Sowing the Seeds of Success:
The Case for Public Investment in African Smallholder Agriculture

July 2014
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There is broad international consensus that investing in agriculture is one of the most effective avenues for reducing hunger and extreme poverty. But over the past several decades agricultural investment has stagnated or declined in South Asia and sub-Saharan Africa—the very regions of the world where these scourges are most widespread. To reverse the tide, agricultural investment must increase and the quality of these investments must be improved. There is currently an intense debate in development policy-making circles concerning what investments are needed to increase farm productivity in Africa. Donors and some African governments are increasingly turning towards the private sector, or public private partnerships (PPPs), for agriculture investments, with such models not only seen to be complements to, but sometimes alternatives to increased public spending.

The primary challenge is that the global system by which food is produced, distributed and consumed is currently failing to meet the nutritional needs of much of the world’s population: up to 2.6 billion people in the world are classified as undernourished, mainly in sub-Saharan Africa and South Asia, and over two billion people suffer from lack of essential micronutrients. This report argues that the primary opportunity for overcoming this challenge lies with smallholder farmers. There are currently 500 million smallholder farmers who support 2 billion people and provide up to 80 percent of the food supply in sub-Saharan Africa and Asia. Smallholder farmers also invest more in their own farms than all other investors combined. Investments made in the future of agriculture in Africa must align with and support the investments already being made by smallholder farmers.

The case for increased public sector investment in agriculture

The current state of investment

For more than a generation, there has been insufficient investment in developing country agriculture. During 1990-2000 alone, donors reduced aid to agriculture in sub-Saharan Africa by 49 percent in real terms in the context of the conditions and restrictions of Structural Adjustment Programs (SAPs). This situation has begun to turn around in recent years, but not fast enough. Worldwide, aid to agriculture is estimated at $9.6 billion, amounting to only 5.8 percent of overall aid.

African governments are working to fill the gap that was left when the attention of international donors moved elsewhere. Recent years have seen an increase in agricultural spending on the part of some African governments, with over 40 countries signing Comprehensive African Agricultural Development Program (CAADP) compacts committing themselves to spend 10 percent of their budgets on agriculture in order to achieve the 6 percent annual growth target. In June 2014 African governments re-committed themselves to these achievements as well as the goal of ending hunger in Africa by 2025. Under CAADP African agricultural production increased in value by more than 10 percent per year on average compared to less than 2 percent per year during the decade prior to CAADP. However, in terms of volumes, this is still below the 6 percent annual growth target set by CAADP. Moreover, only eight African countries have reached the 10 percent spending target. The 2008 food price crisis brought new international attention to the need for investment in agriculture and at the 2009 G8 summit in L’Aquila Italy, donor countries pledged to mobilize $22 billion for agriculture and food security within three years. However, only three-quarters of the funding pledged at L’Aquila had been disbursed by mid-2013, up to two years after the pledge period was complete.

The plain truth is that current levels of government and donor spending on agriculture are vastly inadequate to meet the ultimate goal—ending global hunger for good. Recent analysis by the UN’s Food and Agriculture Organization (FAO) calculates that an additional $42.7 billion to current spending is needed per year through 2025 in order to meet this goal.

The need for public investment in agriculture

The roles of the state and the market in agriculture have long been a matter of intense debate. But it is clear that this is not an either/or proposition. Ultimately, both public and private investment is needed. Public investment has a strong role to play in addressing inequality and poverty as well as in promoting economic efficiency. It has three primary benefits to society: economic growth and poverty reduction, greater food and nutrition security, and increased environmental sustainability. Much public investment in rural areas contributes directly to specific public goods, for example
agricultural research, rural roads, irrigation systems, infrastructure, rural education, rural health, and social protections, such as welfare payments to the most vulnerable members of the community. In addition to these public investments, governments are also responsible for maintaining a strong legal, policy and institutional framework for good agricultural development policy.

In countries where agriculture generates a large proportion of national income, the case for prioritizing agriculture is clear. GDP growth originating in agriculture is far more effective in reducing poverty in low income countries than growth in other sectors. Some studies estimate agricultural growth to be 3.2 times more effective than growth in other parts of the economy, whereas others put agriculture’s advantage at 5 times that of other sectors worldwide and 11 times more effective in sub-Saharan Africa.¹⁵

Investing in smallholder farmers

For all the reasons discussed above, it is imperative to see increases in public investment from both donor and Southern governments in the world’s smallholder farmers. The world’s 500 million small farms produce the majority of food in developing countries while simultaneously employing the most undernourished people in the world. Smallholder farmers are already the biggest agricultural investors in this context—according to a recent FAO report, farmers in low and middle-income countries invest more than four times as much on their own farms each year as their governments invest in the overall agricultural sector. Farmers themselves must be central to any strategy aimed at increasing the quantity and effectiveness of agricultural investment.¹⁶

Examples of effective public investment in agriculture

Recent agricultural development initiatives have produced countless examples of effective public investment in Africa. A maize agro-forestry project, launched in 2007 under the management of Malawi’s Ministry of Agriculture and Malawian NGOs, has trained over 120,000 farmers to implement agro-forestry systems, increasing yields by one to four tons per hectare. In Tanzania the Shinyanga Soil Conservation Program utilizes public funding for agro-forestry to rehabilitate large stretches of the Western provinces, benefitting tens of thousands of smallholders. Across eastern Africa agriculture ministries have been promoting push-pull technology developed at a research center in Kenya using grasses and cover crops to prevent pests. This technique has been adopted by 75,000 smallholder farmers in eastern Africa where production has improved more than threefold. Another successful program is the Land Husbandry, Water Harvesting and Hillside Irrigation (LWH) project in Rwanda, an initiative of the G20’s Global Agriculture and Food Security Program (GAFSP). This project promotes sustainable land-husbandry and irrigation for hillside agriculture. Several thousand farmers have seen their incomes increase as a result of improved farming practices, extension services and access to finance.

Why public investment is needed for successful public private partnerships

In recent years, growing attention has been paid to the private sector as a viable source of increased investment in agriculture. Most notable in this regard is the heightened emphasis on public private partnerships (PPPs) in the policy of domestic and donor government policy and long-term development plans. In a constrained global investment climate, it is easy to see the attraction of PPPs as an alternative source of funding, but PPPs do not come without risks and may actually require public sector support in order to successfully support the investments of smallholder farmers.

One of the main assumptions behind many current PPPs is that smallholders will automatically benefit from being connected to export markets and global supply chains, often through transnational corporations. Frequently, these partnerships integrate smallholder farmers into supply chains as contract farmers or through outgrower schemes. Unfortunately, these schemes often prove more beneficial to farmers with large landholdings and other high-value assets while smallholder farmers find themselves in a weak position to defend their land rights or negotiate fair transaction arrangements.

Integrating smallholder farmers into global supply chains, even through the use of inclusive business models, is not a magic bullet for pro-poor development. To reduce poverty it is essential to reach the smallholder farmers with the least valuable assets. To accomplish this, supply chains must often be complemented by other policies that improve
livelihoods, many of which require increased public investment. Formal supply chains have the potential to benefit the poor only if private sector initiatives are complemented by targeted investments to upgrade smallholder farmers’ skills and bolster the ability of farmer organizations to meet market requirements. It is equally important to ensure that the supply chain itself is fair, transparent, well-governed, hospitable to smallholder participation, and does not undermine or displace local and regional food markets that are critical to food security. These qualities transform the supply chain into a value chain where all stakeholders have a commitment to ensure that the wealth created benefits those at the bottom of the pyramid first and foremost.

It is the responsibility of domestic governments and donors to ensure an enabling and supportive policy environment for smallholder farmers. Domestic governments must ensure that private investments are gender sensitive and consistent with local and national development interests; do not undermine smallholder farmers or public investment strategies; and that regulations include free prior and informed consent, and independent social and environmental impact assessments. Domestic and donor governments must promote and implement the Voluntary Guidelines on the Governance of Land Tenure (Tenure Guidelines), as the first ever global land tenure agreement to promote a rights-based approach with a gender focus. Donor governments can focus assistance on strengthening smallholder farmer organizations to increase their power within supply chains, support independent research into alternative supply chain models that put smallholder farmers first, and facilitate regulation of large agribusiness corporations to make them more transparent and accountable.

**Recommendations**

Increased public investment in agriculture to support smallholder farmers must be matched by improved efficiency and focus of spending. The following ten characteristics are among the most important to ensure that agricultural investment – whether public or private – benefits smallholder farmers.

1. Increased donor investment in agriculture and more efficient investment on the part of Ministries of Agriculture to ensure that resources are spent efficiently and administrative bottlenecks are addressed.

2. Investment directed toward the key services smallholders need, including extension services, rural finance and agricultural research.

3. Priority given to reaching women farmers with extension services, subsidy programs, responsible credit and agricultural research that addresses the particular problems women farmers face, including their unpaid care responsibilities.

4. Promotion of sustainable agriculture approaches such as soil conservation, use of animal and green manure, preservation and promotion of agro-biodiversity, agro-forestry and water harvesting to help farmers adapt to climate change.

5. Land policies that ensure tenure security while addressing significant inequalities in land holdings.

6. Promotion of simple, appropriate labor-saving technologies, such as improved hand held tools and processing equipment, which are accessible and immediately useful to smallholders.

7. Support of politically independent producer organizations that work to ensure that the voices and views of farmers, particularly women smallholder, are reflected in public agriculture policies.

8. Transparent agriculture budgets and decision making processes, including clear structures to facilitate the participation of farmers in policy design and implementation.

9. Promotion of crops with the broadest potential to reduce poverty and hunger, especially staple foods; and support of well-functioning local and regional markets.

10. Openness to the possibility of government intervention to stabilize prices and support low-income producers.
Introduction

The global system by which food is produced, distributed and consumed is currently failing to meet the nutritional needs of much of the world’s population. Up to 2.6 billion people in the world are classified as undernourished,17 most of them in sub-Saharan Africa and South Asia, and over two billion people suffer from lack of essential micronutrients.18 As the producers of up to 80 percent of the food supply in sub-Saharan Africa and Asia, smallholder farmers are critical to overcoming this global challenge. The world’s 500 million smallholder farmers together support 2 billion people.19 The fact that small farms in developing countries generate 40-60 percent of total rural income underlines the importance of smallholder agriculture in the rural economy and its potential role in driving growth.20 But the importance of smallholder farmers goes beyond their role as agricultural producers and drivers of economic growth. They are also stewards of much of the world’s natural resources, including water, agricultural land, and forests. As such, they are key to protecting and restoring vital eco-systems.21 Finally, smallholder farmers invest more of their own resources in their own farms than all other investors combined.22 Any investments in the future of agriculture in Africa must align with and support the investments already being made by smallholder farmers.

There is broad international consensus that investing in agriculture is one of the most effective avenues for reducing hunger and extreme poverty. But over the past several decades agricultural investment has stagnated or declined in South Asia and sub-Saharan Africa—the very regions of the world where these scourges are most widespread. To reverse the tide, agricultural investment must increase and the quality of these investments must be improved.

There is currently an intense debate in development policy-making circles concerning what investments are needed to increase farm productivity in Africa. Donors and some African governments have increasingly turned towards the private sector, or public-private partnerships (PPPs), to provide investments, with increased private sector investment viewed as an alternative, rather than a complement, to increased public spending. This trend is partly attributable to the global financial crisis, which has strained government budgets, especially in developed countries.

This report reviews the literature on public investment in agriculture and argues that there is substantial evidence in favor of increasing public resources to support smallholder farming in Africa. The successful projects described here illustrate how smallholder farmers can benefit from additional investment from their own governments and from donor governments. The report also recommends specific reforms and changes to improve the quality of public investment to more successfully reach smallholder farmers.
The Case for Increased Public Sector Investment in Agriculture

‘There is a need to invest in order to re-establish – whenever needed – the authority and capacity of the state through rebuilding and strengthening the capacity of the public sector to act efficiently in the area of smallholder development, including accountability of resources allocated.’

UNITED NATIONS, HIGH-LEVEL PANEL OF EXPERTS ON FOOD SECURITY AND NUTRITION

The current state of investment

For more than a generation, there has been insufficient investment in developing country agriculture. During 1990-2000 alone, donors reduced aid to agriculture in sub-Saharan Africa by 49 percent in real terms. This situation has begun to turn around in recent years, but not fast enough. Sub-Saharan Africa is only just beginning to emerge from a 30-year decline in agriculture spending, most of which occurred in the context of the restrictions and conditions imposed by Structural Adjustment Programs (SAPs). The most currently available figures show aid at 1990 levels. Worldwide, aid to agriculture is estimated at $9.6 billion, amounting to only 5.8 percent of overall aid. It is not clear how much of this aid benefits smallholder farmers since donors do not disaggregate their agricultural aid spending in this way. From the 1980s through today, a range of economic and political forces have encouraged developing countries to focus their agricultural development efforts on large-scale agricultural projects that produce commodities for export, sometimes at the expense of smallholder farmers and local food security.

African governments are working to fill the gap that was left when the attention of international donors moved elsewhere. Recent years have seen an increase in agricultural spending on the part of some African governments, with over 40 countries signing Comprehensive African Agricultural Development Program (CAADP) compacts committing themselves to spend 10 percent of their budgets on agriculture. In June 2014 African governments re-committed themselves to these achievements as well as the goal of ending hunger in Africa by 2025. African agricultural production increased by more than 10 percent per year on average against less than 2 percent per year during the decade prior to CAADP. Looking at the results in terms of production volumes, however, African countries still fall short of the 6 percent annual growth target set by CAADP. In the end, despite these and other positive steps, only eight African countries have reached the 10 percent spending target, while many countries – including Kenya, Uganda and Nigeria – still allocate less than 5 percent of their budgets to agriculture. Clearly, CAADP has successfully encouraged African governments to develop comprehensive national agricultural investment plans, but it has yet to reach its goal of transforming African agriculture. Given persistently high rates of food insecurity and the large numbers of smallholder farmers across the African continent, the ongoing shortfall in public spending on agriculture is a serious problem – one that many African governments might have some fiscal space to address if priorities were adjusted. In 2007, governments in sub-Saharan Africa allocated an average of 4.4 percent of their budgets to agriculture and 5.8 percent to defense, for example.

The 2008 food price crisis brought new international attention and interest to global food insecurity and the deficit in public agricultural investment. At the 2009 G8 summit in L’Aquila, Italy, donor countries pledged to mobilize $22 billion for agriculture and food security within three years. At a meeting of the G20 in Pittsburgh in September 2009, the Global Agriculture and Food Security Program (GAFSP) was established to assist in the delivery of the L’Aquila pledges. GAFSP is an innovative multi-donor trust fund that addresses the underfunding of country and regional agricultural development plans by investing in innovative, country-led projects in low-income countries to boost food security and agricultural productivity. Only three-quarters of the funding pledged at L’Aquila had been disbursed by mid-2013 however, up to two years after the pledge period was complete.

In the final analysis, it is clear that current levels of government and donor spending on agriculture are vastly inadequate to meet the ultimate goal—ending global hunger for good. Recent analysis by the UN’s Food and Agriculture Organization (FAO) calculates that an additional $42.7 billion to current spending is needed per year through 2025 in order to meet this goal. This includes an extra $14.6 billion per year in South Asia and $10.4 billion in Sub-Saharan Africa. According to the FAO, this money should primarily be used for: rural infrastructure; agricultural research; extension services; storage, marketing and processing; conservation of natural resources; and expanding rural institutions to promote rural finance and land tenure security.
The need for public investment in agriculture

‘Agricultural expenditure is one of the most important government instruments for promoting economic growth and alleviating poverty in the rural areas of developing countries.’

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE 35

The exact roles of the state and the market in agriculture have long been a matter of intense debate. But it is clear that this is not an either/or proposition. Public investment is often essential to addressing inequality and poverty36 as well as to promoting economic efficiency (as in cases where inefficiencies produce market failures, which can be corrected by public subsidies or regulation). Unlike private investment, its primary focus can be fixed on achieving key societal benefits, including: economic growth and poverty reduction, greater food and nutrition security and increased environmental sustainability.37 Much public investment in rural areas contributes directly to specific public goods38 such as rural roads, irrigation systems, infrastructure, publicly available results of agricultural research, rural education, rural health, and social protections such as welfare payments to the most vulnerable members of the community. Such essential national services are unlikely to be consistently and equitably provided by the private sector. These public investments should be coordinated with and supported by a strong legal, policy and institutional framework for good agricultural development policy. Governments must take primary responsibility for regulation (for example, standard-setting and enforcing laws and rights), planning (ensuring that all stakeholders participate in policy-making) and coordination (of policies and institutions). Together, these elements make up an essential ‘enabling environment’ for agriculture, including a favorable climate for private investment.

The definition of public goods, and legitimate areas for public investment in agriculture laid out above, is one that is upheld by the World Bank and most donor countries. However, international institutions like the FAO and the UN High Level Panel on Food Security and Nutrition extend their definition of “public goods” to other policy areas relevant to agricultural development – most notably extension services and market information systems for farmers.39 And there are a range of other policies which can either be regarded as public goods or as legitimate policies for the state to promote – such as promoting market access for farmers, public seed breeding programs, subsidies for agricultural inputs, price stabilization policies, public crop storage facilities and the provision of rural finance and insurance services. Some donors, however, do not include these areas within a legitimate government role, arguing that their provision should be left mainly (or solely) to the private sector.
Box 1: The role of public investment

According to the FAO, governments and donors have ‘four basic responsibilities’ when investing in agriculture:

- Create a conducive investment climate to catalyze socially responsible investment by farmers and other private investors;
- Channel public expenditures toward the provision of essential, high-return public goods;
- Overcome the constraints that smallholders face in saving and investing; and
- Govern private investment, especially large-scale investment, to ensure social equity and environmental sustainability.

In June 2010 the FAO’s Committee on Agriculture, in an investigation of the policies and institutions needed to support smallholder agriculture, identified the following areas as appropriate for public investment:

- Providing an ‘enabling environment,’ including rural infrastructure, such as roads, physical markets, storage facilities and communication services; secure land tenure and property rights; good education systems in rural areas; policies to redress gender and other inequalities; and market information services.
- Mechanisms to leverage greater private sector participation in supply chains to the benefit of smallholders. This will include identifying specific chains to support on the basis of likely benefits in terms of productivity and marketable surplus increases as well as opportunities for cash earning, diversification, and improved labor market conditions.
- Formal and informal structures to strengthen the social and political power of smallholder farmers as well as their ability to negotiate as a stakeholder group.
- Facilitating fora such as stakeholder workshops and supply chain roundtables that build the capacity of stakeholders for joint action and increase their ability to negotiate beneficial arrangements for themselves in the context of private sector investment.
- Public services that can improve smallholders’ market participation, but are not adequately provided by the private sector, including research and development, extension, market intelligence and assistance with technology adoption.
- High-quality agricultural research clearly targeted at smallholder and consumer needs.
- Encouraging smallholder agricultural practices that promote climate change adaptation, including finance to encourage good environmental stewardship, especially practices that mitigate the negative impact of agriculture on the climate.
- Agricultural finance to enable smallholders to overcome barriers to market participation such as low productive capital base and low adoption of improved production technologies.
- Tax breaks for financial institutions, such as reductions in business tax rates, to increase the supply of financial services to smallholders.
- Input starter-packs or well-targeted input subsidies to facilitate technology adoption by smallholders without distorting markets.
Given the low levels of agricultural spending overall across the continent, a broad range of public investments are urgently needed in most African countries. The level of investment needed will require that donors, including the US government, broaden the narrow consensus that currently exists around legitimate areas for public investment. African governments spent an average of only $11 per capita on agriculture in 2007 (the latest available figures) – a quarter of the level in Asia. Simply put, this level of spending is not sufficient to promote agricultural take-off. As a result, only a fraction of Africa’s farmers have access to critical services such as extension or credit, while rural infrastructure and market access is often poor. To solve this problem, higher levels of public investment must be combined with smart and efficient ways to deliver services to farmers.

The private sector may invest in some of the areas most critical to smallholder farmers but it will not invest in all, and in those in which it does invest, it will often not be to the level needed. In fact, effective and strategic public investment policies are often needed to lay the foundations for increased private investment. The public provision of roads and other infrastructure, for example, lays the groundwork for traders to venture into more remote areas, while simultaneously reducing transaction costs for farmers.

Public agriculture spending is critical to economic growth and poverty reduction in developing countries. In countries where agriculture generates a large proportion of national income, the case for prioritizing agriculture is especially clear:

- GDP growth originating in agriculture is far more effective in reducing poverty in low income countries than growth in other sectors. This impact has been well documented, although the degree to which agriculture succeeds over other sectors is a matter of debate. Some studies estimate agricultural growth to be 3.2 times more effective than growth in other parts of the economy, whereas others put agriculture’s advantage at 5 times that of other sectors worldwide and 11 times more effective in sub-Saharan Africa.44
- A 1 percent per year increase in agricultural growth leads, on average, to a 2.7 percent increase in income for the poorest 30 percent in developing countries.45
- Studies suggest that for every 10 percent increase in farm yields, poverty falls by 7 percent in Africa and 5 percent in Asia.46
- The two countries that reduced rural poverty the most in recent decades – China and Vietnam – did so by empowering smallholders farming tiny plots of land; the average smallholder holding in China was just 0.65 hectares and in Vietnam 0.46 hectares.48

Studies by the US-based International Food Policy Research Institute (IFPRI) and others show high rates of return for public investments in agricultural research and extension services. In Uganda, for example, an IFPRI study of public spending on a large-scale extension service found that the cost/benefit ratio ranged from 1.3 to 2.7 (depending on how the benefits were estimated). This translates to an internal rate of return of 8-36 percent.50 It is worth emphasizing that this study analyzed public spending on extension services, a massively under-funded area in Africa that most donors fail to regard as a public good. IFPRI concludes:

‘Findings from meta-analyses on public investments in extension have shown that these investments have a high mean (across studies) rate of return of about 80 percent and a high median of about 60 percent (in one meta-analysis) or 40 percent (in another). These findings suggest that extension investments are a good buy.’51

Another IFPRI analysis, this one in Rwanda, found that the returns from all types of agricultural investment were high but that the largest gains were made from investing in the staple crop maize. For every $1 invested in maize at the national level, agricultural GDP grew by 7 percent. In poultry the GDP gain was 10 percent. These gains are in stark contrast to those for coffee, an export crop. For every $1 invested in coffee, agricultural GDP grew by only 1.2 percent.52

Public investment in agriculture also has an important role to play in reducing hunger. The FAO notes that hunger is more prevalent in countries where public agricultural expenditure per worker is lower. Although agriculture spending does not automatically reduce hunger, countries spending more on agriculture tend to see greater reductions in hunger over time. For example, all 8 African countries that spent more than 10 percent of their national budgets on agriculture in 2004-07 achieved reductions in the percentage of hungry people over the previous decade. In some cases these reductions were substantial, as in Ethiopia (where the proportion fell from 63 percent to 46 percent between 1995 and 2005) and in Malawi (where rates of hunger dropped from 45 to 29 percent). Conversely, of the 18 African countries spending less than 5 percent of their budgets on agriculture, at least 7 saw increases in the undernourished population.54
Investing in smallholder farmers

‘Smallholders contribute to world food security and nutrition while performing other related roles in their territories. Historical evidence shows that smallholder agriculture, adequately supported by policy and public investments, has the capacity to contribute effectively to food security, food sovereignty, and substantially and significantly to economic growth, the generation of employment, poverty reduction, the emancipation of neglected and marginalized groups, and the reduction of spatial and socio-economic inequalities.’

UN, HIGH-LEVEL PANEL OF EXPERTS ON FOOD SECURITY AND NUTRITION

For all the reasons discussed above, it is imperative to see increases in public investment from both donor and Southern governments in the world's smallholder farmers. The world's 500 million small farms produce the majority of food in developing countries while simultaneously employing the most undernourished people in the world. Supporting these smallholder farmers presents the single biggest opportunity to reduce hunger and increase global food security. Investing in these farms and farmers will also be essential to efforts within developing countries to adapt to climate change, since smallholder farmers manage around 80 percent of the farmland in sub-Saharan Africa and Asia. Smallholder farmers are already the biggest agricultural investors in this context – according to a recent FAO report, farmers in low and middle-income countries invest more than four times as much on their own farms each year as their governments invest in the overall agricultural sector. This is why the farmers themselves must be absolutely central to any strategy aimed at increasing the quantity and effectiveness of agricultural investment.

There is considerable evidence that smallholder farmers can not only be more productive than larger-scale farmers or plantations but also that investment in smallholder agriculture reduces poverty more than investment in large farms. As recently noted by the FAO, there is a great deal of empirical evidence suggesting that small farms are more efficient than larger farms. The FAO also notes that smallholder production is more suitable for growing labor-intensive produce that requires attention to detail, such as vegetables, that require transplanting (moving a crop from one place to another), or that require multiple harvests by hand. Small farms are also better suited to benefit the community economically. Owners of small farms tend to spend their income on local goods and services, and are more likely to employ people than adopt capital-intensive technologies, which has a particularly strong impact in economies with a labor surplus.
Examples of effective public investment in agriculture

Agro-forestry in Malawi

Malawi launched its Agro-forestry Food Security Program in 2007, under the management of the Ministry of Agriculture in partnership with the World Agro-forestry Centre, the Malawian Farmers’ Association and a number of NGOs. It provides tree seeds, nursery materials, and training for a range of agro-forestry species, including fertilizer trees, which improve the condition of agricultural land by capturing nitrogen in the air and transferring it to the soil. To combat low protein and vitamin levels in many Malawians’ daily diet, the program is also helping provide trees that produce fruit, fodder and wood for fuel.61

The World Agroforestry Centre and its partners have established that the use of fertilizer trees has significantly increased maize yields and improved soil quality in Malawi and around the world. One of the most common types of agroforestry used in Malawi is intercropping, in which fertilizer trees, the most common being Gliricidia sepium, are planted alongside maize crops. These trees fix nitrogen into the soil though fallen leaves and other biomass.62 Agro-forestry has proven to provide more sustainable benefits to smallholder farmers than the well-known fertilizer and maize seed subsidy program, the sustainability of which has been discredited after problems arose, including soil degradation.63

By mid-2009, over 120,000 farmers had received training and tree materials through the program. Since that time, financial support from the Government of Ireland enabled the program to expand to 40 percent of Malawi’s districts, involving at least 200,000 families or around 1.3 million of Malawi’s poorest people.64 The program implements agro-forestry systems to ensure sustained growth in maize production in preparation for the time when fertilizer subsidies are scaled back or withdrawn. The results have been staggering: yields have increased from 1 ton per hectare to 2–3 tons, without the use of expensive commercial nitrogen fertilizers. And when a quarter-dose of mineral fertilizer was applied, maize yields surpassed 4 tons per hectare.65

The World Agroforestry Centre interviewed Mary Sabuloni, a widow and mother of eight children who had begun using nitrogen-fixing trees on her farm. She exclaimed, “In the past, I used to get about 10 bags of maize from my fields. Now I get at least 25 bags.” This boost in crop yields has had a significant impact on her and her children’s livelihoods. She says, “Now I can feed my family all year round.”66

“Now I can feed my family all year round.”
MARY SABULONI
Soil Conservation in Tanzania

Another successful example of public investment is the widely-acclaimed Shinyanga Soil Conservation Program in Tanzania, known by its Swahili acronym, HASHI. Run and funded primarily by the Tanzanian government, the project has rehabilitated large areas of land in the Western provinces of Shinyanga and Tabora using agro-forestry.67 The Shinyanga region, just south of Lake Victoria, had gradually seen its abundant woodland stripped away over decades, first to eradicate the disease-carrying tsetse fly, then to create cropland and make space for a growing population. Nicknamed “Desert of Tanzania” in the 1980s, the program was created in 1986 to combat the disastrous effects of deforestation in the region. Throughout the project, staff from the Forestry and Beekeeping Division in the Ministry of Natural Resources and Tourism worked closely with local government staff, researchers from the World Agro-forestry Centre and the region’s entire farming population. The project facilitated the collaboration of village governments and traditional institutions to restore and manage the land through the use of ngitili, the Sukuma term for enclosures.68

According to the Equator Initiative the ngitili system establishes “fodder reserves for use by individual households or communities by maintaining an area of standing fodder until the next rains. Ngitili are divided into sections; each section is completely grazed before the next is opened. Family or individual reserves are established on an individual’s land; communal reserves can be made on any land suitable for dry-season grazing.”69 By 2004, 18 years into the project, at least 350,000 hectares of ngitili in 833 villages had been restored to health, benefitting 2.8 million people. Benefits of the restoration include higher household incomes, better diets and increased livelihood security for families in the region.

The ngitili reserves were restored by residual natural seed and root stock in some areas and active tree planting in others. People in the communities were encouraged to plant fruit and shade trees around their homesteads which helped increase the soil fertility and provide firewood. They also learned how to use local natural resources to manage their ngitili. Community efforts to restore ngitili frequently evolved into larger projects around the production of a wide range of woodland goods and services.70 The resulting fuel, timber, fodder and medicinal herbs serve as a partial safety net for the community during dry seasons.

It is important to note that the success of this project stems in part from the rich ecological knowledge and strong traditional institutions of the agro-pastoralist Sukuma people who live in the region.71 This context formed the basis for creation of a sustainable structure, which the community has been able to uphold for nearly twenty years. Also critical has been support from Tanzania’s national and local governments, which empowers local communities to address their own challenges.
Box 2: The HASHI project

The HASHI project helped tens of thousands of smallholders to restore degraded land, and in doing so significantly improved their incomes. One of the project’s great achievements was to revive a traditional system of land management which increases the supply of livestock fodder for use during the dry season. When the project began, there were just 600 hectares of documented ngitili – enclosed fodder reserves – in the region. There are now thought to be over 500,000 hectares of such reserves. The ngitili provide fuel wood and building timber as well as livestock fodder. Their rapid expansion has brought about a significant increase in biodiversity. Species that had disappeared decades ago are now returning. The economic benefits have also been considerable. One study calculated the total monthly value of benefits derived from the ngitili to be $14 per person – a significant sum in rural Tanzania. The HASHI project also encouraged farmers to adopt a range of other agroforestry technologies, including the planting of woodlots, fodder banks and fertilizer trees. These, too, have yielded considerable environmental and economic benefits.72

OCOLA APIO POLLY IS A SMALLHOLDER FARMER WHO SPEARHEADED THE CREATION OF A COOPERATIVE FOR WOMEN FARMERS THAT POOLS COMMUNITY RESOURCES TO BUILD UP LOCAL FOOD STOCKS IN ODOM VILLAGE OF THE KATAKWI DISTRICT, A DROUGHT-PRONE REGION IN EASTERN UGANDA.
Push-Pull Technology in Eastern Africa

Across eastern Africa, agriculture ministries have promoted the push-pull technology developed by researchers at the International Center for Insect Physiology and Ecology (ICIPE) in Kenya.\textsuperscript{73} The “push-pull” strategy is a form of conservation agriculture to control parasitic weeds and insects that damage crops. The technique involves intercropping maize with a repellent plant and planting an attractive trap plant as a border crop around the intercrop.\textsuperscript{74}

Pests such as stemborers and parasitic striga weeds, as well as poor soil fertility are major constraints to the efficient production of cereals in sub-Saharan Africa; losses caused by stemborers can reach as high as 80 percent in some areas and an average of about 15-40 percent in others, while losses attributed to striga weeds range between 30 and 100 percent in most areas. Chemical pesticides have been used in attempts to control the problem, proving expensive, harmful to the environment, and since they cannot reach the insects inside the maize stem, often ineffective.\textsuperscript{75}

ICIPE researchers found that grasses, such as Napier, can be planted in border rows around a maize field, enticing stemborers to lay their eggs on the grass rather than the maize and providing the “pull” of harmful insects away from crops. In addition to protecting maize yields, Napier grass also provides farmers with a ready supply of grass to feed their livestock or sell to other farmers. As a “push” factor, researchers found that Desmodium, a perennial cover crop, not only repels stemborers, but also reduces the number of striga seeds in the soil by stimulating germination of striga seeds and then inhibiting their growth after germination (often called “suicidal germination”).\textsuperscript{76}

This push-pull technology makes use of a wide range of behavior-affecting chemicals produced by plants and insects and integrates nature’s built-in checks and balances into the human-made environment of the maize field. This technology is both ecologically appropriate and affordable for the resource-poor smallholder farmers in the region as it is based on locally available plants and inexpensive external inputs. It also integrates well into the traditional mixed cropping systems used in much of Africa.\textsuperscript{77}

Nereah Sanya, a 39-year-old widow from a rural village in the Busia District of Kenya, faced food shortages before she started using the push–pull technology, despite the fact that she was cultivating a large plot of land. In 2006, facing a Striga weed and stemborer infestation, she learned about push–pull technology from her neighbor, a farmer who had overcome similar problems. After adopting the push-pull technology, Nereah reports that Striga weed and stemborers have been fully controlled on her farm, increasing her yields exponentially. “I used to get half a bag (90 kg) but now I am able to get four bags (360 kg). It also provides me with fodder, which I feed to my animals. The training I got in establishing [push–pull technology] has also [taught me a lot] and I now have good farming knowledge and skills. My social status in the community has also increased as people now come to seek farming advice from me.”\textsuperscript{78}

Push-pull technology has been adopted by over 75,000 smallholder farmers in East Africa, where maize yields have increased from about 1 ton per hectare to 3.5 tons with minimal inputs.\textsuperscript{79} As the UN Special Rapporteur on the Right to Food has noted, the successful dissemination of the push-pull strategy in East Africa is largely due to the demonstration of fields managed by model farmers, which attract visits by other farmers during field days, and to partnerships with national research systems in Tanzania, Uganda, Ethiopia and other countries.\textsuperscript{80} Tanzania’s Lake Zone Agricultural Research and Development Institute, which supports agricultural research and dissemination among farmers in the Lake Zone of Tanzania, is involved in testing and promotion of the push-pull technology among smallholder farmers.\textsuperscript{81,82}

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NEREAH SANYA
Land Husbandry, Water Harvesting and Hillside Irrigation in Rwanda

The G20’s Global Agriculture and Food Security Program (GAFSP) has played a critical role in financing the Rwandan government’s Land Husbandry, Water Harvesting and Hillside Irrigation (LWH) project. GAFSP’s $50 million investment has been put to work to increase the productivity and commercialization of hillside agriculture through research and extension, water and land management, improved agricultural supply chains, and expanded access to finance in 101 watersheds covering 30,250 hectares of land. The LWH project uses a modified watershed approach to introduce sustainable land-husbandry measures for hillside agriculture on selected sites, and develop hillside-irrigation for sub-sections of each site. The project encourages production of high-value horticultural crops with strong marketing potential on irrigated portions of hillsides, and facilitates improved productivity and commercialization of rain-fed food and export crops on the rest of the site catchment areas. GAFSP support enables the scaling up of LWH project, which is also supported by the World Bank, the United States Agency for International Development (USAID) and the Canadian International Development Agency (CIDA). ActionAid currently holds a civil society seat on the GAFSP Steering Committee (leadership body).

According to GAFSP, the project has achieved the following:

- 6,750 farmers and their families are benefitting from project activities
- 66 percent of farmers in the project area have adopted improved practices (baseline: 25 percent of female farmers and 30 percent of male farmers)
- Net sales from agricultural activities on targeted, non-irrigated hillsides have almost doubled to $1,925 per hectare (baseline: $1,000/hectares)
- 40 percent of the land in the project area has been protected against soil erosion, simultaneously protecting the environment and farmers’ livelihoods (baseline: 15 percent)

In May 2011 ActionAid visited one of the project areas, at Karongi in western Rwanda, finding a number of benefits for participating farmers. From the first harvest, farmers produced significantly more for sale in local markets than they had previously. The project promoted terraces and waterways to manage the flow of water down the hillside and provided farmers with lime to enrich the degraded soil. In Karongi, the LWH project also partnered with the non-profit organization One Acre Fund, which helped organize farmers into primary groups of 15-30 individuals who were provided with extension services and finance for inputs. The LWH project, which began in Karongi and Nyanza districts, has since been expanded to Gatsibo, Kayonza and Rwamagana districts, with new sites under preparation in Rulindo and Gicumbi.

Elias, a Rwandan farmer who has benefitted from this project said, “Before, our harvest was not good. For example, we own one quarter of an acre. We could only harvest 500 kilos of potatoes. But now everyone [enjoys] farming activities. Previously people were abandoning farming to find alternative forms of income. But now everyone [enjoys] farming again.”

Sustained public investment in innovative, low-tech, sustainable agriculture approaches such as those described above, are the best way to provide support to the poorest smallholder farmers, increasing their yields, improving their food security and increasing their income.
In recent years, growing attention has been paid to the private sector as a viable source of increased investment in agriculture. Most notable in this regard is the heightened emphasis on public private partnerships (PPPs) in the context of domestic and donor government policy and long-term development plans (see Box 3). Private sector investment, especially by small and medium sized domestic companies and through cooperatives, has good potential to support and complement the investments of smallholder farmers (e.g. by increasing their productivity, providing access to markets, and improving storage capacity). In a constrained global investment climate, it is easy to see the attraction of PPPs as an alternative to further investment from financially strapped domestic and donor governments, bringing with it the added potential of boosting private sector profits. PPPs do not come without risks, however, and may actually require additional public sector support in many cases in order to successfully harmonize with the needs and ongoing investments of smallholder farmers.

Box 3: Public private partnerships

Public private partnerships are generally defined as the participation by the private sector in an economic activity in which the parties involved share costs, risks and benefits, but where, if left to the free market alone, private investment would not occur due to low prospective returns or a high level of risk. In recent years, partnerships have taken on projects in the areas of agricultural productivity, biofortification, technical and investment assistance and export strategy. Prominent examples include the Southern Agriculture Growth Corridor of Tanzania and the HarvestPlus Challenge Program, in addition to projects facilitated by organizations such as the Ghana Commercial Agriculture Project and Nepal’s Agro Enterprise Centre.

Many PPPs are based on the assumption that smallholders will automatically benefit from connecting to export markets and global supply chains, often through transnational corporations. Frequently, these partnerships integrate smallholder farmers into supply chains as contract farmers or through outgrower schemes. While some studies show that smallholders can benefit from contract farming, it is often farmers with access to assets like roads, formal education and large land holdings who benefit from formal supply chains, while the poorest smallholder farmers participate solely as low-wage laborers. Indeed the UK Department for International Development (DFID) reported recently that poorer smallholders are often excluded from contract farming.

Smallholder farmers engaged in contract farming or linked to supply chains often find themselves in a weak position to defend their land rights or negotiate fair transaction arrangements, such as the price at which they will sell their produce. In its assessment of a number of such contracts, Agence Francaise Developpement (AFD) found that “firms frequently fail to include basic details in contracts, so that farmers are frequently not fully informed of the nature of the agreement into which they are entering.” As noted by the UN’s High-Level Panel of Experts on Food Security and Nutrition, this power imbalance in relation to PPP’s can result in the “deterioration of [smallholder farmers’] living conditions. If smallholders cannot gain bargaining power, such as establishing farmers’ organizations and support from governments and NGOs, they risk losing their autonomy in supply-chains rather than improving their economic and social independence.” In a worst case scenario, private sector investment involves large-scale land acquisitions that displace smallholder farmers, who then lose access to productive resources and their sources of livelihood.

PPP’s utilizing an “inclusive” business model involve smallholder farmers to varying degrees, and may mitigate some of the risks described above. Best practices include models that allow smallholders and their associations to keep ownership of their land, own shares in the company or project that they contribute to, and otherwise participate as active partners. Projects with these attributes “tend to have positive effects on local economies and social development,” according to a recent FAO report. Some examples of inclusive business models are outlined in Box 4.
Box 4: Inclusive business models

- Contract farming allows local farmers (or groups) to work their own land and enter a contract with a larger company to produce a given quality and quantity of agricultural produce by a certain date. The price is either agreed upon in advance or is based on a spot market. The company often provides up-front inputs to the farmers such as seed, fertilizer, and technical assistance.

- Lease and management contracts allow an agribusiness to lease land from small or medium scale landholders either for a fee or through a product or profit sharing agreement.

- Tenant farming and sharecropping arrangements involve small or medium scale farmers who lease land from large agribusinesses. In tenant farming, the farmer pays rent to the agribusiness. In a sharecropping arrangement, the farmer and the agribusiness agree on the fixed percentage of either profit or product which accrues to each party.

- Joint ventures include a diverse set of arrangements in which two or more stakeholders run a business. The partners share ownership, decision making powers, risks and rewards, while retaining their individual legal status.

- Farmers’ organizations or cooperatives are created by groups of farmers who form a jointly owned and democratically governed association to take advantage of economies of scale in processing, storing and marketing products, as well as contract negotiation and access to finance.

- Upstream and downstream business links are general terms referring to arrangements that facilitate engagement of smallholders, operators and agribusinesses in the manufacture, procurement, or distribution of farming inputs (upstream activities) such as fertilizer and seeds, or the processing of agricultural products (downstream activities). These links can facilitate international standards certification or other opportunities that are often not available to smallholders.
While inclusive business models are certainly preferable to large-scale land acquisitions which dispossess smallholder farmers, none of these models are by themselves a panacea. According to a recent FAO report examining various examples of private investment in agriculture:

The studies suggest that while inclusive business models can potentially benefit local economic development to a larger extent than large-scale land acquisition, the model per se is not a guarantee that the expected benefits will arise. More importantly, the expected positive impacts are unlikely to arise in the short term... The studies reveal a...mixed picture. They could only find limited evidence of the expected benefits.93

The report goes on to conclude that inclusive business models have high costs in their initial phase and thus need “substantial external support (public and private) initially to ensure that the expected benefits materialize.94

Integrating smallholder farmers into global supply chains, even using inclusive business models, is not a magic bullet for pro-poor development. To reduce poverty it is essential to reach smallholder farmers who have the fewest assets. In order to accomplish this, supply chains must often be complemented by other policies that improve livelihoods, many of which require increased public investment.95 A recent UN’s High-Level Panel of Experts on Food Security and Nutrition report identifies four key conditions under which smallholder farmers can benefit from integration into supply chains via contract farming:

1) Public policies must be in place to ensure that contract farming works for smallholders, especially women. As a starting point, this will require legal, political and social recognition for smallholders. Authorities must establish a clear regulatory framework for contracts between smallholders and firms to adjust and address the substantial power gap between the two.

2) Smallholders and farmers who are currently landless must enjoy secure land tenure. Smallholders with limited non-land assets must not be excluded on this basis. Where land conflicts arise between large plantations and smallholder farmers, the government must intervene to protect the living conditions of smallholders. The government and development authorities must closely monitor the impact of contract farming on land use and smallholder farmers’ way of life.

3) Farmers organizations, such as cooperatives and producers groups, can help to overcome many of the disadvantages farmers face in contractual arrangements, including lack of bargaining power, working within a relatively small scale economy in comparison to agribusiness, and lack of efficient means to receive finance and technology extension.

4) Ready access to assets such as infrastructure, machinery, inputs, finance, and technology are indispensable if contract farming is to be beneficial for smallholders.96

Many of these conditions require public investment to improve smallholder farmers’ access to: key assets and resources; public regulations that promote sound regulatory frameworks for contract farming; secure land tenure for smallholder farmers; and increased support for smallholder organizations. A recent report from the Ford Foundation reinforces this notion that although formal supply chains have the potential to benefit the poor, experience has shown that the full benefits require private sector initiatives to be complemented by targeted investments in smallholder farmers and communities.97 As this report points out, investments are typically needed to upgrade smallholder farmers’ skills and bolster the ability of farmer organizations and intermediaries to meet local food needs as well as market requirements (such as quality, consistency, production standards, and processing capacity), while enhancing the rewards and reducing the risks of participating in the chain (by increasing productivity and improving business skills, for example).
It is equally important to ensure that the supply chain itself is fair, transparent, well-governed, and hospitable to smallholder participation. Both lead firms and intermediaries must utilize fair pricing structures and be otherwise well adapted for sourcing from smallholders. Fair and well-publicized terms of trade, quality standards and pricing structures (such as premiums for high quality) help ensure stable benefits for producers and enable farmers to improve their returns. Clear on-farm management standards and incentives are important to promoting sustainable social and environmental practices on the farm. Dispute-resolution mechanisms – either formal or informal – are also hallmarks of well-functioning governance structures.

Finally, domestic governments and donors must ensure an enabling and supportive policy environment for smallholder farmers themselves. Domestic governments must ensure that private investments are consistent with local and national development interests and do not undermine smallholder farmers’ rights or public investment strategies. When governments allow increased private investment in agriculture, they must take steps to ensure that it maximally benefits smallholders, by requiring investors to source a certain percentage of their goods, services and employment nationally, for example. Tax incentives, most of which currently benefit large companies, could just as easily benefit smallholders if they were tied to investments that source produce from smallholder and women farmers or investments that protect the environment and promote sustainable agriculture. Proper regulation of investment means requiring free prior and informed consent from all directly-impacted communities, thorough consultations with local farmers, and independent social and environmental impact assessments before projects go ahead. Finally, domestic and donor governments must promote and implement the Voluntary Guidelines on the Governance of Tenure (Tenure Guidelines), which were developed under the auspices of the UN’s Committee on World Food Security (see Box 5). As the first-ever global land tenure agreement to promote a rights-based approach with a gender focus, the Tenure Guidelines have the potential to protect community rights to land and livelihood.
Box 5: Key principles of the Voluntary Guidelines on the Governance of Tenure

The Tenure Guidelines place ‘an emphasis on vulnerable and marginalized people, with the goals of food security and the progressive realization of the right to adequate food, poverty eradication, sustainable livelihoods, social stability, housing security, rural development, environmental protection and sustainable social and economic development.

States should:

• Recognize and respect all legitimate tenure rights and the people who hold them
• Safeguard legitimate tenure rights against threats
• Promote and facilitate the enjoyment of legitimate tenure rights
• Provide access to justice when tenure rights are infringed upon
• Prevent tenure disputes, violent conflicts and opportunities for corruption

Non-state actors (including business enterprises) have a responsibility to respect human rights and legitimate tenure rights. The principles of implementation include: human dignity, non-discrimination, equity and justice, gender equality, holistic and sustainable approaches, consultation and participation, rule of law, transparency, accountability, and continuous improvement.

In conclusion, because PPPs are not a silver bullet for agriculture, there is much that donors and governments can and should do to support and strengthen smallholder farmers if they engage with private investors. Donors can focus assistance on strengthening smallholder farmer organizations to address local needs and increase their power within supply chains as well as their ability to organize and advocate for fair and alternative chains. Donors should support alternative supply chain models that put smallholder farmers first, including regional and local food systems. As a guiding overall principle, they can support policies that regulate agribusinesses to make them more transparent and accountable and less likely to dominate supply chains and markets.
Studies by IFPRI suggest that blanket increases in agriculture spending do not generate large gains; it is when spending targets productive programs that they produce results.101 Similarly, a World Bank paper notes that the effect on agricultural incomes of a change in the composition of expenditures can be 4-10 times greater than an increase in the level of government spending.102 Increasing the agriculture budget alone, without adequate investments in capacity and coordination, may result in the extra resources not being spent effectively, or even spent at all. ActionAid’s work to analyze government budgets in half a dozen African countries shows that Ministries of Agriculture are often inefficient, failing to spend even their low budget allocations. Furthermore, they often do not spend resources on the services that really benefit smallholder farmers.103

ActionAid believes the following ten policies are among the most important improvements needed to ensure that agriculture spending – whether public or private – benefits smallholder farmers. These policies are also indicators of a successful framework for agricultural investment – the presence, or not, of these policies/indicators will largely determine the extent to which smallholders benefit from agricultural investments.

1) Increase spending and spend resources more efficiently

Donor governments should fulfill the pledges they have made but also pledge to sustain their commitment to public investment in agriculture in Africa focused on results and impact in-line with the CAADP results framework. Spending in agriculture must be sustained in order to produce results. In addition to coordinating bi-lateral assistance, donors should also consider investing in multi-lateral mechanisms. The GAFSP, for example, is an innovative multi-donor trust fund that allows donors to pool their resources to meet the funding gaps in agriculture. GAFSP funding allows low-income countries to scale up already successful projects or to try out innovative solutions to agriculture and food security challenges. GAFSP’s unique governance structure, which includes representation from both recipient countries as well as members of northern and southern civil society, ensure that funds are spent on projects that will have the greatest impact.

In terms of domestic governments, many Ministries of Agriculture are currently unable to spend the (often few) resources allocated to them, often due to administrative bottlenecks and lack of adequate staff in key positions. In Uganda, for example one third of the annual agriculture budget allocation has been unspent for the past several years.104 This is typical of most developing countries. Many ministries also suffer from highly centralized budgets – meaning that few resources are allocated to local districts. Weak coordination across the agriculture sector and a duplication of projects, together with corruption, limits the funds that actually reach smallholder farmers. There is thus the need to explore a multi-sectoral approach to agriculture financing while reducing duplication of efforts and wasted resources. Some ministries have an excessive proportion of administrative staff compared to technical officers. For example, administrative staff amount to around one third of the 6,000 staff in Ghana’s Ministry of Food and Agriculture.105 These factors highlight the importance of reforming and strengthening institutions with a viable capacity development plan to ensure that agriculture spending is improved and that increased agriculture budgets can be disbursed efficiently

2) Improve and invest more in key services

There is a vital need in most countries to increase smallholder farmers’ access to extension services and credit and to improve agricultural research, especially for women. Currently, many governments have skewed agriculture budgets that spend little on these services. In Nigeria, for example, around 80 percent of capital spending goes to just three programs: the fertilizer subsidy program, a national food security program and a silos construction program for the grain reserve.106 This spending can benefit the poor, but very little is left over for critical services such as extension and research. Indeed, it is estimated that a miniscule 1.3 percent of Nigerian farmers have access to extension services.107

Improving the quality and focus of extension services is vital, yet in recent years public investments in extension services have declined in many countries, sometimes under pressure from donors, who have promoted privatization or outsourcing of extension. Government extension services have tended to concentrate solely on providing advice about increasing farm production, while marketing or sustainable agriculture approaches have received relatively low priority. Women farmers should be explicitly targeted in these services, which often means training more women to become extension officers and ensuring that services are delivered in appropriate ways. As recently argued by the UN High-Level Panel of Experts on Food Security and Nutrition, ’national research and extension systems need full attention and investments from governments and the donor community.’108
Many farmers need small loans to make investments in their farming but access to credit is low, as governments have tended to rely on (usually non-existent) private finance providers. To get credit, most farmers depend on friends and relatives or small savings and loans clubs, often supported by NGOs. Most donors regard finance as a ‘private good’ to be supplied by the private sector, but there is a strong case for governments to invest in providing subsidized credit schemes, or in providing loan guarantees to private banks, to ensure more farmers are able to secure finance (see Box 6).

Box 6: Subsidized credit

Some donors have changed their view of input subsidies in recent years from opposition to either toleration or limited support (depending on the donor). But government-subsidized credit remains largely opposed, often because past programs have encouraged corruption or been expensive to administer. Yet private banks lend very little to smallholder farmers and many governments spend little or nothing to ensure that farmers have access to credit. This is despite the past success of government-subsidized credit and insurance programs in many countries. The UN’s High-Level Panel of Experts on Food Security and Nutrition has recently noted:

‘The state and the financial institutions (banks, but also pension funds and insurance companies) should study the possibility that the latter dedicate a well-defined part of their lending capacity to smallholders. By offering public guarantees to private financial institutions in smallholders’ investment, governments or public financing institutions can encourage private financial institutions to develop financial services adequate for small-sized investment while sharing their burden to finance them.’\textsuperscript{110}

Also critical is greater investment in agricultural research, to develop improved crop varieties and promote techniques to increase yields and food security, including participatory research that places farmers at the fore. Studies suggest that investments in agricultural research offer great potential for enhancing productivity and that in Africa as a whole, for every one percent yield increase resulting from investments in agricultural research, two million Africans can be lifted out of poverty.\textsuperscript{111} Indeed, African governments committed in 2003 to double their annual spending on agricultural research within ten years\textsuperscript{112} but unfortunately, this commitment has not been met by many countries. There is an urgent need to democratize agricultural research and enable farmer participation in the design and implementation of programs. Additional focus should be put on promoting sustainable agriculture, empowering women farmers, and improving public seed breeding. As argued by the UN High-Level Panel of Experts on Food Security and Nutrition, ‘public investment in breeding programs and support for local seed systems that allow the diffusion of locally adapted genetic material, which farmers would have the right to freely save, exchange and market, is a good example of the need for public investment in research.’\textsuperscript{113}

3) Focus agriculture policy on women

Women farmers are often systematically ignored by investments made in agriculture both public and private, and are largely invisible in agricultural budgets.\textsuperscript{114} Large investments are needed in women farmers, not only for equity reasons, but because they do most of the farming and produce most of the food in African countries. It is estimated that even if women simply had the same access to productive resources such as land and seed as men, they could increase yields on their farms by 25-30 percent; this would raise agricultural output in developing countries by 2.5-4 percent and reduce the number of hungry people in the world by 12-17 percent.\textsuperscript{115}

Not all agricultural policies need to be different to reach women – but many do, since the needs of women farmers are often different to those of men. In one survey in Uganda, for example, male farmers said the biggest barriers to increasing farm production were transport and lack of access to markets and credit. But women mentioned the time needed to look after their families, prepare food and work on their husbands’ gardens.\textsuperscript{116} Thus the policy implications for supporting men and women farmers can be completely different. Women will often need to be explicitly targeted in extension services, subsidy programs, credit schemes and agricultural research – otherwise, such programs and schemes will tend to benefit men only. There is a need, therefore, for agricultural policies to be inclusive, so that they strengthen the rights of women to ensure that both men and women receive value from engagement with supply chains.
4) Prioritize sustainable agriculture and climate resilience

In order for smallholder farmers to improve their productivity, they must adapt their farming to cope with the increasing impact of climate change. Sustainable agriculture practices offer the prospect of achieving both. Approaches include soil conservation, utilization of animal and green manure, preserving and promoting agro-biodiversity, agro-forestry and intercropping, integrated pest management and water harvesting. Scaling up community-based disaster preparedness, including food reserves and social protection schemes can also be vital to reduce smallholder and community vulnerability and build people's capacity to cope when weather shocks strike.

There is increasing evidence about the impact of sustainable agriculture on improving yields. The most comprehensive meta-study examined 286 such projects in 57 countries and found an average yield increase of 79 percent. Research commissioned by the UK government reviewed 40 sustainable agriculture projects in Africa during the 2000s, involving practices such as agro-forestry, soil conservation and integrated pest management – and showed that yields more than doubled over 3-10 years. The FAO's landmark May 2007 report on organic agriculture outlined a large number of benefits from organic farming compared to conventional agriculture, stating that organic agriculture has the potential to secure a global food supply, just as conventional agriculture today, but with reduced environmental impacts. It noted that large-scale conversion to organic farming in Africa could increase yields by 50 percent.

Sustainable agriculture is often knowledge-intensive and therefore requires high levels of investment from the public sector, specifically focused on agricultural research and extension services.

According to the UN Special Rapporteur on the Right to Food:

'Agro-ecological practices require the supply of public goods such as extension services, storage facilities, rural infrastructure (roads, electricity, information and communication technologies) and therefore access to regional and local markets, access to credit and insurance against weather-related risks, agricultural research and development, education, and support to farmer's organizations and cooperatives. While this requires funding, the investment can be significantly more sustainable than the provision of private goods, such as fertilizers or pesticides that farmers can only afford so long as they are subsidized.'

5) Improve land tenure security

Improving land tenure security, whether of individuals or communities, would vastly increase food security since it encourages farmers to invest more in their land and enables them to access credit. It can also protect farmers from the displacement threatened by the wave of land grabs currently afflicting many developing countries. In many countries there is a need to undertake redistributive land reform, but this is highly unlikely to happen given the extremely sensitive political nature of the issue. Unequal land holdings are one of the main reason millions of smallholder farmers have to work on small plots of unfertile, insufficiently rain-fed land. Neglecting the question of control over land is a serious oversight of policymakers and development experts: discussions on agricultural productivity and adaptation to climate change are often irrelevant if improved land tenure is not addressed.
The importance of a strong, effective government role in land reform is shown in the case of Vietnam where land is owned by the state, which grants and officiates individuals’ or families’ land-use rights.126 The government has made land a national development priority and its issuance of land use certificates to smallholder farmers has increased tenure security and contributed to increases in farm productivity.127 Land reforms clearly provided the initial spur to the success in reducing rural poverty in China and Vietnam. Yet many Southern governments are simply opposed to redistributive land reform; still others are in the process of handing out vast tracts of land to foreign or domestic investors. Donors have tended to press for wholesale free markets in land reform programs. Yet a crucial aspect of the successful land reforms in China and Vietnam, at least in their early phases, were the restrictive role played by the state in limiting the ability to sell land, parceling out land on an egalitarian basis, and imposing an ownership ceiling (a similar ceiling was imposed in earlier land reforms in Japan and South Korea).128 Without such a ceiling, land is likely to become concentrated in the hands of the few; indeed, deregulated land markets almost always lead to re-concentration of land ownership.129

6) Promote simple technologies

Much agriculture spending and research currently focuses on ‘high-tech,’ high-input processes such as developing new seeds or enhancing farm mechanization through tractors and other equipment. Yet what smallholder farmers need is often much simpler. Improved hand tools and simple processing equipment such as milling machines, small rice harvesters or (for larger plots) draught animals are generally much more beneficial to smallholder farmers. These technologies often reduce labor time and are therefore especially important for women, who face major time constraints with child rearing and household responsibilities. Yet governments and donors currently give little money or attention to these simple technologies. In Nigeria, for example, the government’s focus has been on providing tractors in a subsidy program, which are only suitable for farmers with 50 hectares or more, while the overwhelming majority of farmers use hand tools on small plots of land.130

7) Increase farmers’ voices by increasing support to producer cooperatives

Forming cooperatives, or producer organizations, and farmers’ movements offers opportunities that smallholder farmers would not be able to realize individually, such as a stronger voice to achieve secure land rights and better market opportunities. Members of cooperatives can usually benefit from increased purchasing power to achieve discounts on inputs such as fuel, seed and machinery. They can also call upon advice and support, not only from farmers in the same position, but from agronomists and technical experts as well. The FAO notes that cooperatives, ranging from small-scale to multi-million dollar businesses, count over 800 million members around the world and provide 100 million jobs – 20 percent more than multinational enterprises.131

Yet the voice and influence of smallholder farmers is still extremely limited in most countries. Even national farmers’ organizations sometimes represent the interests of large-scale farmers rather than smallholder farmers. Not only do cooperatives strengthen the negotiating position of farmers, but they also give them a voice in public policy. It is vital that policies do more to encourage the formation, recognition, and capacity-building of producer groups and movements to represent smallholder farmers and ensure they contribute to policy design and implementation.

8) Increase participation and transparency

Closely linked to formation and recognition of farmer groups is the crucial practice of actually listening to smallholder farmers and basing policies on what they have to say. This means that governments and donors need to be more transparent about current budgets and policies and how they operate, and ensure that farmers participate in the design of new ones. The participation of farmers in agriculture policy and budgets processes tends to be extremely low. This means that policies affecting the lives of millions of farmers are largely formed at the national level, without substantial input or support from smallholder farmers. Governments often make some attempts to involve stakeholders in policy design but these tend to be largely superficial, especially when it comes to reaching out to women farmers. In many cases, policies tend to be imposed in a top-down, often authoritarian fashion, by unaccountable policymakers with insufficient attention to local needs and regional differences. Such processes are counterproductive since they ignore the wealth of smallholder farmers’ existing knowledge on vital issues such as how to control pests, how to cope with climate change or what crops to grow when.
Transparency in government budgets is vital to ensure the best use of resources, prevent corruption and help citizens to hold the government to account for its spending. Yet few governments have transparent budgets: according to the Open Budget Index, 74 out of 94 countries surveyed (including developed and developing countries) fail to meet basic standards of transparency and accountability while 40 countries fail to provide any meaningful budget information at all. In many countries, it is hard to obtain detailed agriculture budgets, meaning that farmers do not know to which resources or services they are entitled.

9) Focus on the right crops to reduce poverty

Governments face difficult choices about which groups of smallholder farmers to support, which crops to grow or process, and which markets to target. They also face questions such as whether the primary aim should be to reduce poverty or to increase food production, two objectives which are often achieved in different ways. The answers depend on each country’s circumstances but some basic conclusions can be drawn.

The first is that to reduce poverty among smallholder farmers, recent research by IFPRI suggests that government spending should focus more on marginalized farmers and regions than on regions that already have higher potential for increased production, which has been the traditional focus of policy. In India, for example, the IFPRI study notes that public investments consistently generate higher agricultural productivity returns in rain-fed regions of India than in the historically favored irrigated areas. Evidence also suggests that promoting staple food crops reduces poverty more than focusing on cash or export crops. In Rwanda, for example, an IFPRI study shows that growth driven by increasing maize, rice and livestock production reduces poverty more than growth driven by export crops. In Ghana, reducing poverty primarily means better support to farmers growing food crops (mainly women), and targeting the country’s northern regions where poverty is deepest. IFPRI research shows that higher yields in food staple crops will lower food prices and increase incomes (since most Ghanaian farmers are net food buyers). A one percent annual growth in staple crops through 2015 is likely to generate incremental income of $130 million and reduce poverty by 0.9 percent in Ghana. Increased productivity of staple crops benefits both the rural poor and urban poor (since it leads to lower prices) while growth in higher-value export crops tends to reach better-off farmers and has little impact on the food costs of the poor.

The choice of which markets to enter is also important. For farmers engaged primarily in food production, the primary need is access to local and regional markets (rather than international ones). International markets are largely out of reach of most farmers, given their low assets, poor access to infrastructure and lack of money to invest in assuring the quality of their produce. Government and private sector investments, which increase access to local markets and support food processing, among other areas, will therefore be important to increase smallholder incomes.

10) Consider price stabilization policies

Price stabilization policies are generally criticized by donors as unnecessary interventions in the market. However, government intervention to stabilize prices – including measures such as setting price controls, buying farmers’ outputs, buffering stock management, providing direct income support, subsidizing agricultural insurance, and instituting trade protection – has been a key feature of successful poverty reduction in many states, including China and Chile. The importance of the role of government in stabilizing prices has also been recently endorsed by the UN’s High-Level Panel of Experts on Food Security and Nutrition.

The consequences of price stabilization policies need to be carefully considered, as in the case of India and Zambia, where minimum prices for staples hindered diversification into other crops – highlighting the need for carefully designed policies. An IFPRI study analyzing Asian agriculture’s shift over three decades from parastatals to private trade concludes that:

‘Under certain circumstances, public grain price stabilization can contribute positively to increased agricultural growth and overall economic development. Price stabilization was vital to widespread adoption of new high-yielding wheat and rice varieties and benefited both producers and consumers, leading to increased economic growth and decreased poverty and under-nutrition throughout the region.’
Box 8: The role of the state and market in ‘hunger successes’

The importance of public investment, and the role of the state, in promoting agriculture and reducing hunger is seen in some of the developing world’s major success stories. China and Vietnam, for example – two countries that have reduced rural poverty on a massive scale in recent decades, are often held up as examples of how economic liberalization can benefit farmers. But they also illustrate the critical role of public investment.

In China, institutional reforms, particularly the Household Responsibility System (HRS) that enabled farmers to control land and to sell their surplus farm production to the market, are generally considered to be the dominant factor that led to increased productivity and annual growth in agricultural incomes of about 15 percent between 1978 and 1984. This land reform was initially accompanied by a government increase of crop procurement prices paid to farmers and a guaranteed market for farmers for a quota amount of their crops. It was also accompanied by government investment, notably in agricultural research, development and extension (which tripled between 1984 and 2000) and heavy investment in large-scale irrigation. Similarly, in Vietnam, the state played a strong balancing role to the market, with the government favoring selective agricultural protectionism and subsidies over widespread liberalization of food markets, trade and exports. According to Justin Yifu Lin, the World Bank's Chief Economist, 'China and Vietnam did not follow the transitional approach advocated by the prevailing social thought of the 1980s and 1990s.' Even now, neither country has fully established free markets in regards to agriculture.

As the World Bank's Martin Ravallion argues, 'China did not make the mistake of believing that freer markets called for weakening those [public/state] institutions.' Indeed, China's success illustrates not only that freer markets can serve poor people but also that 'success would not have been possible without strong state institutions implementing supportive policies and public investments.' In addition, Ravallion states:

'China's experience points to the importance of combining pragmatic, evidence-based, policy making with capable public institutions and a strong leadership that is committed to poverty reduction. Without these conditions, and the right policies, it is difficult to see how any country can make the significant changes that are needed to get out of an equilibrium in which large numbers of poor and powerless people suffer under policies that perpetuate their poverty.'
The challenges are great but so are the opportunities. High quality public investment in smallholder farmers could transform Africa’s farms, communities and economies. In order to see true transformation, however, donors must reinvigorate and reiterate their commitments to public investment in African agriculture targeting smallholder farmers, and especially women. They should commit to providing not just improved and well-coordinated bilateral assistance, but also to funding innovative multilateral mechanisms such as GAFSP. And they should commit to providing quality investments that support national-level investment plans, in line with CAADP, in order to bolster the investments already being made by smallholder farmers in their own farms.

The private sector has a crucial role to play in agriculture, but private investment should not supplant the important public goods that need to be provided by the public sector. In order for private sector investments and PPPs to truly reach smallholder farmers, public investment is needed to ensure an enabling environment not just for the private sector but also for smallholder farmers. Central to this is the importance of harnessing the organizing and political power of smallholder farmers, and their organizations and associations so they have a better bargaining position with players at every point along the supply chain.

In 2014, the “African Year of Agriculture and Food Security,” African governments re-committed to CAADP and set the bold goal of ending hunger in Africa by 2025. Donor governments should follow suit, stand alongside African governments, and especially Africa’s smallholder farmers, and re-commit to investment in African agriculture that can catalyze an end to hunger and extreme poverty on the continent.

Conclusion
(... text continues here...)
See, for example, the World Bank, Global Development Report 2010, which states: “Agriculture is a significant contributor to global food security and economic growth.”

On the other hand, FAO (2010) notes that: “Despite the importance of agriculture, the sector is often neglected and underfunded.”

In addition, IFPRI (2008) highlights the role of agriculture in reducing poverty: “Agriculture is a significant contributor to global food security and economic growth.”

However, there is a growing consensus that agriculture is vital for poverty reduction and food security. This is evident in the increasing attention being paid to the sector by international organizations and governments. For instance, the United Nations Food and Agriculture Organization (FAO) notes that: “Agriculture is a major driver of poverty reduction and food security.”

This paper aims to contribute to the ongoing debate on the role of agriculture in poverty reduction by examining the evidence from various countries and highlighting the challenges and opportunities. It argues that a well-thought-out strategy is needed to ensure that agriculture plays its full role in poverty reduction and food security.
ACKNOWLEDGEMENTS:
This report was written by Mark Curtis and Katie Campbell with support from Doug Hertzler and Kristin Sundell. The authors thank all those who provided input including David Adama, Lauren Hovis, Buba Khan, Tim Rice, Meredith Slater and Ruchi Tripathi.