean, cowpeas and cassava.

TANZANIA

Despite the potential for intensified food production in large areas of Tanzania, the nation's farmers continue to employ low-yielding crop management systems which neither provide an adequate standard of living nor consumers with the benefits of an efficiently produced food supply.

In ten years of successful field collaboration with the Ministry of Agriculture extension services, farmers have grown some 40,000 maize demonstration plots which have yielded between 4 and 5 t/ha, depending upon the year. These demonstration plot yields are two to three times higher than the yields typically obtained by farmers. But this alone has not been enough to stimulate the 'green revolution' that the country needs.

One problem has been how to move agricultural intensification higher up on Tanzania's development agenda. This formed the basis of discussions between Dr Borlaug, SG 2000 Country Supervisor for Tanzania, Dr Marco Quiñones, and the

Prime Minister Frederick Sumaye and his principal advisors.

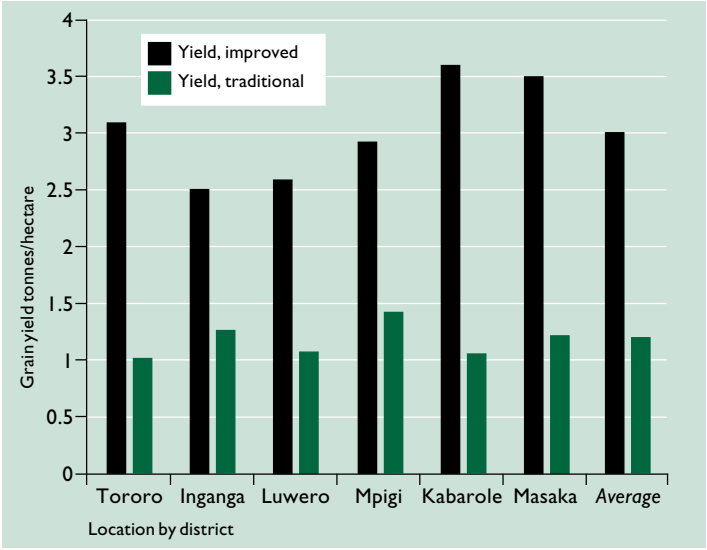
Out of these discussions, Prime Minister Sumaye and Agriculture Minister William Kusila agreed to travel to Ethiopia in October last year (see separate story below) to review, at first hand, Ethiopia's emerging 'Green Revolution'. Later in the month, Prime Minister Sumaye also attended the Tokyo International Conference on African Development (TICAD II) where he met Yohei Sasakawa, President of the Nippon Foundation which funds the SG 2000 programme. Alternative food crop intensification strategies were the focus of these discussions.

On 3-4 December, a national workshop on agricultural intensification in Tanzania was held in Dodoma. The workshop, launched by President Mkapa and chaired by Prime Minister Sumaye, aimed at identifying strategies and programmes to accelerate agricultural intensification in Tanzania. New programmes are being implemented during the 1998/99 crop season. SG 2000 has been given two specific roles – crop production training of front-line extension staff and helping accelerate the formation of Savings and Credit Co-operative Societies (SACCOs) which, in 1997, made a promising start.

"Tanzania has enormous potential for intensified agricultural production," says Quiñones. "If the existing impediments are removed, agriculture will move forward rapidly."

Tanzania's Prime Minister, Frederick Sumaye (left) inspects a conservation tillage maize plot at Bako Tibe in Ethiopia's Oromia Region. A high level Tanzanian delegation of 12 led by the Prime Minister, which included Tanzania's Minister for Agriculture, William Kusila, visited Ethiopia's agricultural intensification programme in October 1998 to see "how a simple extension approach, when properly supported at all levels by government, can produce dramatic results," according to Marco Quiñones, who helped to arrange the visit. While in Ethiopia, Prime Minister Sumaye and Minister Kusila met with Ethiopia's Prime Minister, Meles Zenawi and his principal agricultural advisors.

UGANDA



Yields from maize production technologies, Uganda.

Country Director Abu-Michael Foster reports that four major programme components "are now up and running" in the joint SG 2000/Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) collaborative project.

During last year, 1,149 demonstration plots were planted in 14 districts. Maize accounted for 95 per cent of these demonstration plots although 45 per cent were intercropped with beans. A few sorghum and millet plots were also established in the drier environments of northern Lira District.

The initial establishment of local agricultural input stockists – fertiliser and seed, supplied by two major private distributors, Sukura and Balton – has been a major achievement. For each of the crops in the field demonstration programme, a package of inputs is put together into kits (e.g. seed and fertiliser recommended for 1,200m^2 in maize) which are sold to farmers.

"With this growing network of input dealers, several thousand farmers now have access to agricultural inputs within walking distance of their homesteads," says Michael Foster. In 1998, this stockist network sold 12,806 demonstration kits to 9,000 farmers. Awareness of the technology has been promoted at well-attended field days and on national radio and in the newspapers.

During last year, 89 postharvest training sites were established which included grain drying cribs, drying floors, and silos. About 800 farmers and artisans participated in training sessions to demonstrate the construction and use of these structures.

Four women's groups are using new graters developed by IITA to produce a range of cassava products. Motivated by a SG 2000-sponsored visit to Ghana, the women's groups plan to develop marketing opportunities for these products in the local market and, perhaps, identify ethnic niche-areas abroad.

In soil fertility restoration, the programme encourages the rotation of maize with leguminous crops such as beans or groundnuts. The Cotton Sub-Sector Development Project introduced 20 kg each of *Dolichos lablab* and Mucuna seed to selected demonstration farmers in Tororo District. If these green manure crops are accepted by farmers, seed will be multiplied and diffused in a 'farmer-to-farmer' seed scheme to introduce such nitrogen-

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fixing crops into maize-based rotations.

In Lira district, 300 kg of an improved pigeon pea variety (KAT 6010) were planted in some 100 one-acre demonstration plots. Pigeon pea, which helps to build soil fertility through high N-fixation and high biomass build up, is highly nutritive as a human and animal feed and is a ready source of firewood.

The use of improved multipurpose tool bars is being introduced through the training of farmers/owners of 150 pairs of oxen. Farmers were given credit to purchase the equipment. Animal traction expands the area that a farm family can manage, and oxen also provide local transport. In addition, the oxen owners can earn extra money by cultivating the fields of other farmers.

Efforts increased in 1998 to build savings and loan associations. Some 95 groups – mainly women – have mobilised savings of US$ 10,900. Fifteen groups used part of their savings to pay initial deposits for animal traction kits. SG 2000 is seeking closer collaboration with the Cooperative Bank, the Women's Trust Bank, Centenary Bank, and Pride Africa in helping to develop these type of microfinance institutions.

Two Ugandan study tour groups visited Ghana to review the IITA/SAA agroprocessing programme and the CRI/SG 2000 QPM research and development programme. QPM research will continue in Uganda at the Namulonge research station to develop a mid-altitude QPM variety. The national research organisation, NARO, is looking for international funds to expand its QPM research programme.

In 1999, the SG 2000 field programme will be expanded into four new districts – Nebbi, Kabale, Masindi and Soroti – bringing the total geographic coverage of the SG 2000 programme to 18 districts. In the new districts, the production emphasis will be on small grains, sorghum and millet, and also beans as a companion crop. Some 20,000 maize demonstration kits will be ordered from suppliers. Also, a target of 250 animal traction kits will be sold to farmers, who will also receive training with SG 2000 assistance. Plans to support the access of rural women, in groups and individually, to agroprocessing machinery will be developed.

Angela Papakonyang, of the Kakorioto Women's Group, shows off her stall at a field day. This women's agroprocessing group has been trained and supported under the SG 2000-MAAIF programme – and the stall was soon sold out of ready-to-eat cassava products.

SAA/IITA agroprocessing programme

– working for the future

SAA and the Postharvest Engineering Unit (PEU) of the International Institute of Tropical Agriculture (IITA) have worked together for the past four years to introduce improved postharvest technology to small-scale farmers in Ghana, Benin, Ethiopia, Guinea, and Uganda.

The United Nations Population Agency predicts that by 2030 more than half of all Africans will be living in cities. Urban families will eat more processed foods, more bread and pastas, and less hand-ground or pounded cereals and starches. In addition, FAO forecasts that 20-25 years from now sub-Saharan Africans will eat three times more meat and seven times more poultry than they do today. These changes in African food consumption patterns will have enormous implications for food industries, agricultural production, and food safety.

Number of selected items fabricated/ sold in Ghana and Benin.

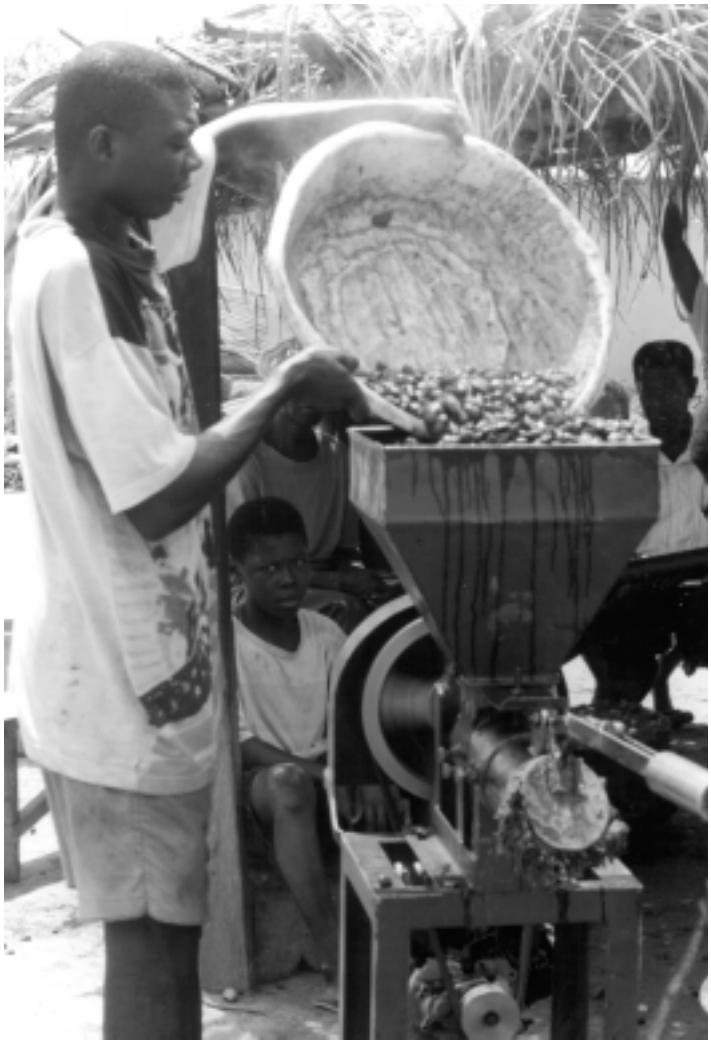
Type of items	1995	1996	1997	1998*	Total
Cassava grater	11	14	62	43	**130**
Double S-press	8	13	37	30	**88**
Palm digester	-	-	7	20	**27**
Multi-crop thresher	2	4	14	12	**32**
Wet-grinder	-	-	3	7	**10**
Total	**21**	**31**	**123**	**112**	**287**

* estimated

Programme's role

One of the main roles of SAA's agroprocessing programme is to develop linkages between agriculture and light industry by promoting agroprocessing equipment which can be fabricated by local manufacturers. Through field demonstrations, extensionists encourage farmers to mobilise their capital for the purchase of different agroprocessing equipment for different types of crops – thereby generating greater levels of business and job opportunities for the manufacturers, while introducing improved agroprocessing equipment and technology to small-scale farmers.

Since the programme started in 1995, some 300 field demonstrations involving



An agroprocessing palm oil digester machine in Ghana.

thousands of farmers and local equipment fabricators have taken place in Ghana and Benin. Starting in 1999, the agroprocessing project will expand to other SG 2000 countries, probably Ethiopia, Uganda, and Guinea.

"In 1999 a more systematic programme of demonstrations will expand the area of coverage more effectively," comments Toshiro Mado, SAA programme officer and leader of the agroprocessing project. Linkages are also being developed, through the programme, for local metal manufacturers in rural areas – by providing training for the fabrication of agroprocessing equipment.

"Metal manufacturers have tended to target the urban market – concentrating on parts for urban dwellings such as metal doors and window frames," says Mado. "But they are beginning to realise that there are great opportunities in the rural areas."

In Ghana and Benin, in 1999, the training of metal manufacturers will focus on cassava fermented flour (gari), palm oil, shea butter and threshing. Ten technicians from each country will be trained and further support given to the agroprocessing programmes in other SG 2000 countries. "We hope to establish model sites in certain villages," adds Mado, "where equipment can be demonstrated on a continuing basis.

"Collaboration with other national and international research institutes and the private sector will be expanded to identify additional agroprocessing and postharvest technologies to disseminate to local manufacturers."

Co-sponsored agroprocessing workshop and training course

During October last year, SAA and IITA co-sponsored a special training course and a regional workshop in Nigeria and Benin. These activities were organized primarily by Leony Halos-Kim and Y W Jeon of IITA and Toshiro Mado and Antoine Aoga of SAA.

Training Course:

A specialised training course on postharvest technology was held at IITA headquarters in Ibadan, Nigeria, on 8-22 October 1998. Fourteen technical officers from seven SG 2000 project countries attended the course and were introduced to various improved storage technologies for cereals, grain legumes, and root and tuber crops. Trainees had a close look at IITA's small-scale equipment for grain threshing and shelling, and flour milling. Finally, course participants prepared postharvest development action plans to take back to his or her country.

Workshop:

The three-day meeting on 'Enhancing Postharvest Technology Generation and Dissemination in Africa', was held from 26 -28 October in Cotonou, Benin. Some 70 postharvest specialists and food technologies from African and donor country institutions attended. Participants looked at new harvesting and agroprocessing equipment, discussed technology dissemination strategies, and developed country-specific action plans. Field trips were also made to IITA's Benin research station for an equipment demonstration, to a farmers' group using the equipment to produce gari, fermented cassava flour, and to a local manufacturer that fabricates the IITA postharvest and agroprocessing equipment.

The importance of using sound business principles in evaluating agroprocessing equipment and enterprises was stressed repeatedly. Where profit potential is significant and technical expertise is available, "chances are good that small-scale entrepreneurs can take up a new agroprocessing technology and prosper," says Toshiro Mado, SAA programme officer.

SG 2000 PUBLICATIONS AND VIDEOS

For copies please contact Raitt Orr & Associates Ltd in London.

Publications

Proceedings of Workshop 1994: Strengthening National Extension Services in Sub-Saharan Africa.

Proceedings of Workshop 1995: Achieving Greater Impact from Research Investments in Africa.

Proceedings of Workshop 1996: Overcoming Rural Poverty in Africa.

Proceedings of the 1996 Workshop on Women, Agricultural Intensification, and Household Food Security.

Proceedings of Workshop 1997: Agricultural Intensification in Sub-Saharan Africa.

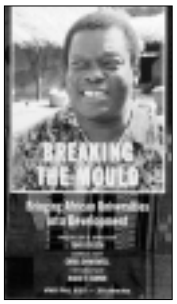
This is SAA: An Introduction to the Work of the Sasakawa Africa Association.

Videos

You Can't Eat Potential – Breaking Africa's Cycle of Poverty. 1996.*

Facing the Future – The SG 2000 Programme for Agricultural Development in Africa. 1996.*

Fulfilling the Promise – How Nutritionally-improved Maize can Alleviate Malnutrition in Maize-dependent Countries. 1997.*



Breaking the Mould – Bringing African Universities into Development. 1997.*

Ethiopia, My Hope... My Future... – The 'Green Revolution' in Ethiopia. 1998.*

All videos are available in English and French. Video formats are PAL, Secam and NTSC.

* Also available in Japanese.

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Feeding the Future is produced for SAA by Raitt Orr & Associates Ltd, London SW1 and designed by FMO Design Consultants