# Contents



The African Centre for Biosafety (ACB) is a non- profit organisation, based in Johannesburg, South Africa. It was established to protect Africa's biodiversity, traditional knowledge, food production systems, culture and diversity, from the threats posed by genetic engineering in food and agriculture. It has in addition to its work in the field of genetic engineering, also opposed biopiracy, agrofuels and the Green Revolution push in Africa, as it strongly supports social justice, equity and ecological sustainability.

The ACB has a respected record of evidence based work and can play a vital role in the agro-ecological movement by striving towards seed sovereignty, built upon the values of equal access to and use of resources.


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# Acronyms

| | |
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| ADP | Agro-dealer Development Program |
| AFAP | Africa Fertiliser Agribusiness Partnership |
| AFSA | The Alliance for Food Sovereignty in Africa |
| AGRA | Alliance for a Green Revolution in Africa |
| CAADP | Comprehensive African Agricultural Development Programme |
| CAADP | The Comprehensive African Agricultural Development Programme |
| EACI | Education for African Crop Improvement |
| FAO | United Nations Food and Agriculture Organization |
| FDI | Foreign direct investment |
| FIACC | Fund for the Improvement and Adoption of African Crops |
| GDP | Gross domestic product |
| GM | Genetic modification/genetically modified food |
| GMO | Genetically modified organisms |
| IAASTD | The International Assessment of Knowledge, Science and Technology |
| PPP | Public-private partnership |
| ISFM | Integrated Soil Fertility Management |
| K | Potassium |
| NEPAD | The New Partnership for Africa's Development |
| P | Phosphorous |
| PVP | Plant variety protection |
| R&D | Research and development |
| RECs | Regional economic communities |
| SAPS | Structural Adjustment Programmes |
| SEPA | Seed Production for Africa |
| UNEP | United Nations Environment Programme |
| UPOV | International Union for the Protection of New Varieties of Plants |
| US | United States |
| USAID | United States Agency for International Development |
| WRS | Warehouse receipt systems |



# Summary

## Introduction

The Alliance for a Green Revolution in Africa (AGRA) was established in 2006 with the aim of supporting the modernisation of African agriculture through assisting to build commercial input (especially improved seed and synthetic fertiliser) and output markets. AGRA has produced a report providing an overview of key issues facing modernisers in their efforts to build commercial agriculture in Africa. The organisation plans to produce annual reports of this nature.

In the 1980s, the World Bank also sought to modernise African agriculture. AGRA and the World Bank share an underlying ideology that views existing agricultural practices in Africa as backward. The solution proposed is for farmers to adopt a 'high input - high output' model based on the United States (US) and European style of agriculture. Their focus is on commercial farmers who will produce primarily for the market.

The World Bank was criticised for its 'one-size-fits-all' solution that did not take into account the irreducible ecological and social complexity of African farming systems. The logic that sales from increased yields would more than cover the cost of increased input costs proved to be incorrect. The World Bank plan focused on exports. However, the value of export crops declined and farmers were unable to cover input costs. As a result, fertiliser use in most of sub-Saharan Africa remains low compared to other parts of the world. There was some adoption of hybrid seed, especially maize, but seed research and development (R&D) focused on crops with perceived commercial potential at the expense of the wide variety of plants being grown for food in Africa.

In the 1990s, support for agriculture in Africa declined severely as countries diverted resources to pay off debts. However, as commodity prices rose in the early 2000s, there was renewed interest in African agriculture as a potential commercial activity. Domestic markets had grown since the 1980s and constituted a potential outlet for increased production.

Nevertheless, there has not been a flood of investment in African agriculture. AGRA's report shows that less than 0.1% of investment in agriculture was from foreign direct investment (FDI) between 2005 and 2007. Farmers' own investments in infrastructure and production are dominant. AGRA should be understood as a political project, a 'proof of concept' to show private owners of capital that there are profitable opportunities for investment in African agriculture. This requires major institutional and infrastructural interventions. AGRA's aim is to identify and facilitate priority interventions, drawing on philanthropic, state and private sector resources. Its fundamental approach is the public-private partnership (PPP) where the state and private sector contribute to realising common objectives (private profit through increasing productivity). AGRA works closely with the Comprehensive African Agricultural Development Programme (CAADP), the framework for agricultural investment located in the African Union and its member states.

Like earlier modernisation efforts, AGRA's basic scheme is to increase 'modern' inputs to produce increased yields, and to create functioning market structures to enable farmers to earn money to pay for the inputs. These two pieces are essential parts of the plan. Without the markets, the scheme fails.

AGRA's Africa Agriculture Status Report in 2013 includes sections on productivity, growth and competitiveness; soil health; seed systems; financing; output markets; policy environment; farmer organisation; capacity development; women; and extension and advisory services. The report focuses on staple crops.

The section on land provides a broad overview of the various tenure issues in Africa. The report recognises the importance of customary tenure systems but in many places indicates that for commercial production, private ownership of land is the best model. AGRA surveyed a number of East and Southern African countries and found that average landholdings were less than three hectares in most countries. AGRA therefore orients its support towards small-



scale agriculture, but to a commercial layer who will have larger than average land sizes. AGRA anticipates that higher investments in land will "induce land holdings to adjust" (p.37), meaning greater concentration amongst commercial producers.

The section on soil health reiterates AGRA's commitment to the Integrated Soil Fertility Management (ISFM) approach. ISFM calls for a combination of organic and inorganic fertiliser, "not either or none". However, AGRA's emphasis is on supporting the introduction of inorganic fertiliser produced elsewhere, rather than building up the quality of farm-produced organic fertilisers. According to AGRA, the main reason for farmers' failure to use more fertiliser is the high cost, which is not covered by higher yields. AGRA calls for (state) subsidies to increase demand, which will 'incentivise' supply through "private sector led fertiliser markets" (pp.45-46). AGRA suggests that initial doses of inorganic fertilisers can be reduced over time as increased yields produce increased biomass that can then be fed into on-farm fertiliser production processes (including better quality livestock feed). AGRA supports mixed farming systems rather than monocropping (p.49) and conservation farming (p.48).

The section on seed is highly problematic and of the greatest concern in the whole report. Although there is recognition of diversity and plurality in seed systems on the continent, AGRA's orientation is towards commercial production. It therefore calls for the introduction of commercial seed systems, with the 'ideal' presented as a concentrated system where a few large companies control seed R&D, production and distribution (p.56). Seed system diversity in Africa is seen as a weakness and as an obstacle to be overcome (p.56). According to the report, weak seed production and distribution throughout the continent hinders the uptake of varieties developed through the formal R&D system (p.54).

The catch, as AGRA recognises, is that in order for commercial seed companies to invest in R&D, they first want to protect their 'intellectual property'. This requires fundamental restructuring of seed laws to allow for certification systems that not only protect certified varieties, but also actually criminalise all non-certified seed. This is a serious threat to African seed systems and the agro-biodiversity, as the African Centre for Biosafety and the Alliance for Food Sovereignty in Africa have indicated in recent publications and releases. AGRA is working with governments and other international and private entities to 'harmonise' seed laws across the continent, to put in place the institutional systems and structures that will allow private seed companies to control seed.

AGRA is aggressively supporting the transformation of African seed systems toward a commercially viable business model, which restricts farmers from recycling protected seed or using it to improve their local varieties. This is being done through proactive support for the seed harmonisation process in sub-Saharan Africa, which is pushing African governments to join the International Union for the Protection of New Varieties of Plants (UPOV) 1991.

The report deals with genetic modification (GM) only in passing. The report defends GM as rigorously tested, citing industry and government bodies that share the modernisation paradigm as evidence. It reduces public opposition to GM to "fear of the unknown" (p.64-65). Although AGRA currently is not directly involved in sponsoring GM activities, the Bill and Melinda Gates Foundation, one of AGRA's founders and primary sponsors, invests heavily in GM R&D on the continent and owns shares in Monsanto.

The section on financing shows that most investment in African agriculture comes from farmers themselves. Despite their own declarations, national governments generally continue to invest less than the 10% of gross domestic product (GDP) called for in the Maputo Declaration of 2003. AGRA's solution is for the state to guarantee loans made to farmers; i.e. the public sector would carry private sector risk.

On output markets, AGRA reviews the experience with warehouse receipt systems (WRS) and agricultural commodity exchanges as two key commercial market mechanisms. WRS operate by allowing farmers to store their grain in warehouses for a fee, but be paid



upfront for a portion of the value of the crop. Commodity exchanges allow for hedging that can stabilise prices and reduce risk (although they can also be conduits for speculation and increased volatility if institutional investors trading in derivatives dominate the market). The experience so far is not of great success. AGRA provides a number of reasons for this, most of which relate to regulation and sequencing of interventions. AGRA assigns a major role to the state in regulating and underwriting these systems.

On farmer organisation, AGRA recognises the fundamental importance of farmer organisation, but tends to focus on organisational activities to support commercialisation of production: providing members with services, enhancing collective bargaining power through aggregation and economies of scale, and enhancing farmer participation in processes affecting them (p.114). While these are important issues for farmer organisations to deal with, there may be other issues facing those members not oriented primarily to commercial production.

There are small sections in the report on capacity development, extension services and women. These tend to give an overview of the state of affairs (limited reach and limited support that is not always appropriate to context), and they make very broad recommendations about the need to increase capacity and numbers, and for women to have more access.

Section II of the report provides a number of macro-level statistics that need to be treated with caution. Collection of statistics has always been weak in African agriculture and AGRA recognises that this continues today.

It is not surprising that AGRA ignores agro-ecology given its devotion to capitalist modernisation based on Green Revolution technologies and commoditised output markets as the only answer to the question of farm productivity.

## Concluding comments

AGRA is carving out its niche in African agriculture, targeting commercial or potentially commercial farmers; i.e. those who produce primarily for the market, with their agricultural operations structured as a business. There can be no argument that commercial African farmers should be supported to sell into markets. However, there are many other producers critical to food security in Africa who will not receive support from the AGRA/modernisation project. Other forms of support must be provided for these farmers. In addition, some of AGRA's interventions (e.g. seed harmonisation) have a directly negative effect on the ability of these marginalised farmers to improve their conditions of existence, by placing regulatory and legal obstacles in the way of farmer innovation and knowledge and resource sharing.

AGRA's project relies heavily on the state to secure the basic institutional and infrastructural frame for commercialisation. The state provides resources to secure the conditions for private extraction of wealth. This orients public resources away from other potential uses, including resources explicitly directed towards ecological agriculture, and building up and enhancing farmers' existing practices.

The alternative ecological agriculture/food sovereignty perspective emerges very clearly from this analysis. First, start from where farmers are, building up existing practices that do not rely so heavily on external capital-intensive production processes. Seed and soil fertility systems may not be ideal, but there is a strong base to work from to improve them, together with farmers. Second, public resources should be channelled into supporting this agenda, rather than on securing the conditions for private extraction of the value created by African farmers.



# Introduction

AGRA is a non-profit organisation established in 2006 by the Bill and Melinda Gates and Rockefeller foundations to modernise African agriculture[1]. AGRA currently has offices in Kenya and Ghana and is setting up offices in Tanzania, Mozambique and Mali. It works very closely with the international agricultural research institutes that the Rockefeller Foundation played a major role in establishing and funding in the 1950s and 1960s. AGRA's objective is to introduce so-called 'Green Revolution' technologies into African agriculture, with the aim of building commercial input (especially improved seed and synthetic fertiliser) and output markets. It supports African governments in formulating and implementing policies and plans to realise an African 'Green Revolution'. The two foundations were initial funders of the alliance, but AGRA has also started attracting funds from other sources, including from donor agencies and governments (African as well as non-African). AGRA produced an Africa Agriculture Status Report in 2013, and aims to produce one annually.

AGRA is the latest in a line of efforts to modernise African agriculture. Henry Bernstein[2] defines agricultural modernisation as a concept that is presented as simply technical progress (growth of output and productivity), but it is actually intrinsically connected with commoditisation; i.e. the conversion of processes of production into conduits for the expansion of capital. Commoditisation of agricultural production primarily requires standardisation of the technical conditions of production in an attempt to overcome the "uncertainties of natural environments". This standardisation process has been interpreted by modernisers to mean increasing inputs in an attempt to control for the vagaries of nature.

Standardisation is a basic requirement for the process of industrialisation, which allows for economies of scale. The main crops emphasised in the modernisation agenda have been row crops (e.g. maize and, more recently, soya), which are amenable to industrialisation. An apparently positive trait of new seed technologies is their reliability in producing standardised plants that can be harvested and processed mechanically. GM and hybridisation are taking this standardisation to new heights.

Certain assumptions underpin efforts to 'modernise' African agriculture. Modernisation implies a traditional-modern dichotomy where African traditional agriculture is viewed as backward and inferior to the commercial-industrial model of agriculture practiced in the US and Europe, and replicated elsewhere[3]. A fundamental criticism levelled at the orientation dominating the current modernisation thrust in Africa agriculture is that the 'one-size-fits-all' commercial-industrial agricultural model ignores local socio-ecological context[4 5]. The core aim of this model is to increase agricultural productivity by increasing input use, and simultaneously secure output markets that can (theoretically) generate sufficient income for farmers to allow them to pay for the inputs. Through this process, input markets are also created for seed and fertiliser companies.

AGRA's model of agricultural development is fundamentally the same as the 1980s modernisation thrust. In essence, it offers a technical response to productivity issues, and considers existing 'traditional' agricultural practices in Africa to be inferior to laboratory-based solutions. The basic formula for agricultural development remains the same: increased inputs with output markets allowing for the realisation of exchange value that can enable farmers to pay for the inputs, which permits growth in productivity and outputs (i.e. more agricultural products).

The World Bank's efforts at agricultural modernisation in the 1980s more or less failed. There are numerous reasons for this. Phil Raikes made the point that structural adjustment called for cutting of state and parastatals expenditure as they were seen as inefficient, but simultaneously called for increased 'development spending' in agriculture[6]. There was no recognition that development spending was channelled through the state and parastatals in the first place, and cutting expenditure thus undermined even a modernising agenda[7]. Beyond this contradiction with structural



http://africagreenmedia.co.za/wp-content/uploads/2013/06/African-farmer.jpg

adjustment, there were many problems with attempting to impose inflexible technical solutions onto the diverse social and ecological landscape of African agriculture. Fertilisers were too expensive for all but a small group of producers. Although fertiliser may have increased yields, the increased return was not always enough to cover the costs of the inputs. Seed development focused on a few crops selected for their commercial potential, to the exclusion of the vast majority of diverse crops grown for diverse reasons (some, but not all, economic reasons) by African farmers[8].

As Henry Bernstein predicted, although the modernisation thrust failed to realise its own goals of sustained and increased productivity, it still did a lot of damage to the agricultural landscape[9]. Rising inequality, landlessness and abandonment of agricultural production accompanied the World Bank's prescriptions. The claimed successes were often the product of externalising certain costs. An example is 'soil mining'[10], where yields were extracted at the cost of destroying the life in the soil with long-term negative impacts, or of basing reported yields on experimental farms that reduced apparent costs by excluding costs of labour or state subsidies; this could not be replicated in farmers' fields[11]. Instead of rising commodity prices on world markets, African farmers faced declining prices and worsening terms of trade as buyers gained more power in supply chains, allowing for "a serial transmission upstream of lower profit functions"[12]. African export farmers faced greater competition from other places that began producing for the same niche markets previously identified for them. Technological advances enabled the synthetic replication of crop properties (e.g. artificial sweeteners substituting for cane sugar, or improved blending and substitution of vegetable oil), which reduced crop prices[13]. A result of the export orientation was that in the 1980s Africa became a net importer of agricultural products[14]. African agriculture in the 1990s and 2000s suffered a severe slump as resources were cut and public sector support dried up.

However, from about the middle of the 2000s, there was renewed interest in the potential of African agriculture. This renewed interest resulted from rapidly rising raw commodity prices, fuelled by Asian demand, and massive growth in the availability of

capital following financial deregulation in the US and, shortly thereafter, most other places. Speculation in land increased. African domestic food markets have grown due to rising disposable incomes, which in turn may be the product of investments in energy and mining on the continent, itself a product of growing urbanisation and global demand for metals in the 1990s and 2000s. As a rule of thumb, mining precedes agriculture in the development of an economy in the capitalist world system[15].

However, it would be a mistake to think there has been a flood of money into African agriculture. In a useful chapter on agricultural financing in its Status Report, AGRA admits that, "agriculture is [still] not viewed as a strategic sector in which to engage" (p.77). Despite all the talk of FDI, this category of financing constitutes by far the smallest investment in agriculture in sub-Saharan Africa, at an estimated 0.09% of total agricultural investment from 2005 to 2007 (p.73). Farmers' own investments in land and production overshadow all others.

Turning the opportunities presented by the confluence of rising agricultural commodity prices and surplus capital into profit requires infrastructural and institutional preparation, which can take years or even decades. AGRA could be understood as a political project to facilitate these preparations and prepare African agriculture to become a conduit for capital accumulation. AGRA is making the argument for why African agriculture can be profitable for investors; i.e. for the owners of private capital. AGRA channels some resources from philanthropic institutions, and using these to leverage other resources from private and state owners of capital, to develop 'proof of concept'. This is about showing in practice that the proposal is feasible, that investment in African agriculture, if done in the right way, has profit potential.

## Capital and the state

Before analysing AGRA's 2013 Status Report, the overall objective of the project must be unpacked. First, circulation of capital can increase productive activity. Increasing productivity in African agriculture is not a bad goal in and of itself. There is a need to produce more food more efficiently. If some private owners of capital benefit in the process, is that enough reason on its own for opposition? Three issues must be dealt with here. First, how are public resources roped into creating the conditions for the accumulation of private wealth? Second, does the expansion of private wealth through the production of agricultural commodities come at a cost to some, or does such growth benefit everyone? Third, is the plan, based on the assumption that increased productivity would benefit all, realisable, or can it be derailed due to unexamined underlying assumptions?

Bernstein critiqued the World Bank's prescriptions in the 1980s as being based on an "ideological commitment to the virtues of 'the market'" as an abstract entity that serves more of an ideological function than as an actual analytical category"[16]. Markets are understood as intrinsically capitalist, with the underlying assumption (sometimes explicit) that 'the market' means the place where profits can be made; i.e. realisation of exchange value with a surplus that can be extracted by the owners of capital. AGRA adopts the same approach. However, markets existed long before capitalism. Fernand Braudel has described a three-tiered structure within which humans have historically survived: at the base is a self-sufficient economy, the layer of material life, "the soil into which capitalism thrusts its roots but which it can never really penetrate"[17]. Above this is the terrain of the market economy, with a degree of automatic coordination linking supply, demand and prices. At the top is the zone of what Braudel calls the 'anti-market', "where the great predators roam and the law of the jungle operates. This ... is the real home of capitalism"[18]. Gradually from the 15th century onwards, capitalism has occupied the market economy and altered its functioning so that productive activity and trade became conduits for the accumulation of capital, which became the driving force of the economy.

The importance of this analytical frame for our purposes is to understand that markets do exist in Africa, and have existed on the continent for thousands of years. So, production and exchange have occurred on the continent, but they have mostly occurred



outside of the circuits of capital accumulation, except for some enclaves where raw materials were extracted. This means there may be other ways of supporting and building markets that do not require the circulation of capital. AGRA insists that the best way to build markets is through the introduction of interest-bearing capital. This means the owners of capital can claim a portion of the value of outputs from the productive process. Without going into too much detail on the role of debt in the creation of new capital[19], and the role of financial deregulation in the past two or three decades in rapidly expanding the availability of capital not backed by reserves to speed up processes of accumulation[20], we can say that most capital today resides in private hands and the state plays a central role in regulating and defending this system.

Capitalist modernisation reproduces an extractive economy with an outflow of financial resources over time. A key question is how to keep the value added within Africa, especially amongst direct producers, rather than have it constantly flowing out to the owners of capital. AGRA's contribution must be investigated from this angle too. From a food sovereignty point of view, the challenge is to develop ways of increasing productivity and distributing the wealth created from productive activity that do not rely on the circulation of interest-bearing capital.

The state plays a central role in facilitating and regulating processes of capital accumulation. A key role for the state is to perform functions that serve the interests of the capitalist class as a collective, but that any individual capitalist enterprise will not – or cannot – perform on its own[21]. Such public activities comprise a major part of the general overheads of capitalist production. They lie at the margins of capitalist production, but are indispensable to its development[22]. The distinction between state and capital is entirely artificial. The state is the guarantor of capital, is a creator and owner of capital in its own right, and is a conduit for the circulation of capital. The state maintains order, including control of the population through a combination of force and welfare, to prevent the structures and processes of accumulation disintegrating. This framing of the state's role allows a clearer understanding of the role African states play in processes of agricultural modernisation.

African states have played a central role in advancing a modernising agenda through the African Union, the New Partnership for Africa's Development (NEPAD) and its agricultural strategy, the CAADP[23]. This agenda is being rolled out to regional and national levels now after a decade in the making, with the full support of the modernisers in the G8, United States Agency for International Development (USAID), AGRA and others. The role of the state in the plans to realise this strategy is essentially to reduce the investment risk for privately owned capital by establishing the infrastructural and institutional base for the profitable circulation of capital through agriculture in Africa.

## AGRA's Africa Agriculture Status Report for 2013

AGRA has learnt a number of lessons from the previous round of agricultural modernisation in Africa. Although the fundamental ideological framework and orientation remains the same, there are also some important differences between what the World Bank proposed in the 1980s and what AGRA proposes today. The World Bank emphasised the importance of niche export markets, whereas AGRA emphasises domestic and regional staple markets. The World Bank emphasised large-scale production on estate farms, whereas AGRA emphasises small-scale production. The World Bank called for a withdrawal of the state, whereas AGRA calls for PPPs. Where the World Bank sought a 'one-size-fits-all' model of development, AGRA's outlook has greater nuance, recognising the irreducible diversity of African ecological systems and agricultural practices – in rhetoric at least. Very importantly too, the balance of power is different. The World Bank had the power to impose structural adjustment on African governments, whereas AGRA has to 'win' the argument for modernisation. This is not to



say African states do not remain in a weaker position, resource-hungry as they are and beset by continuing outflows of capital mainly in the form of ongoing debt repayments. However, AGRA is not in a position to dictate terms to the extent that the World Bank – as a state-based multilateral institution with a mandate to intervene in national economies – was.

AGRA's approach is to provide support to improve farmer productivity and distribution of produce. This would be done through increasing input use and by integrating farmers into commodity output markets. AGRA argues that higher productivity will result in a reduction of poverty amongst rural populations, which rely heavily on agriculture for a living, and that poor performance in agriculture remains a major barrier to development in Africa (p.14). The Status Report includes sections on **productivity, growth and competitiveness; soil health; seed systems; financing; output markets; policy environment; farmer organisation; capacity development; women; and extension and advisory services.** The AGRA report focuses on staple crops. AGRA justifies this as "food staples have strong growth linkages" (p.14), and argues to build up domestic and regional value chains first with exports following once the basic systems are in place. A focus on a few key crops may be problematic if other crops, which are an essential component of local food security but have limited commercialisation potential for large companies seeking profits, are ignored. This was the case in the World Bank-led modernisation thrust in the 1980s. However, it can have a positive aspect in the sense that the focus is on increasing production of crops important for domestic consumers, rather than on cash crops for export.

## Competitiveness, productivity and growth

The first chapter of the report looks at competitiveness, productivity and growth. According to the authors, problems with existing African agricultural practices are an "overreliance on natural weather and low adoption of technology" (p.20). The proposed solution, as discussed above, is "increased use of agricultural inputs, modern farming techniques, and reduced market inefficiencies"

http://beyondprofit.com/wp-content/uploads/2010/12/input_GlobalCropDiversityTrust.jpg

(p.20). The report further identifies "poor infrastructure and lack of human skills and institutions to support the use of technology" (p.24) as obstacles to modernisation. It suggests the potential for a two- to three-fold yield increase in cereal crops if the available stock of knowledge is 'efficiently' used along with productivity-enhancing technologies. These include improved seed varieties, appropriate fertilisers and adequate crop management techniques (p.22).

AGRA indicates an inverse relationship between increasing per capita gross domestic product (GDP) and the importance of agriculture in the economy (p.22). This means that the higher a country's GDP, the less it relies on agriculture as an economic base. This linear development model is based on the assumption that Africa could follow the same path of industrialisation and entry into the 'knowledge economy' as the 'advanced' economies, such as the US and Europe, followed. However, this fails to take into account that those economic heights were reached precisely on the back of colonial dispossession and resource extraction. The imbalance is also reproduced in the present through state subsidies in the North, and outflows of capital through debt repayments in the South, long after the value of the principal debt was repaid. From 1970-2002, Africa received around US$540 billion in loans and paid back US$550 billion in principal and interest. Yet the continent remained with a debt stock of US$295 billion[24]. It is not only about the actual debt, but also about the irreparable damage caused by the debt regime on African economies over the past four



decades. Money that could have been used to support agriculture, education, water, and health was diverted into the pockets of lending institutions.

In addition, not everyone can occupy the same space in global markets. Since the manufacturing and the 'knowledge economy' are already occupied, logically African economies will have to wait their turn until the 'advance guard' of the global economy discover more profitable activities and leave the less profitable arenas for those at the bottom of the economic structure to continue with. There is talk of combined and uneven development, where an economy is able to leap to the forefront of innovation and profitability for a time, such as the Asian economies did in the 1970s and 1980s. However, the growing concentration of private ownership and control over technological knowledge, and the growing technological gap between rich and poor countries, make it highly unlikely that African economies will suddenly be able to create economy-changing innovations. The past weighs heavily on the future.

The idea of a linear path of development is reproduced in AGRA's specific consideration of agriculture, where adoption of a particular technological package and set of institutional reforms is meant to place 'backward' African agriculture on the path to replication of the US or European agricultural model. That these models are encountering their own crises of overconcentration and inequality suggests that a pause for reflection is needed before embarking along that particular line of development, even if it were feasible to do so.

Although the chapter asserts the importance of improving competition to assist in raising African farmers out of poverty, nowhere does it explicitly show the logic of why this is so. The capitalist logic of aggressive competition as the best way of allocating resources (i.e. of identifying the most profitable outlets for accumulation) is accepted as an unexamined given.

## Land for production

The section on land recognises that limited access to natural resources is a key constraint to expanding agricultural production (p.28). It argues that a significant amount of land in Africa is uncultivated and needs to be brought into productive use (p.32).

The section notes an expansion of the area under production in the past two decades and also reports a decline in average farm sizes over the past decade or so (p.32). This finding, however, is not given further consideration. AGRA has stated it explicitly before and restates that African agriculture is based primarily on small-scale producers, who have less than three hectares (ha) on average in most of the South and East African countries surveyed (p.32). However, AGRA's target audience is those producers who are looking to produce primarily for markets; i.e. small-scale *commercial* farmers. This excludes a large number of producers who make a major contribution to food security on the continent.

Unlike the World Bank's disastrous attempts to impose a private property model onto Africa's complex and diverse systems of land holding, allocation and management, AGRA recognises the value of customary land-tenure systems, while also pointing to their downsides. Nevertheless, the report launches an attack on state-owned land and argues that lack of formal certificate or title is one of the reasons for lack of access to credit (p.35). Later it links regularisation (formal titling) to increasing productivity (p.36), and places emphasis on productivity of land with investment in input and output markets. The logic here is that farmers will invest more, land values will rise, and "land holdings will be induced to adjust" (p.37); i.e. there will be concentration of land amongst those who can use the land to generate marketable surpluses. Later on, in the financing section, the report proposes that private ownership allows farmers "to pledge their land as collateral for borrowing" (p.77). AGRA thus suggests it is fine to have collective or communal land holding models, but when it comes to commercial agriculture individual title and ownership is a better option, as land can be commoditised and used as collateral.

The report goes on to say that most food for urban areas comes from a few large farms and therefore, in an urbanising context, "a policy of land equality under severe population pressure



http://www.itswild.org/no808/images/soybean_field.jpg

may not provide much food security to urban populations" (p.37). On this basis it proposes a coexistence of small and 'larger commercial' farms (p.37). Again, there is a sense that AGRA is carving out its target audience, its niche, amongst better-off farmers who will produce as businesses for formal markets. Nevertheless, the section accepts that no single land policy or strategy can address tenure secure across the continent, and that these must be context specific. The report states that secure access is the precursor to clear, secure and negotiable property rights (p.36).

## Soil health

Soil health is one of AGRA's priority intervention points. It identifies nutrient depletion and soil erosion as two key problems undermining agricultural productivity, and responsible for the declining trend in agricultural food production in Africa over the past four decades (p.44). Cost of fertiliser is a major constraint, particularly to resource-poor farmers, and part of the problem statement is that there are both supply and demand constraints (p.45). As noted in the critiques of agricultural modernisation in the 1980s, AGRA recognises a key problem in that input prices are too high in relation to output prices (value of crops). It calls for an orientation towards 'remunerative markets' as an incentive for farmers to increase productivity through adopting these practices (p.49). Input and output markets must therefore be developed simultaneously, otherwise the scheme will not work.

AGRA proposes both supply and demand-side solutions to low fertiliser use. On the supply side, the proposed solution is the "development of efficient and effective private sector led fertiliser markets" (p.45). Finance for the fertiliser value chain is required, but micro-financing is not enough to establish a fertiliser business as fertiliser production is capital intensive (p.45-46). To realise supply-side improvements, AGRA provided starter funding to the Africa Fertiliser Agribusiness Partnership (AFAP) to provide credit guarantees to suppliers. AFAP aims to facilitate value chain financing and support for the expansion of agro-dealers who can make inputs more accessible to farmers (p.46).

On the demand side, the report says increasing demand can 'incentivise' supply. Increasing demand necessitates reducing cost and ensuring consistency of supply. AGRA says that



http://3.bp.blogspot.com/_iaieMzYvjJY/S9ldrvaN_kI/AAAAAAAAAMo/djmITIN9A4g/s1600/P1070496.JPG

subsidisation can lead to increased demand. The section on soil health notes that subsidy schemes generally tend to fail once external financing is withdrawn, although it notes some subsidy programmes have been effective in increasing use among small-scale producers resulting in increased yields (p.46).

AGRA has adopted an ISFM approach, where organic and inorganic fertilisers are combined, "not either or none" (p.46). The report argues that in many areas, the availability of organic fertilisers is limited and they are of poor quality. It therefore prioritises inorganic fertiliser provision as the entry point for ISFM. It says small applications of fertiliser combined with improved seed varieties can lead to significant increases in yields (p.47). At the same time, it identifies the need for long-term interventions as opposed to a short-term focus on yield gains (p.49). Use of legumes for nitrogen fixing is a key feature of ISFM, but for these to be effective it may be necessary to purchase rhizobia inoculants to supplement what exists (p.47).

The chapter on soil fertility recognises the potential role of manure, and favours integration of mixed farming systems (livestock, forestry, and cropping integrated into a single farm unit) to improve soil fertility (p.49). It suggests that initial use of fertiliser could be reduced over time as more crop residues are produced to supplement farmyard manure for composting, and biomass can be fed to livestock, allowing for health improvements in animals and production of more, high quality manure (p.48). It also proposes crop rotation and no or minimum tillage (conservation farming) (p.48). It should be noted that the main crops for rotation in conservation agriculture are maize and soya, two of the main GM crops used globally. Conservation farmers in the mainstream also tend to use manufactured pesticides extensively. There are clearly issues related to conservation farming that we should be aware of, even while some of the practices make sense from an ecological agriculture point of view. AGRA proposes combining ISFM with other agro-ecological production methodologies, for example, agroforestry and water conservation methods (p.48).

The main challenge for the implementation of ISFM methodologies, according to the report, is its knowledge intensity. AGRA indicates the need for improved and well-resourced agricultural extension services, arguing these will be best realised through public-private investments (p.49). Key requirements for effective ISFM are fertility diagnosis skills, agricultural water management and water availability (p.49). Later in the report, AGRA recommends context-specific research on crop response to fertilisers and on the profitability of fertiliser use (p.104). We should note that internalisation of ecological profits or losses associated with fertiliser use are not explicitly proposed. It is purely about yield and profit, despite what the report notes about the importance of not looking only at short-term yields.

According to AGRA, the introduction of some inorganic fertilisers may be necessary where the lack of availability of essential nutrients limit plant growth. The report specifically notes requirements for phosphorous (P) for grain legumes (beans, pulses, oilseeds), and potassium (K) for cassava. AGRA explicitly argues for increased fertiliser use and it's practical work in this regard should be monitored closely. Is AGRA adopting these blended approaches in practice, or it is just rhetoric?



## Seed systems

This section is of the greatest concern in the whole report. AGRA has a lot to say about seed policy in the section on policy and although the underlying logic of most sections in the report orients AGRA's proposals towards supporting farmers who might enter into commercial markets, there is general recognition of system diversity and plurality and that different farmers have different needs. However, when it comes to seed systems, the push towards replacing what exists with a new system becomes clear. Worryingly, the 'ideal' alternative is presented as a concentrated system in which a few large companies control seed R&D, production and distribution. In the process, AGRA supports policy shifts that will facilitate the development of such a seed system.

The stated goal is for farmers to have a choice of high quality, locally adapted, improved seed at affordable prices (p.54). This sounds very good, but much rests on the word 'improved'. Farmer-saved seed is seen as being 'under-developed' and hybrids are emphasised as the desired improvements (p.54) with the end goal of "certified seeds of certified varieties" (p.55). Efficient seed systems are seen as those where "the entire seed value chain from research through distribution is often controlled by one or two private companies that have vertically integrated over the years" (p.56). The section clearly favours concentration of control and ownership in the seed value chain. South Africa is held up as the most advanced stage of development with a fully privatised seed sector and few companies and where "the role of government is minimal and mostly in line with private sector needs" (p.57). Seed system diversity in Africa is seen as a weakness and as an obstacle to be overcome (p.56). According to the report, weak seed production and distribution throughout the continent hinders the uptake of varieties developed through the formal R&D system (p.54). The solution is perceived as the replacement of the existing production and distribution systems with a fully privatised system, rather than considering how farmer seed systems could be supported and strengthened to fill in the weaknesses and gaps of the existing system.

One major problem with the emphasis on hybrids is the required link to intellectual property and proprietary ownership before the private sector is willing to invest. Intellectual property – "the leveraging of proprietary knowledge" - may be considered the latest 'dynasty' of capital accumulation, the cutting edge of future profitability[25]. AGRA's report states that the reason the private sector does not want to invest in open-pollinated varieties is that these seeds can be recycled (i.e. saved) and therefore will not generate income for the investor (p.65). This is an explicit recognition that the motivation is to make money and not to provide farmers with high quality, affordable seed as stated. The argument will be that a long-term, sustainable solution must be based on the capacity of companies involved in seed production and distribution to make a profit, otherwise there will be no motivation to improve seed. A direct connection is made in the report between privatisation of seed systems, hybrid seed development, uptake of hybrids by small-scale farmers and increased yields (p.55). Certification systems are considered a prerequisite for private investment, with negative impacts on farmer-saved seed and local non-hybrid varieties.

The emphasis is on seed sector regulation and regional seed trade (p.99). This section makes a critique, in passing, of the focus of seed laws and policies on the formal sector and hybrids to the exclusion of support for farmers own initiatives and OPVs. There is also recognition that variety registration may restrict seed sector development, though no detailed argument is presented (p.99). However, these viewpoints are carried through neither in later analysis or in the recommendations. AGRA opposes short-term restrictions on seed trade to secure domestic supply, and opposes distribution of free or subsidised seed as a threat to seed markets (p.101). It calls for harmonisation of legislative frameworks around plant variety protection (PVP) and UPOV[26] to enable easier distribution of seed regionally (p.100). These harmonised seed laws "should be domesticated, implemented and enforced" (p.104). However, the report disguises the extent to which harmonisation protects proprietary knowledge at the expense of farmers. The report further calls for speeding up of processes of variety registration and release (p.103). Major changes to seed



http://s0.wp.com/imgpress?url=http%3A%2F%2Fcgiarweb.s3.amazonaws.com%2Fwp-content%2Fuploads%2F2012%2F10%2Fbean-diversity.jpg&w=645

laws are in advanced stages of being rolled out throughout the continent to facilitate private ownership and control over seed to the detriment of farmers' rights to save and exchange seed[27].

The main reason given for why farmers continue relying on 'informal' seed systems is lack of access to formal seed supplies. Therefore, according to AGRA, it is a supply-side issue and farmers will willingly adopt 'improved' seed varieties from the commercial system if the seeds are made available. The demand is there. The only constraint to increasing supply, according to AGRA, is the lack of regulation controlling the production of seed and ensuring the conditions for private sector profit through recognition of intellectual property rights over seed. At the same time, the report recognises that the environment farmers operate in is "complex, risk-prone and diverse" and 'informal' seed systems are robust in the face of these dynamic environments (p.62). Again, it does not take this up further in the report.

AGRA is very clear that the creation of an investment-friendly policy environment is essential for the attainment of food security in sub-Saharan Africa as well as key to increasing farmer incomes. Two assumptions are immediately apparent: 1) that productivity and competitiveness are more important than diversity in agricultural systems; and 2) that there is such a thing as affordable prices for the majority of farmers in sub-Saharan Africa. The issue is that some farmers will never be able to afford to pay for seed, whatever the cost.

Current research emanating from a variety of sources indicates very strongly that diversity, which helps to create resilience, is more important for long-term food security than efficient commercial production[28]. There is a growing recognition that we need to completely reorient our thinking and policies as regards food production and instead focus on the multiple functions that agriculture plays in modern societies[29]. The three pillars that need to be considered are:

- Social: health, gender, traditions and culture
- Economic: income, marketing and trade
- Environmental: soils, water, climate and biodiversity.

All of these pillars interact to create a dynamic, ethical, long-term and sustainable food production system. The AGRA assessment of seed systems, however, tends to focus on the economic aspects in isolation; hence, their narrow lens misses the richness that currently exists in sub-Saharan seed systems, and the social and environmental well-being they confer. In fact, it sees farmer-reliance on locally developed farmers' varieties as "under-development" (p.54), which needs to be remedied by the private sector. There is absolutely no recognition of the fact that the private sector will be heavily reliant on local knowledge and the agricultural resources that this knowledge has produced, for the success of their businesses and there is no mention of rewarding current farmers for the thousands of years of farmer innovation.

AGRA fully supports the harmonisation of seed policy throughout sub-Saharan Africa, based on the UPOV 1991 model. This model is designed to realise a single pillar of food production, the economic, and will essentially destroy the other two pillars, the social and the environmental. The winners in this scenario are the economically powerful, in this instance, private seed breeders, who will gain free access to African germplasm and exclusive protection of the products they create from it, for at least 20 years as per UPOV 1991's timeframe for protection. Farmers will be restricted from using these products for further breeding and



be brought into a cycle of annual payment for a previously 'free' resource. In addition, the varieties that will be developed will require the purchase of chemical inputs as part of the Green Revolution package.

In this report, AGRA reveals just how they want to 'have their cake and eat it' (p.64). According to AGRA, a common and problematic policy thread, in countries whose seed laws they have reviewed, is the restriction on seed companies producing foundation seed of public varieties. However, they are pleased to see some transformation taking place concerning this enabling access to local germplasm. At the same time, AGRA is promoting the most restrictive policies on the use of private seed for further breeding. Their proposal is that African germplasm, the product of thousands of years of intellectual work, must be available to private breeders free of charge so that it may be taken out of the commons and sold back to the very people who developed it.

It may be argued that intellectual property restrictions aside, hybrids cannot be recycled due to their biological nature; they are bred to perform for one season only, after which they lose their vigour and become unreliable[30]. The argument is that farmers cannot use these seeds in further breeding and therefore the plant breeders' rights restricting them from doing so should not be of concern. However, experience on the ground shows that farmers do indeed use hybrid seeds for further crossing with their own local varieties, incorporating new characteristics to improve their seed[31]. This practice should not be restricted, nor should the recycling of open-pollinated protected varieties. These practices are essential for the survival of millions of people on the continent, given that "informal seed supply is the main source of seed for most crops and farmers in developing countries, and is likely to remain so for the foreseeable future"[32].

**Seed Harmonisation based on UPOV 1991**

The transformation of African seed systems is happening through a two-pronged approach: 1) to encourage African governments to join UPOV 1991, an inter-governmental organisation dedicated to protecting the intellectual property rights of commercial breeders; and 2) to work through regional organisations, intellectual property organisations and regional economic communities (RECs) to put in place intellectual property laws favouring private interests. These would apply uniformly throughout the regions. The governments of Kenya, Ghana and Tanzania are major champions of these processes.

UPOV is an intergovernmental organization, established in 1961 to reward plant breeders for their new plant varieties by granting intellectual property rights, "on the basis of a set of clearly defined principles"[33]. This assures breeders that they will recoup the R&D expense invested in creating new varieties, by reward through royalties. To gain protection, a variety must be (i) distinct from existing, commonly known varieties; (ii) sufficiently uniform; (iii) stable; and (iv) new in the sense that they must not have been commercialised prior to certain dates established by reference to the date of the application for protection[34]. This is commonly referred to as the DUSN criteria.

The UPOV Convention was first adopted in Paris in 1961, revised in 1972, 1978 and in 1991, with the 1991 revision entrenching the interests of the big players in the seed industry. It is worth noting that UPOV agreements were negotiated by developed countries to address their own needs. African governments did not participate in any of these negotiations. Any new members wishing to join UPOV are required to implement the latest, most restrictive version, UPOV 1991. This version severely restricts farmers' rights to share or sell farm-saved seed that is protected under this regime. UPOV 1991 vastly expands breeders' rights and restricts innovation with respect to protected varieties.



**Program for African Seed Systems (PASS)**
AGRA's Program for Africa's Seed Systems (PASS) "operates through four integrated sub-programs across the seed value chain. It begins by educating a new generation of plant breeders and seed specialists and ends with improved seed on the shelves of village-level agro dealers". Again, this system rests on the assumption that commercially successful systems equal food security and social well-being. It is essentially a plan to set the stage for the introduction of a fully-fledged private seed system, encompassing scientific education, seed breeding, production and distribution, as well as a distribution system for related agricultural inputs. PASS is divided into four key components:

- Education for African Crop Improvement (EACI)
- Fund for the Improvement and Adoption of African Crops (FIACC)
- Seed Production for Africa (SEPA):
- Agro-dealer Development Program (ADP).

The FIACC is particularly perturbing. It aims to involve farmers in selection of locally adapted varieties, which can then be combined with high-yielding varieties that will ultimately be commercialised by seed enterprises. There is no mention of benefit sharing and no acknowledgement that this process represents collaboration between two equally knowledgeable parties; the FIACC cannot take place without local knowledge and the resources borne of this knowledge. If there was *bona fide* interest in farmer well-being, this collaboration would have been recognised to ensure a fair and reciprocal deal in which farmers reap benefits and were not restricted from using protected varieties.

The issue of farmers gaining access to quality appropriate seed is undoubtedly a vital one that must be addressed. However, PASS gives commercial enterprises free access to the knowledge and resources that will drive their businesses and sets up an entirely new distribution system where the majority of risk will be borne not by them, but by the start-up businesses that will be the conduit for their products. It remains to be seen what terms and conditions are set for small seed enterprises and agro-dealers that become involved in this scheme. However, intellectual property regimes, licensing agreements, credit repayment terms, and the performance levels required to maintain a role in the chain, as well as other similar devilish details will need to be carefully scrutinised when these are made available.

## Genetically Modified Crops and AGRA

Almost as an aside, the report defends GM as a rigorously tested practice, citing industry and government bodies that share the modernisation paradigm as evidence (p.64). It reduces public opposition to GM to "fear of the unknown" (p.65). Although AGRA currently is not directly sponsoring work on GM, these comments indicate its in-principle support for the technology. The Gates Foundation has significant investments in GM R&D as well as shares in Monsanto[35]. For AGRA, it is more a question of taking it a step at a time by first setting up the institutional and knowledge systems, then move towards seed GM.

This three-paragraph section of the AGRA report dismisses the decades-old global debate about the safety and ethical concerns relating to genetically modified organisms (GMOs). It states that the World Health Organisation and the European Food Safety Authority have declared the technology safe and what is more, GM foods have been subject to more testing than any other crop in history and found to be safe (p.64). What is not discussed are the numerous independent biosafety studies showing adverse health and environmental and socio-economic impacts of the technology, nor the number of countries that have instituted bans and moratoria on GMOs.

AGRA does also not mention that the uptake of GMOs globally has been slow; after twenty years of commercialisation, over 60% of all GMOs are cultivated in just three countries, the US, Argentina and Brazil[36]. In Africa, only South Africa is growing GMOs on a large scale and it is the only country growing a GM food crop. Burkina Faso started limited production of GM cotton in 2008 and Sudan approved the cultivation of GM cotton in 2012. While Egypt has approved GM maize for cultivation, it is yet to begin substantial planting, as its biosafety legislation is not yet in place[37]. Clearly, the



http://www.nespal.org/sirp/waterinfo/state/awd/images/Irr_crops.jpg

benefits and safety of GMOs is not as clear-cut as AGRA would like to portray.

AGRA, however, does realise that GMOs are not suited to the current agricultural systems operating in Africa and will not contribute to food security. "... given low adoption of improved crops by small-scale farmers in most countries, GMO crops are unlikely to impact Africa food security in the near future given low marginal yield gains over conventionally bred seeds" (p.64). This statement is in stark contrast to the extremely effective marketing narrative proffered by the biotech industry, that GMOs are absolutely crucial in the fight against world hunger, even implying that those who reject the technology must shoulder the responsibility for the starvation of Africans. The stark reality, in the context of a document such as an assessment of the current agricultural reality in Africa, is that GMOs have no place in Africa agriculture.

## Financing

The section on financing is interesting and provides a useful overview of agricultural financing in Africa. Despite recent investments in African agriculture, the continent experienced a net outflow of capital between 1970 and 2010 that exceeded official development aid and FDI (p.72). As discussed in the introduction, debt repayments have played a major role in this, although AGRA does not mention the role of debt at all, or the ways in which agricultural restructuring was linked to debt repayments.

The report indicates that small-scale producers themselves are the major investors in agriculture, mainly in the form of labour (p.73). As indicated in the introduction, despite all the talk of a wave of investment, FDI into agriculture constituted a tiny proportion – less than 0.1% - of total investment in agriculture from 2005 to 2007 (p.73). Public expenditure on agriculture remains lower than the 10% called for by African states themselves in the Maputo Declaration of 2003 (p.74). Overall, the report shows limited investment in agriculture as a whole. This can only signify an assessment by owners of capital that there are few profits to be made in comparison with allocating capital elsewhere. Reasons given for lack of investment by small-scale producers include high transaction costs for a large number of small and heterogeneous producers, high risk, and weak infrastructure (p.78).

AGRA proposes a loan guarantee fund to leverage lending from commercial banks (p.81). The role of government is to "create a business

http://upload.wikimedia.org/wikipedia/commons/6/6c/Finger_millet_3_11-21-02.jpg

environment seen as conducive to commercial activity" with public investments to play a catalytic role to incentivise and leverage private-sector investments into the agricultural sector" (p.81). The role of the state in establishing the conditions for the circulation and accumulation of capital are explicitly stated here. AGRA presents an unquestioned logic of private investment as the objective, which is assumed to deliver the inputs required to make a Green Revolution possible.

## Output markets

If the first part of the modernisation equation is increasing use of inputs, the essential second part is to ensure there are markets through which the farmers can sell their increased yields. AGRA's focus on the input side is improved seed and fertiliser, and on the output side, it is to facilitate "efficient output markets, which offer a means to absorb surpluses resulting from improved farm technology" (p.86). Where AGRA differs from the World Bank's 1980s prescriptions is in identifying domestic and regional markets as the target. Conditions have changed and consumption and incomes are growing across Africa, albeit unevenly. AGRA suggests potential domestic/regional markets for agro-food products of US$50billion (p.86). However, to tap into them profitably means overcoming many institutional, infrastructural and socio-cultural obstacles. Private capital may not be willing to prepare the ground when other competitors may benefit, and this is where the state is given a role.

State marketing systems were privatised in the 1980s. It is not that they did not work, but they became fiscally unsustainable (especially after financial reforms reduced the public purse) and they "failed to produce significant increase in per capita output in food and cash crops" (p.86); i.e. they did not generate enough growth to sustain profitable investment. Part of the World Bank's mission was to force the state out of direct control of marketing systems, opening them up to private capital where profits were possible. The state-constructed marketing infrastructure did enable some private sector investment once privatised. This had uneven effects. In some places critical services failed, causing a disconnection between producers and buyers, while in other places private agribusinesses took over market operations[38]. Both public and private sector institutional systems remain weak, partly because of the lack of profit potential in the context of many small-scale producers spread across vast distances. The report identifies state weaknesses in enforcing contracts as being a factor that increases risk (p.87). In all countries except South Africa, there is a lack of private sector price-hedging mechanisms, which also increases risk and exposes producers to price volatility (p.87). The report also notes the lack of product standardisation (p.87) which, as discussed in the introduction, is a key factor in realising economies of scale and mechanising harvesting, storage and processing. Standardisation, as indicated earlier, is a fundamental feature of the commoditisation of produce. The report also identifies high post-harvest losses caused by lack of investment due to uncertainty of supply and high costs of aggregation (gathering of produce from many points) (p.87). AGRA ties the two sides of the modernisation strategy together by indicating the need to introduce market-supporting mechanisms together with 'yield-increasing' inputs so that supply can meet demand (p.88).

The section on markets reviews various efforts undertaking to support marketing, such as WRS and agricultural commodity exchanges, indicating that the overall results have not been very successful. Reasons given for the lack of success include missing or

underdeveloped complementary institutions; for example, delivery and trading platforms must be developed together, but at times only one or the other is supported. Another reason given is that there are 'diseconomies of scale' if small-scale producers are given exclusive access to WRS. The report suggests involving larger commercial farmers alongside small-scale producers to ensure sufficient supply to make the scheme economically viable. The report also suggests that private sector storage can be more cost effective than state-owned storage and that the latter 'crowds out' private sector involvement. The report indicates that in many countries the state still plays a major role in storage. The report also indicates *ad hoc* interventions in markets (e.g. export bans, minimum price setting) as working against private investment because it threatens profit-making potential (pp.88-89). The report argues that lessons "point to the need for governments to credibly commit to creating and maintaining a policy and regulatory environment that is supportive of the operations of an exchange and efficient free markets in general" (p.90). AGRA calls for public investment in physical infrastructure, "market-supporting institutional infrastructure" including market information services, law and policy enforcement, regional trade liberalisation, and private operation of storage facilities (p.90).

## Policy environment

AGRA explicitly recognises that Structural Adjustment Programmes (SAPs) had negative effects on small-scale production of food crops for domestic consumption, arguing that the policy framework in the SAP era was contradictory in that efforts at modernisation through "adoption of modern technologies" were undermined by a framework that undercut the state (p.96). Nevertheless, similar contradictions to those of the SAP modernisation era are apparent throughout the AGRA report. Although a major role is given to the state (almost a wish list with the state doing everything not profitable for the private sector to do itself), the report makes a number of proposals that, like the SAPs of old, undercut sources of revenue for the state. For example, AGRA is in favour of trade liberalisation, even though import tariffs are a potential source of income for the state and can serve to protect local producers from unfair global competition (e.g. heavily subsidised goods from other countries). The call for greater liberalisation of regional trade comes at the same time as AGRA recognises that "liberalised markets have exposed many small farmers to significant price risks that can deter technology adoption and development of markets and agricultural lending" (p.106). AGRA further says, "... governments should intervene in the financing for businesses and reduce tariffs on processing equipment to promote agribusiness development" (p106). So, in effect, tariffs are removed as an income source and governments requested to fund agribusinesses.

AGRA indicates the importance of strategic grain reserves to stabilise prices (p.106) and, despite criticisms of fertiliser subsidies earlier in the report, propose the use of subsidies to increase fertiliser demand (p.104). This certainly indicates a shift from the era of the ideology of no government involvement whatsoever. It may be understood as an 'enlightened reform' approach, as opposed to the conservative, anti-statist approach at the outset of neo-liberalism. In rhetoric if not in reality, since the state remained heavily involved in securing the conditions for capital circulation and accumulation even then: it just did it in different ways, ways that more explicitly favoured the interests of the owners of private capital.

In the policy section, AGRA restates the important role to be played by the state in supporting the modernisation agenda, this time in establishing infrastructure (e.g. ports, roads) to facilitate private sector investment, and government regulation of product quality (p.106). The whole approach burdens the public sector with many regulatory activities that reduce risk for capital investment and that facilitate the entry of capital. The flipside is that public resources will not be used for other types of support, including developing R&D and advisory services for ecological agriculture, for example.

## Farmer organisation

AGRA recognises the importance of farmer organisation in providing members with



services, enhancing collective bargaining power through aggregation and economies of scale, and enhancing farmer participation in processes affecting them (p.114). Most of the chapter is taken up with how important farmers' collective organisation is. While this is a valid component of farmer organisation, there is need for a wider diversity of organisational initiatives and strategies that serve different farmer constituencies. Not all farmers need the same support, with form following function: the organisational form will depend on the objectives.

What are the needs of different farmers in their specific contexts? How it is possible to meet these needs in the context of this work not contributing to the circulation of capital or profit for external agents? Such questions suggest different logics of organisation. For food sovereignty advocates, key organisational questions may include how to tap into farmers' existing knowledge and skills and how to share these between farmers in a low-cost way. Food sovereignty is the right of peoples, communities and countries to define their own policies for agriculture, fisheries, consumers, and trade of food as long as these policies are ecologically sustainable, contribute to social justice, and do not restrict the possibilities for others to do the same[39]. There are lessons from other parts of the world where farmer-to-farmer sharing and learning, identification of innovations amongst farmers, etc. are the driving force for organisation. The AGRA model of organisation tends towards facilitating farmer organisation that can slot into a value chain with pre-existing R&D and input supply, and structured output markets. The primary question is establishing the backward and forward linkages into these pre-existing systems. There is no consideration of how farmers who seek to pursue an ecological agriculture path might need to construct input and output chains or networks in a different way as part of the process of developing collectively owned agro-food systems.

For the food sovereignty movement, it is a question of bringing ecological agriculture knowledge into these organisations, engaging with farmers and providing ongoing support in developing this path. The battle is to work with farmers to realise alternatives to the modernisation paradigm that can actually work to improve their conditions of existence.

## Capacity development, extension and advisory services

One section of the report deals with capacity development and another with extension and advisory services. The former provides an overview of the state of formal scientific knowledge in agriculture. It shows very low numbers of scientific specialists in Africa, which is connected to the weaknesses in tertiary education systems. As part of its contribution to overcome this, AGRA sponsors PhD and MSc programmes at 15 universities in sub-Saharan Africa. Its focus is on developing improved seed varieties and the commercialisation of seed, ISFM and applied agricultural economists (p.132).

Commenting on extension services, the report indicates these are generally pluralistic and provided by a range of agencies, though public-sector extension tends to be dominant (p.152). AGRA notes that a transfer-of-technology approach was historically adopted, which treated households as a homogenous unit and was marred by a one-size-fits-all approach (pp.152-153). Existing extension services are rarely relevant to women farmers, and there are too few extension workers on the continent as a whole (p.153). As with capacity development, the question is really about the content of extension. Everyone agrees that more extension workers would be better. But, what skills are they learning and sharing, and how do they integrate with farmers? The report provides an overview of the general state of affairs without offering detailed solutions. It proposes the need for more facilitative approaches and recognises the need for diversity and context-specificity in extension services (p.154), as well as recognising a role for the public sector as well as non-governmental organisations and the private sector in providing these services.

## Women

One of the last sections of the report is on women, who constitute the majority of food producers in Africa. AGRA recognises the obstacles to expansion of production



http://www.nature.com/polopoly_fs/7.13383.1383064904!/image/1.14054_Fertilizer_-african-farming-Robert-Harding-1030-59216.jpg_gen/derivatives/landscape_630/1.14054_Fertilizer_-african-farming-Robert-Harding-1030-59216.jpg

by women as access to land, 'improved' agricultural technologies, financial services, extension and advisory services, and agricultural R&D. Broad recommendations are made that flow from these factors, such as efforts to improve women's access to a range of resources (including land), services and knowledge. However, what AGRA actually plans to do to facilitate this in reality is not answered.

Section II of the report provides agricultural statistics. It is a useful snapshot, though we must question the accuracy of these statistics. Agricultural statistics are notoriously inaccurate, and AGRA itself notes a "steady decline in the quality of agricultural statistics ... particularly in African countries ... [M]any African countries are still not able to report even the most basic data on the agricultural sector" (p.168).

## AGRA Ignores Agro-ecology

Industrial agriculture has only been with us for about sixty years and while it has scored some successes in increasing yield in certain crops, it is now acknowledged that this system of farming is socially unjust and ecologically unsustainable.

In recent years, the call to shift toward "agro-ecological" production methods has become louder, as a way of improving the resilience and sustainability of food systems. The United Nations Special Rapporteur on the Right to Food describes agro-ecology as a convergence of two scientific disciplines: agronomy and ecology. As a science, agro-ecology is the application of ecological science to the study, design and management of sustainable agro-ecosystems. As a set of agricultural practices, agro-ecology seeks ways to enhance agricultural systems by mimicking natural processes, thus creating beneficial biological interactions and synergies among

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the components of the agro-ecosystem. It provides the most favourable soil conditions for plant growth, particularly by managing organic matter and by raising soil biotic activity. The core principles of agro-ecology include recycling nutrients and energy on the farm, rather than introducing external inputs; integrating crops and livestock; diversifying species and genetic resources in agro-ecosystems over time and space; and focusing on interactions and productivity across the agricultural system, rather than focusing on individual species. Agro-ecology is highly knowledge-intensive, based on techniques that are not delivered from the top down, but rather developed on the basis of farmers' knowledge and experimentation"[40].

The AGRA report does not include agro-ecology in its assessment, despite agro-ecology playing an increasingly pivotal role in attaining food security and social and environmental well-being on the continent. Agro-ecology is now supported by an increasingly wide range of experts within the scientific community, and by international agencies and organizations, such as the United Nations Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP) and Biodiversity International. It is also gaining ground in countries as diverse as the US, Brazil, Germany and France"[41]. It has gained serious international currency in 2009 through the release of an important study, commissioned by the FAO and World Bank, the International Assessment of Knowledge, Science and Technology (IAASTD)[42].

The report advised governments that technologies such as high-yielding crop varieties, agrochemicals and mechanisation have primarily benefited the better-resourced groups in society and transnational corporations, rather than the most vulnerable ones and that small-scale diversified farming is responsible for the lion's share of agricultural output globally. The report argues that while productivity increases may be achieved faster in high-input, large-scale, specialised farming systems, the greatest scope for improving livelihoods and equity exists with small-scale, diversified production systems."[43]

A key insight from the research was that agriculture is not solely about increasing yield and producing food commodities, but has a "multi-functional" role to play in society[44].

# Conclusion

At the outset, we had three framing questions to make sense of AGRA's report. First, how are public resources roped into creating the conditions for the accumulation of private wealth? Second, is the expansion of private wealth through the production of agricultural commodities at the expense of others, or does growth benefit everyone? Third, is the plan for increased productivity to the benefit of all actually realisable, or will it be derailed due to a set of unstated underlying assumptions?

Having gone through the report we can now propose some tentative answers.

On public resources and the role of the state, it is apparent that AGRA recommends that public resources be channelled towards securing the conditions for profitable private investment in agriculture. The state is burdened with a great many regulatory functions and infrastructural projects in which private capital is unwilling to invest. The focus is on profitable activity, and therefore on infrastructural, institutional and policy support that favours commercial farmers and high-input farming methodologies at the expense of support for the majority of



farmers who are not in a position to produce as businesses and whose methodologies are many and diverse.

On the distribution of benefits resulting from capital investment, AGRA does not provide a convincing argument for why this is the best solution. It is no good looking at the capitalist systems of the US or Europe and thinking that these will be replicated in African agriculture. The historical conditions are different and the socio-economic context is different, and these vary across the continent. There may be places where injections of capital will facilitate production and improve the lives of those involved. In other places, this will not be the outcome. Underlying it all, however, is the extraction of a portion of the surplus by private owners of capital as their reward for making capital available (even though they manufactured this capital without any connection to physical assets; their legitimacy to create capital is purely on the basis that the state gave them the authority to do so). While AGRA has created conduits for the flow of some capital, we should still see it as being in the phase of 'proof of concept'. As mining and energy extraction expands on the continent, we should expect to see more investment flowing into agriculture. One ongoing task is to monitor these practices and see who is benefiting from increased productivity and who is losing. Another is to work with farmers and farmer organisations to think of other ways of increasing productivity that ensure both that the process and the proceeds from increasing production remain with direct producers as far as possible.

Are the proposed technical solutions realisable? Diversity is a key principle of ecological agriculture, whether in production practices, in biological resources (including seed), or in types of food produced. While there is some recognition of this in the AGRA report, there is a constant tendency to orient towards a particular set of technologies and methodologies associated with industrial agriculture. This is a product of the underlying belief in the superiority of capital circulation as a mechanism for wealth creation. We do not want to sit back and wait to see whether AGRA's plans will work or not. If the lessons of the World Bank's round of agricultural modernisation are to be learned, we must approach new technologies with extreme caution and from the farmers' perspective, rather than from 'the market' or anticipated investment returns. When a farmer experiments with a new variety or production practice in the field, s/he does not change the entire farm at once. Rather, s/he will experiment on one part of the farm and then scale up gradually if the new technology is effective.

Farmers' current practices are time tested and have been adapted to particular local socio-ecological contexts over centuries. There may be gaps and weaknesses in these ways, but there are also strengths that should be built on rather than destroyed. Against the idea of capitalist modernisation based on Green Revolution technologies and commoditised output markets as the only answer to the question of farm productivity, advocates for food sovereignty must assert the scientific foundations of agro-ecological practices and their importance in responding flexibly to irreducible ecological and social diversity.

AGRA's shunning of agro-ecology is not surprising, given that their model of agriculture is based on the commoditisation of agriculture and the free use of locally available resources. The majority of African farmers are currently producing food without chemical inputs or improved seed. These systems could be greatly enhanced with the assistance from the research community, government institutions and other service organisations. Green Revolution "solutions" are drawing funding and other important resources away from more appropriate solutions, to the benefit of agribusiness. Indeed, it is standing in the way of such solutions.



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