Agricultural Research in Africa: Why CAADP should follow IAASTD

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SUMMARY

This briefing analyzes the agricultural research policies of the Comprehensive African Agriculture Development Programme (CAADP) and the extent to which they address the needs of marginalized smallholder farmers. CAADP has a huge opportunity to promote good agricultural research by following the findings of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). However, CAADP is largely not following the IAASTD roadmap.

The IAASTD calls for a 'fundamental shift' in global agricultural research to focus on resource-poor farmers and promote environmental sustainability, gender equity and a greater role for farmers in research design. It represents a major challenge to current agriculture policies, including those promoted by CAADP, by calling for investments in sustainable agriculture (moving away from a reliance on chemical fertilizers and pesticides) and being sceptical of genetically modified crops, biotechnology and strong Intellectual Property Rights (IPR) frameworks.

We highlight five key problems with CAADP's policies and practices:

1. African governments are ignoring their CAADP commitment, set in 2003, to double their annual spending on agricultural research within 10 years; rather, many have been reducing their spending. CAADP has not invested enough in examining why CAADP commitments are not met at member state level and therefore falls short of appropriate measures to meet the set targets of 6% agriculture growth.
2. Despite the fact that women constitute most farmers in Africa, they are paid lip service in CAADP programmes and are largely ignored in countries' CAADP and other agriculture strategies.
3. CAADP is promoting a farming model, associated with the Green Revolution, that encourages heavy reliance on expensive external inputs, such as chemical fertilizers and pesticides, and improved and/or hybrid seeds bought from agribusiness companies; this comes at the expense of promoting sustainable agriculture approaches which are likely to benefit poor farmers much more.
4. CAADP's lead partner in agricultural research, the Forum for Agricultural Research in Africa, has taken a lopsided stance on GMOs and advocates strong IPR regimes that threaten farmers' rights to retain and exchange their traditional seeds; ignoring the consensus on sustainable, agro-ecological farming models as a viable solution for African agriculture.[1]
5. Smallholder farmers, especially women, are being insufficiently consulted in the design of agricultural research policies.

Recommendations

- CAADP and its partners should incorporate IAASTD's findings into their policies.
- African governments must significantly increase their agricultural research spending and meet their CAADP commitments. Research funding towards agro-ecological systems development should be a key priority given its proven benefits to producers and contribution to resilient communities.
- Women farmers must be prioritised across all CAADP programmes.
- CAADP and its partners should scale down/significantly decrease their promotion of the conventional farming model and instead prioritise sustainable agriculture.
- CAADP and its partners should significantly increase their support and champion seed policies that protect farmers' rights rather than support GM crops
- CAADP must become a genuinely inclusive, bottom-up programme that puts farmers' needs, and their participation, at the centre of policy design and implementation.

INTRODUCTION

This briefing analyzes the agricultural research priorities of the Comprehensive African Agriculture Development Programme (CAADP) and the extent to which they address the needs of marginalized smallholder farmers. The CAADP programme has a huge opportunity to promote good agricultural research policies by following the findings of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) (see box 1).

APRODEV's research shows that CAADP is increasing the political commitment to improving agricultural productivity in Africa. Yet we also find numerous problems with CAADP's policies and practices. Neither African research institutions guided by CAADP, nor key donor organisation such as the Alliance for a Green Revolution in Africa (AGRA), and major funders of Agricultural Research for Development in Sub Saharan Africa like the European Union are largely following the IAASTD roadmap. We believe that the CAADP programme must realign its priorities if it is to really benefit the millions of African smallholder farmers.

Box 1: IAASTD's challenge

The IAASTD was sponsored by the UN and other international organisations and approved by 58 governments. It examined how agricultural knowledge, science and technology (AKST) could be best deployed to reduce hunger and poverty and produced several comprehensive reports in 2009. It calls for a 'fundamental shift' in AKST to ensure that policies are 'directed primarily at those who have been served least by previous AKST approaches, i.e., resource-poor farmers, women and ethnic minorities'. It emphasises the importance of environmental sustainability, the need for agriculture to reduce

greenhouse gas emissions, more equitable access to technologies, a greater role for farmers in setting research priorities, greater spending on agricultural research and the need for 'urgent action' to implement gender equity in AKST policies.[2]

The IAASTD represents a major challenge to current, mainstream agriculture policies, including those promoted by CAADP. For example:

- It calls for investments in **sustainable, low-input farming systems**, such as agro-ecological approaches and organic farming, and urges the promotion of 'biological substitutes for agrochemicals' and alternatives to chemical pesticides.[3] It argues that 'technologies such as high-yielding crop varieties, agrochemicals and mechanization have primarily benefited the better resourced groups in society and transnational corporations, rather than the most vulnerable ones'.[4]
- It says that **GM crops** are 'contentious', highlighting that 'some GM crops indicate highly variable 10-33% yield gains in some places and yield declines in others'.[5]
- It states that biotechnology research and development, involving **Intellectual Property Rights Frameworks**, can 'concentrate ownership of agricultural resources' and that ' there is particular concern about present IPR instruments eventually inhibiting seed-saving, exchange, sale and access to proprietary materials necessary for the independent research community to conduct analyses and long term experimentation on impacts'. [6]
- It states that **biofuels** 'can raise food prices and reduce our ability to alleviate hunger throughout the world'.[7]

THE CONTEXT

Over 60 per cent of people in sub-Saharan Africa depend on agriculture for their livelihood.[8] Yet governments and donors have in the past three decades spent little on supporting these farmers, especially smallholders. Among small-holders, female farmers constitute a particularly neglected group. This massive underinvestment in agriculture has condemned Africa to ongoing hunger and poverty: by 2006, 224 million Africans – 30 per cent of the continent's population - were classified by the UN's Food and Agriculture Organisation as undernourished compared to 194 million a decade earlier.[9] As the International Food Policy Research Institute (IFPRI) notes: 'As a result of inadequate investment in the African agriculture sector, the continent's overall agricultural productivity has fallen since the mid-1980s, leaving it vulnerable to frequent food crises and dependent on emergency food aid and food imports'.[10] While global food production has grown, Africa's agricultural exports have declined and its food import bill has risen four-fold between 1994 and 2009.[11]

Plans to revitalise African agriculture have been led by the New Economic Partnership for African Development (NEPAD) in its promotion of CAADP (see box 2). In 2003, African heads of state committed themselves to spending 10 per cent of their national budgets on agriculture within 10 years, and to achieve at least 6 per cent annual growth in their agriculture sectors. In 2007, the global food crisis provoked the emergence of a broader

consensus on the need to increase spending on African agriculture; the UN High Level Task Force on Food Security called for increased government commitment to agriculture and urged donors to increase their aid to agriculture from 3 to 10 per cent of all aid.

Box 2: CAADP in brief

Endorsed by African heads of state in 2002, CAADP is shaping agricultural development programs on the continent and aims to achieve Millennium Development Goal 1 of halving poverty and hunger by 2015. CAADP is based on four pillars[12]:

Pillar 1: Extending the area under sustainable land and reliable water control systems
Pillar 2: Improving rural infrastructure and trade-related capacities for market access
Pillar 3: Increasing food supply and reducing hunger
Pillar 4: Agricultural research, technology dissemination and adoption

These pillars emphasize the importance of increasing the amount of irrigated land, responding better to the growing frequency of disasters, improving roads to enhance export competitiveness and increasing the farm productivity of smallholders. The key principles outlined in CAADP are those of dialogue, policy review, accountability and partnerships with farmers, agribusiness and civil society. Around 26 African countries have so far signed compacts with CAADP and completed 'roundtable' processes which involve reaching consensus among key stakeholders to define national strategies and investment plans for reducing hunger and increasing agricultural productivity.

CAADP and agricultural research

One of CAADP's four pillars is to improve agricultural research. Investing in agricultural research is vital for imparting knowledge to farmers and developing improved crop/animal varieties and technologies to increase food security and yield, manage water or use natural resources sustainably in what are often very fragile environments. Numerous studies suggest that good agricultural research expenditure is one of the key ways to increase productivity; in Africa as a whole, for every one per cent yield increase resulting from investments in agricultural research, two million Africans can be lifted out of poverty.[13] In Kenya, IFPRI has found that for every million Shillings spent on agricultural research, an additional 103 people could be lifted above the poverty line.[14]

The lead agency implementing CAADP's Pillar 4 is the Forum for Agricultural Research in Africa (FARA) which developed in 2006 the Framework for African Agricultural Productivity (FAAP). The FAAP recognises that there has been inadequate investment in agricultural research in Africa and is designed to promote reforms in agricultural research, extension and education programs, increase investments, empower farmers and livestock producers and harmonize external support.[15]

PROBLEMS WITH CAADP'S APPROACH TO AGRICULTURAL RESEARCH

We highlight below five key problems with CAADP's policies and practices:

1. Insufficient spending

The agricultural research spending commitment

CAADP's framework document of 2003 contains a long-forgotten commitment – for African countries to double their annual spending on agricultural research within 10 years. This meant increasing budgets by an average of 7.2 per year for a decade so that African countries were spending around $4.6 billion by 2015.[16] The FAAP later called on African countries to increase their spending on 'agricultural productivity programmes' (without specifying what these were) from $2.5 billion to $3.25 billion by 2010.[17]

There are no publicly available figures assessing progress towards these goals; indeed, it appears that the original CAADP commitment is not even being monitored by CAADP or FARA. Yet analysis of 30 African countries suggests that agricultural research spending is *declining* in 10 countries, is fluctuating in a further five and is steady in five more; only in 10 countries is spending on agricultural research actually increasing.

Agricultural research funding trends in 30 African countries (1998–2008)[18]

Increasing
1. Benin, as a result of increased government funds to complement donors;
2. Burundi, following the 2003 peace treaty;
3. Democratic Republic of Congo, as a result of a return to peace;
4. Ghana, doubled between 2000 and 2008 due to increased donor and government funding;
5. Mauritania, as a result of the renewal of fisheries treaties with the EU and Japan (but crops and livestock budgets are shrinking);
6. Nigeria, doubled between 2000 and 2008 largely from government funding but the rate of investment is low at about 0.4%;
7. Sierra Leone, whose spending more than doubled during 2001-09 following the end of civil war;
8. Sudan, with spending doubling during 2001-08;
9. Tanzania, following government prioritization of research since 2004;
10. Uganda, following increased donor and government support, especially since 2005

Decreasing
1. Eritrea, because donors cut funding;
2. Gabon, due to decreased funding by government – one of the lowest in SSA;
3. Guinea, due to reduced government and donor funding (because of poor investment climate);
4. Madagascar, following the end of a World Bank-funded project in 1999;

5. Mauritius, due to decreased investment in sugar research but remains by far the highest proportion of GDP on agricultural research: 4.1%;
6. Mozambique, because of decreasing and volatile donor funding and government support;
7. Niger, following the end of a World Bank-funded project in 1998;
8. Senegal, due to cuts in donor and government funding;
9. Zambia, due to weakening government and donor support;
10. Zimbabwe, due to suspension of research funding by donors

Fluctuating
1. Burkina Faso, following the start and end of World Bank-supported agricultural research;
2. Botswana, following high inflation;
3. Gambia, as a resulting of fluctuating funding from government and donors;
4. Kenya, as a result of fluctuating funding from government and donors;
5. Mali, as a result of erratic government, donor and development bank funding.

Steady
1. Ivory Coast, but some regions of the country received less funding during the civil war;
2. Ethiopia, which is highly dependent on donor funding;
3. Namibia, whose government funds most of the ARD;
4. Rwanda, which is highly dependent on donor funding;
5. South Africa, which also has one of the highest ratios of spending per scientist and research intensity.

The 10 per cent commitment

Despite the 2003 pledge to spend at least 10 per cent of their national budgets on agriculture, only 8 African countries have reached this target and only 10 countries have met the 6 per cent growth target.[19] Overall, CAADP has done little to increase African investment in agriculture and most countries are spending only 3-6 per cent of their budgets on agriculture. A review of CAADP commissioned by the NEPAD Secretariat concluded that 'little or no external resources have come to the agriculture sector that can be directly attributed to CAADP'.[20] It also noted that 'CAADP has not examined the reasons why the Maputo commitment has not been met'. [21]

2. Failure to prioritize women smallholder farmers

Women grow 80 per cent of the staple food in Africa and account for over 70 per cent of agricultural workers and 80 per cent of food processors.[22] IAASTD notes that 'urgent action is needed to implement gender and social equity in AKST policies and practices'.[23] Yet women farmers are paid lip service in CAADP programmes and are largely ignored in countries' CAADP and other agriculture strategies.

CAADP's framework document of 2003 notes that 'special attention' must be given to the 'vital food producing and entrepreneurial roles of women in rural and urban African communities'.[24] Yet no such special attention is subsequently called for in the document:

there is no explicit commitment to support women farmers or to set aside budgetary resources to them, for example. Although CAADP implementation frameworks for the four pillars, including the Framework for African Agricultural Productivity (FAAP), recognize smallholder farmers and integration of gender as a principle, there is little analysis of the policies needed to meet the specific needs of women. In the policy framework for Pillar 1, for example, the need for appropriate, low-cost sustainable land and water management technologies for smallholders is highlighted without elaborating on the specific technological needs of women or the problems of participation and equity for women.[25] The indicators for Monitoring & Evaluation in the FAAP framework document are completely gender neutral, thus undermining earlier provisions for gender mainstreaming.

An NGO review of the CAADP plans and investment strategies of six countries – Ghana, Ethiopia, Malawi Nigeria, Tanzania and Zambia – found that they paid little attention to the needs of women farmers. Neither Nigeria's National Food Security Programme 2010-20 nor Tanzania's Agricultural Sector Development Programme include analyses of the role of women farmers, for example.[26] Research by APRODEV/CTDT in Liberia, Ghana and Kenya also found that gender-responsive agriculture policies are largely paid only lip-service in these countries.[27] Even where women farmers are recognised as playing critical roles, there tends to be no or little budgetary resources targeted to reaching them in national agricultural strategies. Gender-responsive budgeting is an emerging tool for determining the different impact of expenditures on women and men, but is non-existent in most African Ministries of Agriculture[28], although Rwanda is one exception.[29]

Many agricultural policies need to be different towards women than men. In one survey in Uganda, for example, male farmers said the biggest barriers to increasing farm production were lack of transport and access to markets and credit. But women mentioned the time needed to look after their families, prepare food and work on their husbands' gardens.[30] Thus in this case the policy implications for supporting men and women farmers are completely different. The failure to support women is not only harmful to them; it is also massively holding back food production in Africa - a recent FAO analysis finds that even if women simply had the *same* access to farm inputs like seed as men, they could increase yields on their farms by 25-30 per cent, which would raise agricultural output in developing countries by between 2.5 and 4 per cent.[31]

Women farmers, far from being directly supported, are likely to be further marginalized in the farming model being promoted under CAADP (see further next section). The likelihood is that, without explicit targeting of women farmers, it will be better-resourced men farmers working larger plots and growing cash crops who primarily benefit from the supply of improved seeds, fertilizers and access to credit and extension services.

Box 3: UN Special Rapporteur on the role of women farmers

'Specific, targeted schemes should ensure that women are empowered and encouraged to participate in this construction of knowledge. Culturally-sensitive participatory initiatives with female project staff and all-female working groups, and an increase in locally-

recruited female agricultural extension staff and village motivators facing fewer cultural and language barriers, should counterbalance the greater access that men have to formal sources of agricultural knowledge. It is a source of concern to the Special Rapporteur that, while women face a number of specific obstacles (poor access to capital and land, the double burden of work in their productive and family roles, and low participation in decision-making), gender issues are incorporated into less than 10 per cent of development assistance in agriculture, and women farmers receive only 5 per cent of agricultural extension services worldwide. In principle, agro-ecology can benefit women most, because it is they who encounter most difficulties in accessing external inputs or subsidies. But their ability to benefit should not be treated as automatic; it requires that affirmative action directed specifically towards women be taken.'

Source: UN General Assembly, Human Rights Council, Sixteenth Session, *Report submitted by the Special Rapporteur on the right to food, Olivier De Schutter*, 17 December 2010, p.19

3. Promoting an outdated farming model

CAADP aims to increase agricultural productivity in Africa principally by promoting the 'conventional farming' model associated with the Green Revolution.[32] This model emphasizes the use of expensive external inputs, such as chemical fertilizers and pesticides, and improved and/or hybrid seeds, often provided in packages to farmers, sometimes in contractual arrangements with companies, often with improved access to credit and part-privatised extension services. This model often prioritizes producing crops for export markets and the practice of mono-cropping (the production of a single crop), encouraging smallholder farmers to turn over their tiny plots to grow a single crop 'intensively' and using seeds bought from private companies. Moreover this form of agriculture is less resilient to climate changes than more diversified systems. Farmers are often encouraged to borrow money to invest in 'high-tech' inputs, thus increasing their costs of production, on the assumption that increased sales in local markets will be more than enough to repay their debts. Governments are spending larger proportions of their agriculture budget on input subsidies at the expense of other core services such as research. The high costs are increasingly becoming a burden to African economies. Calls for production models that lower input cost while increasing production are a viable option and must be taken on board. This promotion of an African Green Revolution is being supported by AGRA, which has signed a Memorandum of Understanding with NEPAD in order to promote CAADP.[33]

There are numerous problems with this model, as also evidenced in Asia where the Green Revolution has been promoted for longer:

- The use of **pesticides** by farmers is responsible for widespread contamination of groundwater and for millions of cases of poisoning a year.[34]
- The use of **chemical fertilizers** often increases yield, but since farming practices that depend on them do not maintain the soil's natural fertility, farmers need to

apply ever more chemicals to achieve the same results; the increasing use of chemical fertilizers contributes to vast areas of farmland becoming degraded.[35]

- Conventional farming is a major contributor to **climate change** and is responsible for around 60 per cent of nitrous oxide emissions, mainly from chemical fertilizer.[36]
- **Mono-cropping** can make farmers dependent on one or two crops, putting them at risk if market prices for those crops fall, and also reduces biodiversity.[37]
- The use of improved or **hybrid seeds** can sometimes increase productivity, but such seeds can be expensive for poor farmers and lock them into a requirement to purchase seeds every year, along with fertilizer and pesticides – entailing increased costs that increase their debts.

By contrast, sustainable agriculture – also often called ecological farming, alternative farming, or agro-ecological agriculture – derives from a recognition of people's right to food, and allows farms to produce nutritious food without damaging soils, ecosystems or people, and reduces (or eliminates) reliance on external inputs such as chemicals.[38] It encompasses approaches such as agro-ecology, agro-forestry, low external input farming, organic agriculture, conservation agriculture and water harvesting in dry land areas and aims to integrate biological and nutrient processes such as nutrient cycling, nitrogen fixation and soil regeneration into food production processes.

CAADP's framework document on Pillar I – Sustainable land and water management – does call for promoting some sustainable agriculture practices, such as agro-forestry, and notes that 'with a tradition of low input agriculture in Africa, organic agriculture holds great promise'.[39] At the same time, however, it calls for a Green Revolution in Africa, involving the increased use of chemical fertilizer, alongside other technologies. It says these two approaches need to be addressed in a 'holistic' way but it is unclear how this will (or can) happen, and in practice the conventional farming model appears to take precedence.[40]

Box 4: Advantages of sustainable agriculture

Since sustainable agriculture approaches use fewer expensive external inputs, a major advantage to farmers is lower production costs and less indebtedness. At the same time, increasing evidence shows that sustainable agriculture can achieve yields equal to, or greater than, conventional farming. The largest study to date, led by Jules Pretty at the University of Essex in England, has been that of 286 projects whereby farmers in 57 countries were engaged in transitions to sustainable agricultural practices. It found that the average yield increase was around 79 per cent across a wide variety of systems and crop types.[41] Similarly, a 2007 study by the University of Michigan, comparing a global dataset of 293 examples of yields of organic versus conventional or low-intensive food production, concluded that organic farming methods could produce enough food to feed the world population on a per capita basis; it also found that leguminous cover crops could fix enough nitrogen to replace the amount of synthetic fertilizer currently in use.[42]

Sustainable agriculture also has a positive impact on soil fertility, conservation of local varieties and enhances farmers' resilience to climate crises. Many farmers have been

made more vulnerable to crises due to mono-cropping. Practices such as crop rotation and inter-cropping increase the availability of food throughout the year, increase diversity in food production and use seeds and breeds with higher tolerance to climate extremes and pests - these can reduce the risks of income losses associated with seasonal variations or crop failures, compared to conventional farming. Sustainable agriculture also protects biodiversity, including traditional seed varieties, and the use of crops that are adapted to local conditions which farmers can improve, breed and freely save and exchange.

What can be done to tap into the potential of agro-ecological approaches is:

- We need research systems that incorporate a strong focus on agro-ecological innovation in areas such as integrated pest management.
- Research, extension and training institutions should incorporate agro-ecological approaches in their curriculum and re-orient their staff to prioritise these farming systems. Enhanced interactions between these institutions and CSOs with long standing experience in organic farming will enable appreciation and change of mind sets that is urgently required in key research institutions.
- CAADP implementation frameworks ought to take a stance for this form of agriculture in practice through research programmes which support the system.

4. Promoting genetically modified crops and intellectual property protection

There is a debate in Africa on the utility of strong intellectual property regimes and, even more controversially, on genetically modified (GM) crops. Some African governments are promoting strong IPR regimes to encourage investment in seed innovation and research while others are proceeding with GM research, usually backed with donor funds. Other African governments, however, have been more cautious both about strong IPR protection – which can limit farmers access to seed – and about passing laws enabling GM research to take place.

In contrast to IAASTD's caution on GM crops, FARA is a strong proponent. In 2009, for example, FARA produced a joint report with the Syngenta Foundation for Sustainable Agriculture – representing one of the world's largest seed companies - which purpose was to provide 'insight into the prospects of genetic engineering technology adoption and commercialisation in African countries'. The study assumes that biotechnology is necessary to increase food production in Africa and notes that there are 'insufficient infrastructural facilities' for GM research. It cites past studies identifying the need for 'strengthening research capacity, molecular biology, biochemistry, genomics, plant breeding, bioinformatics, and policymaking ...for the effective application of home-grown GE [genetic engineering] to African agriculture.' FARA wants to encourage a wider acceptance of GM by policy makers and farmers, regards the lack of biosafety legislation

and biotechnology policies as barriers, and wants to establish a biotech cooperative service linking Africa to GM research facilities around the world.[43]

COMESA, a key partner of CAADP, has recently developed draft guidelines on the commercial planting of genetically modified organisms (GMOs), trade in GMOs and emergency food aid with GMO content. These guidelines essentially promote all GMO products and do not consider farmers' rights to retain their seed, exchange, utilize and plant locally adaptive genetic resources materials to attain food security.[44] Central to CAADP and FAAP are the principles of empowerment of end-users through their participation in setting priorities and design of work programmes for research. However, in most countries end-users were never part of the target groups in the consultations on the COMESA GMO guidelines.

NGOs have long cited evidence that GM crops pose a number of problems, and do not produce higher yields, but instead bind farmers to buying products from large corporations and often require increased use of pesticides.[45] The emphasis on GM is also skewing research agendas and investment priorities away from promoting seed policies that could be of genuine benefit to smallholder farmers, such as supporting public seed multiplication mechanisms and strengthening national seed legislation that protects farmers' rights. Instead, CAADP, through FARA, is helping to deepen corporate control over seeds.

In contrast to IAASTD, which stresses the importance of local, informal seed systems and warns of the dangers of IPR control over seed, CAADP is a proponent of formal seed legislation and strong IPR regimes. FARA has signed a Memorandum of Understanding with the African Agricultural Technology Foundation (AATF), which will advise it on public-private partnership matters and on intellectual property protection and technological licensing issues.[46] AATF is a key proponent of GM and strong IPR protection in the interests of multinational life-science industry.

5. Weak participation of farmers and their support organizations in the research agenda

Smallholder farmers are rarely represented in national farmers' associations or local government and have little say in the design of agricultural research agendas. This lack of input means that programmes are often poorly focused or irrelevant to their needs.[47] Promoting 'inclusive participation' by farmers and other stakeholders in agriculture is one of CAADP's stated founding principles.[48] CAADP's 2010 report, *Highlighting the Successes*, claims that there has been significant participation of non-state actors in CAADP policies at the continental and national levels. However, it concludes that:

> 'There is only limited evidence that stakeholder participation in CAADP implementation is generating the required representativeness and the desired substantive contributions to policy design and implementation, particularly from non-state actors'.[49]

A European Commission funded mapping study by PELUM Association and partners[50] identified CSOs and farmer organisations' participation and consultation mechanisms in Agricultural Research for Development. It looked at processes of agenda setting, implementation and resource allocation and concluded that there is no effective CSO involvement in ARD. It found that research agendas are narrowly focused on interests of the private sector and a few commercial farmers. This comes at the expense of the majority of smallholders whose innovation and research potential is not supported, which is detrimental to long term food security. Real opportunities for involvement and appropriate time scales are needed for the evolution of genuine ARD partnership that provides for critical interactions between CSOs and researchers.

- The study raises a series of questions and concerns addressed to CAADP: How, where and by whom are decisions made in Africa on the research agenda and resource allocation?
- On which criteria and indicators are decisions based? Does an indicator to include smallholders exist and how can such an indicator be enforced and be further refined?
- What are the CAADP focus areas for ARD policies and what money goes into which types of agricultural systems?

Indeed, our analysis is that consultation with, and participation of, the local private sector and civil society in agriculture policy making processes is still very limited. Ownership of CAADP only extends to high political and bureaucratic circles. Though national stakeholder fora have been established in, for example, Kenya and Ghana with a broad spectrum of representation, decision making still remains top-down with little or no grassroots participation.[51] FARA has facilitated stakeholder consultations with the purpose of assessing key policies but farmers' organizations are rarely part of such processes. Thus research programmes continue to suffer from numerous problems, notably week links to extension services and poor adaptation of agricultural technologies to local conditions and use of traditional knowledge. There are few opportunities for farmers, especially women farmers, to bring their concerns into the policy-making arena, including to promote sustainable agriculture.

POLICY RECOMMENDATIONS

CAADP and its partners, such as FARA and AGRA, and African governments, should review their agricultural programmes and outline how they will incorporate IAASTD's findings and policy recommendations. In particular:

Spending

- African governments must significantly increase their agricultural research spending and meet CAADP commitments.
- CAADP should monitor and publicly report on progress towards meeting these commitments.
- CAADP should critically examine factors that lead to non compliance and put in place appropriate measures to attain the set objectives.
- Research funding towards agro-ecological systems development should be a key priority given its proven benefits to producers and contribution to resilient communities.

Women farmers

- Women farmers must be prioritised across all CAADP programmes. Strategies and investment plans must provide analysis of the specific needs of women farmers and outline how they will target women specifically, and what level of budgetary resources will be provided.
- CAADP should monitor and publicly report on progress towards meeting these commitments.

Farming model

- CAADP and its partners, especially AGRA, should scale down/significantly decrease their promotion of the conventional farming model and instead prioritise a focus on sustainable agriculture. In particular, sustainable agriculture approaches should become the primary focus of agricultural research programmes, for example to help farmers reduce dependence on chemical inputs and promote agro-forestry, conservation agriculture and organic farming. The participation of farmers, especially women farmers, needs to be explicit in this new research agenda.

GM/IPR

- CAADP and its partners should significantly decrease their support for the development of GM crops, which is a distraction from promoting seed policies that could be of genuine benefit to smallholder farmers.
- CAADP should end its backing for strong Intellectual Property Rights regimes and instead champion public seed multiplication mechanisms and strengthening national seed legislation that protects farmers' rights.

Farmer participation

- CAADP must become a genuinely inclusive and bottom-up programme that puts farmers' needs, and their participation, at the centre of policy design. Thus CAADP must take greater steps to ensure that farmers' organisations, and other groups representing smallholder farmers, especially women farmers, participate in policy-making at all levels.

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