

## A new Green Revolution for Africa?

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*For some time now, there's been talk of a new Green Revolution for Africa – because "Africa missed the first Green Revolution" or because "the first Green Revolution missed Africa". Now a new project, the Alliance for a Green Revolution in Africa (AGRA), is trying to put the concept into operation. This paper aims to describe what a Green Revolution really signifies, why such projects haven't worked before and why AGRA won't work either, in order to help people trying to take positions at the local, national and regional levels.*

Proponents of the Green Revolution call it a strategy to fight hunger in the world – bringing together international scientific research and the widespread dissemination of so called improved plant varieties in developing countries. The model was put forward in the 1950s by the Ford and Rockefeller Foundations as a way to thwart the menace of the "red revolution": the expansion of communism in poor countries. Starting in Mexico, the Philippines and India, the new varieties of wheat, rice and maize quickly spread through the tropics to replace farmers' varieties. But these varieties only produced the desired 'high yielding' results if there was irrigation, mechanisation, and plenty of chemical fertilisers (the real key) and pesticides.

The consequence of this effort has indeed been an increase in yields for specific crops and in specific countries – at least for their irrigated, fertile and flat land areas. For example, under the programme, India increased its wheat production ten-fold and its rice production three-fold. Norman Borlaug, regarded as one of the fathers of the Green Revolution, went on to receive the Nobel Peace Prize in 1970 for his contributions.

But beyond the yield gains, there were many costs -- economic, agricultural and social. The use of large amounts of water, fertilisers and chemical pesticides impoverished soils, leaving them less fertile and highly polluted. Local biodiversity was drastically reduced, bringing farmers under the dependence of pesticide manufacturers and outside seed suppliers. The profound cultural and economic changes wrought by the Green Revolution produced a massive rural exodus, and, with it, a profound loss of traditional knowledge and skills. For most farmers, any early profits were soon converted into debts, with many farmers, unable to repay their debts, taking their own lives. *"Let the earth open up and swallow us! My four hectares are sterile, as they are water-logged. Everywhere there are weeds,"* explains Ram Pal, a 60-year old Indian farmer from the village of Kalawala, in the Punjab state. *"I have three mouths to feed and 1100 dollars in debt to repay (...). In India, the Green Revolution may have enriched the Punjab, but it has ruined the land and the small farmers, and forced them to fall into debt and to migrate to the cities"*<sup>1</sup>

### Why was the first Green Revolution ignored by the Africans?

Between 1960 and 1970, Africa was busy managing its newly acquired independence, and had not been incorporated into the design of the initial Green Revolution projects. Family farming was still the norm in Africa, and formal research was carried out by the agricultural research systems of the colonial powers. In French-speaking African countries, the French agricultural research institutes, such as IRAT, ORSTOM and CIRAD<sup>2</sup> were very active. These institutions gave priority to cash crops for export to the North: coffee and cocoa in Ghana and Cote d'Ivoire; cotton in the north of Benin, Burkina Faso, Mali and Chad; groundnuts in Senegal; and palm oil in southern Benin. Often, the colonial powers had to use force to eject the farmers off their land and impose their varieties and agricultural systems. Even after independence, local food crops continued to be marginalised by scientific research for a decade or so.

Then, research institutes such as the IITA (International Institute for Tropical Agriculture in Nigeria) and ICRISAT (International Crops Research Institute for the Semi Arid Tropics, Mali) parachuted into Africa to develop Green Revolution-style programmes for some of the continent's food crops. But they did not take into account the realities on the ground and few of these "improved varieties" were accepted by African farmers and consumers. The Green Revolution is based on a scientific reductionism, which has resulted in monocultures, the use of chemical inputs (such as fertilisers and pesticides) and inappropriate mechanisation. This is alien to Africa's peasant farming systems which pursues a more holistic approach to agriculture in which crops are combined with livestock, organic manure is used, soils are looked after, and there is a deep respect for the wider environment.

The CGIAR has spent a good half of its budget on Africa in the last few decades, but the Green Revolution has never taken root. Now, with an influx of dollars from Bill Gates, Rockefeller and other United States donors, many of the same organisations that led the first effort are going to try again. They are calling themselves the 'Alliance for a Green Revolution in Africa', AGRA for short, and they are in the process of putting their new plan into motion.

### **AGRA: training for what?**

AGRA says its main objective is to help Africa to increase productivity for a number of major food crops – much like what was envisioned with the initial Green Revolution programmes.<sup>3</sup> And once again, this is supposed to be done through Western-style plant breeding at the national agricultural research institutes. The difference being that this time a new crop of plant breeders will be trained in Africa itself, as opposed to being trained at universities in the North – though Cornell University, the central institution of the early Green Revolution programmes, will be there to oversee the training.

In January 2008, a first set of agricultural breeders in West and Central Africa will start their training at the University of Ghana, where the new the West African Centre for Crop Improvement (WACCI) will be based. Students will work on maize, cassava, sorghum, millet, tomatoes, cowpeas and other plants important to the African diet. This project is funded to the tune of US\$ 4.9 million (more than 24 billion CFA francs) from AGRA. It seeks to train 40 students for a period of 5 years, starting in January 2008, with 8 students enrolled each year. Likewise, the University of Kwazulu-Natal in South Africa, home to the Rockefeller Foundation's African Centre for Crop Improvement (ACCI), will train 120 breeders over the next ten years through an AGRA grant of US\$ 8.1 million.

Not only will the plant breeders be trained in technology, but they will also be taught to lobby. At a recent meeting of maize breeders from Southern and Eastern Africa, governments were urged to fast-track permits for growing new varieties of crops. Or in the words of Jane Ininda, programme officer with AGRA, "To be able to make new improved varieties available to farmers to increase their yields and improve their standards of living, countries must put in place regulatory systems that can quickly test and allow an influx of new commercial varieties."<sup>4</sup> AGRA is using its considerable political power to convince African governments to put in place policies and systems that will ensure the smooth running of agribusiness.<sup>5</sup> The consequences of fast tracking seeds on to the market mean that plants are not adequately tested in local conditions. The farmer is therefore taking the all risks of crop failure whereas the company is assured of a quick financial return

## **Agro-dealers: the shortest route to the farmers**

In addition to training, another bottleneck to the successful establishment of the Green Revolution, as perceived by AGRA, is getting the new seeds to farmers. The solution proposed by AGRA is to build an infrastructure that facilitates the development of private seed companies. This is something that the Rockefeller Foundation and the World Bank have been trying to do for some time now, with little success.

One of AGRA's first steps is therefore to set up networks of "agro-dealers", to sell seeds, pesticides and fertilisers. AGRA has already hired a US NGO called Citizens' Network for Foreign Affairs to carry out this work in Kenya, Tanzania and Malawi. So far this US NGO has received around \$14 million in grants – by far the largest recipient of AGRA funds to date. To supply the dealers, AGRA's donors are also funding private seed companies. The Rockefeller Foundation is a leading investor in African Agricultural Capital, a venture capital investment fund that invests in and partly controls several small African seed companies, which are also supported by AGRA.<sup>6</sup> AGRA will certainly try to help develop markets with small farmers, which have so far been limited by the stubborn resilience of traditional seed systems that have always supplied African farmers with high-quality, affordable, locally adapted and culturally acceptable seeds.

Meanwhile, in French-speaking Africa, AGRA is funding national agricultural research in Mali through research activities conducted at the Institute of Rural Economy (IER) on maize, sorghum and rice. An amount of US\$ 555,000 (nearly three billion CFA francs) has been awarded to IER from 2007 to 2010, and a sum of US\$ 208,000 (more than a billion CFA francs) has been awarded to the Faso Kaba organisation for the dissemination of improved varieties<sup>7</sup>.

The logic here is staggering. The idea is to fund public breeders to develop new varieties (as the private sector does not want to do this), to fund private companies to sell these to farmers, and to provide credit to farmers for the purchase of these seeds (because otherwise they cannot pay for them). AGRA is all about creating an effective demand for its own product, prescribing a model of development that is not able to survive on its own.

### **Kenya – AGRA in practice.**

Farmers in Western Kenya have been receiving 6000 Kenyan shillings (Sh), US\$ 92, in vouchers from the government which enables them to buy seeds, fertiliser, and pesticides. The government also provides extension services to oversee the correct use of these inputs. The money has come from AGRA who have provided US\$ 4.5 million (Sh 294 million). A group called Agricultural Market Development Trust (Agmark), is implementing the programme and the plan is to expand it to 30 districts in Kenya.<sup>8</sup> The Sasakawa Global 2000 programme, a precursor to AGRA, initially worked with individual farmers. Farmers however were not very consistent in paying back loans or acquiring inputs and it is estimated that 60% of new agro-dealer businesses did not survive. To solve this problem and create group pressure, it was decided to only work with farmers as groups, and this approach is now common for these programmes. In each village there is a programme coordinator who is paid five bags of maize by each farmer and the coordinator collectively sells the bags and uses the money to buy inputs for the next season.<sup>9</sup> According to AGRA this makes the project sustainable. But in reality the only sustainable part of this project is that it ensures the agrodealer has a consistent market.<sup>10</sup>

Meanwhile, the farmer has little choice. This system gives farmers little freedom to decide what they want to plant and when they want to plant it, they cannot use the knowledge they have accumulated over years, they cannot respond to weather changes and other changes in their environment. Once the donors stop subsidising, farmers will be left with an impoverished soil and no seed. The old Green Revolution game continues.

## **Towards the industrialisation of Africa's agriculture**

Whether it is the new Green Revolution or the old, the first losers are farmers, especially small farmers. AGRA sets out to replace the seeds that African farmers have carefully developed for their farms and cultures, with varieties suited to industrial monocultures. Such seeds will pave the way for the industrialisation of African food crops, opening the door to large agribusiness to come in and dominate.

IITA, for instance, one of AGRA's main partners, has already changed the focus of its work from peasant farming to the development of the industrial production and processing of cassava, perhaps the region's most important staple crop. Speaking to one of Nigeria's daily newspapers, IITA's Director of Research and Development explained that "there is a need to encourage farmers to go on large-scale farming instead of subsistence agriculture."<sup>11</sup>

The problem, at least for the IITA, is that their varieties have never really been suited to small-scale farming. IITA may have always portrayed its development of varieties resistant to Cassava Mosaic Virus (CMD) as a big success, but in practice farmers have generally preferred their local varieties. One recent survey of Ugandan farmers, found that more than three-quarters of those surveyed who were growing IITA varieties said that they were not superior to local varieties.<sup>12</sup> Another study of farmers in Ghana said that farmers there were not growing IITA varieties because they were prioritising "agronomic considerations" – meaning yield, eating quality, etc. In Benin, where farmers grow over 350 local varieties of cassava, only 13% of farmers grow IITA varieties. In Kenya and Tanzania, few farmers grow IITA varieties, despite the heavily-funded USAID programmes to promote them, and Tanzanian farmers report that they don't see any difference in CMD resistance between the local and IITA varieties. Even in IITA's home base of Nigeria, the local varieties dominate.<sup>13</sup>

What is most disturbing about IITA's new push to industrial cassava production and processing – funded by the Nigerian government, Shell Oil, USAID, the Rockefeller Foundation, and certainly AGRA in the near future – is that its success depends on reducing the market price for cassava, which is currently seen as too high to make it attractive as an export crop for transnational food and agrofuel corporations. In other words, the current cassava market works quite well – farmers get paid a decent price for supplying high-quality cassava to local food markets, where the need is greatest. It only doesn't work for big agribusiness, which, as far as farming goes, can't compete with the small-scale farmers, and, as far as the markets go, can't access cheap cassava because it refuses to pay the price that Nigerian consumers will. Here is a stark example of what African farmers can expect from the new Green Revolution.

## **Co-opting NGOs and farmers organisations**

AGRA and its partners are creating other problems for Africa as well, by co-opting NGOs to help create the markets it needs. The money enticement is very real and the public relations is effective and deceptive. The potential is there for AGRA to generate divisions between NGOs, CSOs and farmers groups all working for sustainable agriculture, as the level of analysis of the impact of such a top-down agenda differs. For example, in Africa most NGOs that promote agriculture that is sustainable and farmer-led, have taken a stand against GM crops because of its obvious negative impact on farmers in Africa. Yet AGRA is as big a threat to farmers as are GM crops. But AGRA's approach is more insidious and the pot of money is very large. Therefore there is a risk that organisations working with farmers that previously stood united against GMOs, may now work with AGRA. Such NGO collaboration has already started happening. In Kenya, for example, SACRED Africa, a member of the sustainable agriculture network, is managing field trials for AGRA.<sup>14</sup> In another example in Kenya, StrigAway maize, a variety patented by BASF, one of the biggest agrochemical companies in

the world is brought to farmers by an impressive marketing system, which co-opts public institutions, NGOs and farmer associations. StrigAway maize, a herbicide resistant seed created by mutagenesis breeding, holds many risks for farmers. To ensure compliance, farmers have to be trained and closely monitored and this is done by NGOs. The African Agricultural Technology Foundation (AATF) negotiates with the seed companies and public institutions on behalf of BASF, initially providing free seed to open up markets. It works through a network of 12 NGOs and 4 farmer associations to market the technology on behalf of BASF and to train and monitor farmers.<sup>15</sup>

## **No GMOs?**

At the launch of AGRA, its promoters were quick to point out that AGRA would not use genetically modified (GM) crops. Well, for now. At the third general meeting of collaborators of AGRA's programme on "Biotech, Breeding and Seed systems for African Crops", a number of presentations of research and trials of GM crops were included.<sup>16</sup> It is therefore difficult to take seriously the claim that AGRA is not about GM seeds. Every single funder behind AGRA, Rockefeller and Gates included, are already pushing GM technology into Africa. But they have realised that the AGRA initiative would be easier to promote without including GM crops or seeds. The strategy is undoubtedly to bring it in later, once the programme is established and farmers have already switched to new seeds. Furthermore, most countries in Africa still do not have biosafety legislation in place, so it does not make sense to focus on GM crops now, but rather on harmonising policies, making sure approval times for crops are faster and building the infrastructure to ensure the rapid introduction of GM crops.

## **Undermining food sovereignty**

The vast majority of Africans consume what they produce, despite international trade. Africa is characterised by its cultural diversity, which makes up its wealth. By ignoring the first Green Revolution, Africans have demonstrated to the world that they have understood that this revolution would kill their cultural diversity and their agriculture. In view of all that has been said, there are large contradictions between the model promoted by AGRA and the vision of food sovereignty for Africa. Over time, the African farmers have created a rich and dynamic agriculture which was gravely wounded by the continent's history over the last few centuries and, now, by the domineering multinationals and their allies to extract the remaining resources and knowledge. Programmes such as AGRA, and other so-called "technical" programmes, that ignore the social, economic and political realities of Africa, are unable to make a positive contribution. If African farmers are organised, if they rediscover and value their cultures and their knowledge, this is where Africa will have its real strength for change.

With climate change and the advance of the desert on the continent, it is appropriate to think about food sovereignty. Diverse agro-ecological practices exist in all African countries, but are not always known due to the oral nature of the cultures, which is common across the continent. To provide an alternative to AGRA, it is important to promote these local agro-ecological practices, and to work with farmers to improve them, at the local, national and regional level. At stake is the survival of future generations.

## The other AGRA: Sasakawa Global 2000

Sasakawa Global (SG) 2000, is a project funded by the Nippon Foundation and led by Norman Borlaug and has been operational since the 1990s. It mainly works through governments, using government extension services and by influencing policies. SG 2000 assists with credit for hybrid seeds, fertilisers and pesticides. The project has been praised for higher yields in good rainfall years (as long as the credit is made available) but this industrialisation of agriculture has also been deeply criticised for creating dependency on foreign imports of seed and fertiliser, its reliance on mechanisation which requires land consolidation. In Africa, as in Asia, the Green Revolution has forced many farmers off the land as it has a high social, environmental and financial cost.<sup>17</sup>

### *Ethiopia: feeding the hungry?*

In the 1990s, Norman Borlaug and Jimmy Carter visited Ethiopia and convinced the government to support the introduction of hybrid seeds and fertilisers, and to liberalise the markets. This was done with the support of Sasakawa Global 2000, and there followed a decade of global initiatives supporting agricultural production, though this was coupled with the withdrawal of state support for agriculture. Under pressure from international lenders and aid donors, the government deregulated the seed sector and grain markets and left it to the private sector. With the bumper harvest in 2001, the markets could not cope and prices collapsed.<sup>18</sup> Ethiopia was dumped into yet another famine despite increasing national agricultural production and farmers were left in debt and many lost their land.

### *Ghana: forcing farmers into bankruptcy*

The SG 2000 project in Ghana also proved not to be sustainable. At the beginning, the Ghanaian government provided the services of its extension officers to manage the delivery of inputs, pesticides and seeds and they also collected loans from the farmers. The credit was provided by SG 2000. Yields went up, in some cases three times the national average, but maize yields only increased by 26%. Of course farmers had to forego their own seed and cropping systems.

Supporting this approach of privatisation of agricultural inputs and markets, structural reforms were implemented in Ghana in the 1980's and in 1989 the parastatal Ghana Seed Company was closed and national seed policy called for the development of a private seed sector. Markets and credit were liberalised with interest rates going up to 40%. The SG 2000 project was ready to take off. However, as soon as the project was scaled-up (it moved beyond just being a demonstration project) only 44% of the farmers were able to repay their loans. The Ghana Development Bank was then persuaded to give loans to 20 000 farmers. Still the recovery of loans from farmers was only 45%. After this, it was decided that government extension officers should not be responsible for loan recovery or input distribution. SG 2000 initiated the development of a network of private seed producers and input dealers and scaled down the project. Monsanto became involved in promoting conservation tillage and of course Roundup Ready use.

The next strategy in this experiment was to use social pressure and a new credit scheme was designed, working with farmers associations, rather than individual farmers. An evaluation of the project concludes that the focus was too narrow, focusing only on maize, and the project was unable to adjust to changing markets and government policies. For example farmers were not presented with a range of options and the recommended use of fertiliser was the same for everyone. Another common problem with this kind of approach to farming is that farmers produce a glut of one crop, in this case maize, which they cannot sell or have to sell below cost. When conservation tillage was introduced by Monsanto, the use of herbicide pushed the costs of inputs up to US\$ 120 per hectare, forcing farmers to borrow with an interest rate of 30 - 40%.<sup>19</sup> Once SG 2000 stopped providing credit, the use of fertilisers by farmers dropped, and the project ceased. The evaluation concludes that the project was insensitive to "smallholders' resource endowment and risk capacity". SG 2000 spent US\$20 million over 17 years in Ghana. The project in Ghana ended in 2003 but the focus is now on Ethiopia, Nigeria, Mali and Uganda.

*"If you want to do an agriculture experiment in Africa, experiment with taking away subsidies in the West for one year,"*

Kwame Amezah, the assistant director of extension services in Ghana's Ministry of Food and Agriculture.<sup>20</sup>

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