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Africa's Soil: The Next New Oil Under a Changed Climate?

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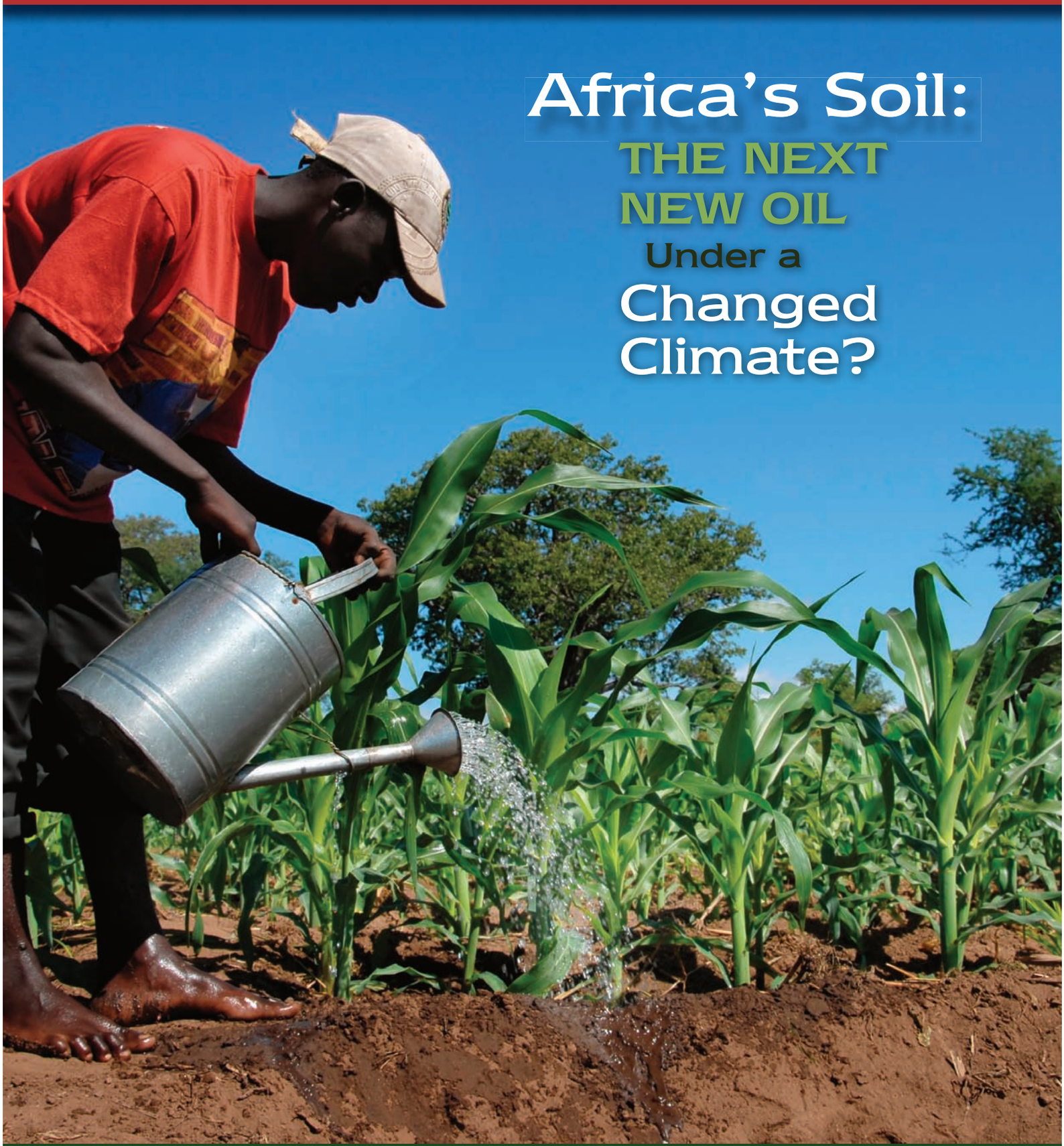
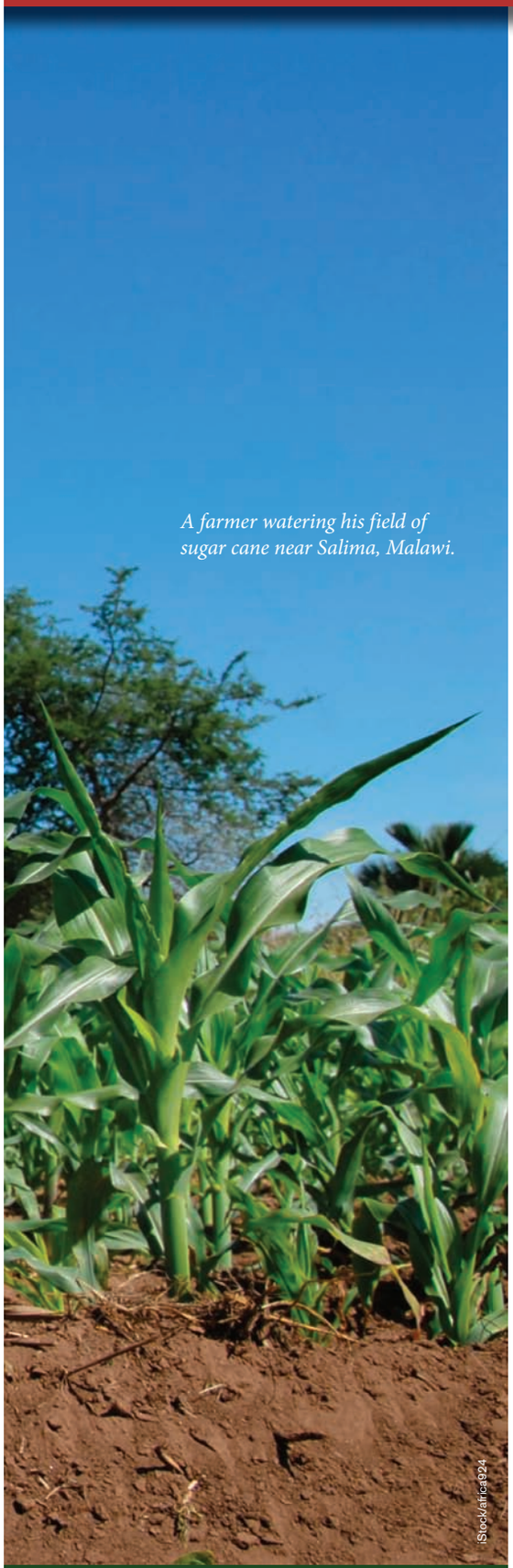


by Richard Munang, Robert Mgendi, and Innocent Nchu



A farmer watering his field of sugar cane near Salima, Malawi.

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AFRICA'S ECONOMY IS GROWING VERY RAPIDLY, with Sub-Saharan Africa accounting for six of the world's 10 most rapidly growing economies. The World Bank reports that gross domestic product (GDP) growth in Africa strengthened to 4.7% in 2013, up from 3.7% in 2012. However, this growth is fueled by oil and mineral export, which tend to create few jobs, and does not take into account the real livelihood basis of many poor sectors of the population nor environmental liabilities and degradation called "GDP of the Poor." Some of Africa's biggest oil- and mineral-rich countries, with the highest per-capita GDP on the continent, lie within the region most vulnerable to climate change—which significantly threatens future development, as these same countries are all ranked low on the human development index. One big problem is that as GDPs rise, reinvestment of that wealth into social improvements has not always occurred.

The agriculture sector, for instance, employs up to 60% of the labor in Africa, yet its contribution to GDP remains low, at 25%, indicating low productivity. This reflects the trend of decades of low investments in the sector in developing regions including Africa. Accordingly, the United Nations Food and Agriculture Organization (FAO) projects that an additional USD30 billion annually is required if the 1996 world food summit target to halve the world's hungry by 2015 is to be achieved. Developing countries' capacity to fill this gap is limited, and official development assistance (ODA) offers no real alternative, as statistics indicate that the share of aid going to agriculture has been on a downward trend, hitting below 5% in 2007.

This urgent need for capital has given rise to large-scale agricultural land acquisitions in Africa, through either long-term leases or purchase, by foreign governments, especially from China, South Korea, and the Arab Gulf, as well as commercial enterprises from Europe, China, and India. While this trend has been decried by many commentators, even labeled as "neo-colonialism" or "land grabs," the convergence of interests of both governments and investors cannot be ignored. On the side of investors, on one hand, the desire for food security back home and, to a lesser degree, rising demand for biofuels in light of expected rising costs of land and water as world food and other crop demand continues to expand, and the perception of plenty of cheap land and labor and favorable climate in Africa on the other hand, present a real allure. On the side of governments, with land apparently in abundance but with financing constrained, the offer by foreign investors to develop agricultural land and boost an underdeveloped sector and create new job opportunities appears very attractive.

While these are mere expectations, the possibility to create a win–win scenario for both local communities and foreign investors does exist if a more strategic approach is followed. A study by the Washington-based International Food Policy Research Institute (IFPRI)—"Land Grabbing by Foreign Investors in Developing Countries: Risks and Opportunities"—observes that governments need to develop the capacity to negotiate sound contracts and to exercise oversight. The study specifically recommends that land deals should ensure, inter alia, the free, prior, and full participation and agreement of all local communities concerned, the protection of the environment, based on thorough impact assessments that demonstrate project sustainability, full transparency, with clear and enforceable obligations for investors, backed by specified sanctions and legislation, as necessary, and measures to protect human rights, labor rights, land rights, and the right to food and development.

Such comprehensive deals would be in the long-term interest of investors and local communities alike, considering that failure to adequately cover interested parties can result in land disputes, which can become violent, and governments may quickly find themselves with no alternative but to change or rescind contractual arrangements.

Three young miners work in an underground mine in Mwinilunga, Zambia.

The Two Faces of Africa: Putting Growth into Perspective

The 2014 Africa Progress Panel (APP) report, "Grain, Fish, Money—Financing Africa's Green and Blue Revolutions," presents the two faces of Africa: on the one hand, very robust economic growth, and on the other, poverty levels that have hardly shifted. But the report suggests it's not all doom and gloom, as Africa could change this dual reality

In such comprehensive agreements, principles of ecosystem-based adaptation (EbA)-driven agriculture can be embedded to ensure that those acquiring leases employ sustainable practices that safeguard the ecosystem as a whole and ensure sustainability.

"Fever Trees" (Acacia xanthophloea) *near the Ngorongoro Crater in Tanzania, close to the border with Kenya.*

fairly rapidly. For this to happen, we need to answer the question: What is the best way to utilize resources to positively impact African growth and development? Historically, countries with high export earnings and economic growth created by oil, gas, iron ore, and other natural resources have fallen victim to the "resource curse" or the "paradox of plenty." These terms characterize countries that have failed to channel profits from natural resources into social improvements and development.

U.S. Energy Information Administration (EIA) figures show that Africa's proven oil reserves have grown by nearly 120% in the past 30 years or so, from 57 billion barrels in 1980 to 124 billion barrels in 2012. Despite this huge increase, the sector provides very little employment. Without contributing to a diversified economic system, and without providing local benefits, Africa's oil has been rather fruitless and seen as a curse rather than a blessing, as it rarely brings about accumulation of capital or truly productive investments.

"The Bottom of the Barrel: Africa's Oil Boom and the Poor" notes that African oil producers have been largely unable to convert their oil wealth into broad-based poverty reduction. These countries have also been unable to di-

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Canoe ride in Ghana.

versify their economies or prepare for a post-oil future. To the contrary, petroleum has become a magnet for conflict and in some cases civil war. The East African editorial concurs by observing that in spite of the oil, Africa continues to register some of the worst human development indicators. In addition, in some countries like Nigeria, Sierra Leone, and South Sudan, oil revenues have sustained long-standing internal wars.

Africa's Soil or Oil? Transforming the Oil Curse Into a Blessing

With 65% of Africa's workforce directly dependent on agriculture for survival, and dire food insecurity in many places, it is Africa's soil that should be targeted for inclusive growth and development. In other words, Africa's soil should be its next "oil" in a changing climate. Across the continent, demand for food is soaring, especially in rapidly growing cities. The continent has a food import bill of more than $35 billion per year, and imports of food exceed exports by 30%. Existing fossil fuel and mineral reserves will run out, but Africa's soil and its ecosystems, including rivers and forests, will remain. One day the oil will run out—but Sub-Saharan Africa will always have its fertile land, its rivers, its youthful workforce, and its huge domestic market. In the words of Nigerian Agriculture Minister Dr. Akinwumi Adesina, "Nobody drinks oil, nobody smokes gas, but everybody needs food."

One day the oil will run out—but Sub-Saharan Africa will always have its fertile land, its rivers, its youthful workforce, and its huge domestic market.

Nearly two-thirds of global arable land is in Africa, yet its agricultural output is the lowest in the world. Agricultural growth can reduce poverty twice as fast as growth in other sectors. A 1% increase in productivity of agriculture will give you more than four times reduction in poverty because it creates jobs at the bottom through an agricultural transformation that reaches tens of millions of people.

Africa has 10% of global fresh water, 17% of global forest cover, 25% of the world's mammal species, 22% of plant species, and one-fifth of global land. Yet these precious resources are under severe threat from degradation—often associated with natural resource extraction—and climate change. Climate change threatens to reduce by up to 70% groundwater recharge, and to cut rainfall by 20% in certain parts of Africa. It could shrink the growing area for 81–97% of African plant species studied. And it could cut crop yields by up to 17% for wheat, 5% for maize, 15% for sorghum, and 10% for millet, according to the UNEP 2013 report on Africa's adaptation gap.

Climate-proofing the natural environment for sustained growth will—at least in part—require shifting oil revenues to agricultural and ecosystems investment. Investing revenue from the oil sector into harnessing the continent's largely untapped renewable resources for production, processing, and commercialization of products is critical in feeding and providing for its people

Having noted this potential, it is worth adding that Africa's agriculture is characterized by a range of interacting socioeconomic and biophysical strengths, weaknesses, opportunities, and threats. These compound the challenge of achieving resilient agricultural growth. Among weaknesses identified are land rights, where tenure of more


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Aloe flower in Namibia.

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An oil refinery in the Moroccan desert.

than 90% of land remains outside the formal legal system, and the risk of dispossession remains apparent. Indeed, it is observed that only a small fraction of land in Africa is subject to individual titling. Most of the land is community owned, and in some countries state owned. This brings to the fore the question of who has control of any shift to sustainable agricultural practices to ensure sustainability. With the current setup, at a community level, recognition of local administrative structures and ensuring community buy-in into any project are key to enhancing sustainability. Going forward, better systems, including legal instruments, to recognize land rights are recommended. The support of international partners in aiding African governments develop land registry systems can be a good starting point to safeguarding individual and community right to land. Internationally agreed-upon human rights instruments can be used to protect such rights, including those of livestock herders and indigenous forest dwellers. With such legal assurances, individual and community ownership of EbA-driven agriculture projects is encouraged and hence, sustainability of interventions enhanced.

The percentage of farmers who reported an increase in production due to conservation agriculture in the Zambia project rose from 2.3% to 75%.

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Ripe sorghum in a field in Ethiopia.

The Potential of Investing in Soil and Working With Nature

Ecosystems support agricultural production by providing everything from water and soil resources to pollination and pest control services. Their maintenance underpins the resilient supply of the ecosystem goods and services that support the availability, access, and use of foods, both farmed and wild, strengthening the stability of food systems. By making cost-effective investments in ecosystem productivity, many African countries have already begun to realize bigger benefits by working with

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Tanji Beach in Gambia is an active fish market from morning to evening.

nature rather than against it. A recently released UNEP publication on adaptation actions in Africa details the cases of eight countries that have invested in ecosystem-based adaptation, spurred green economy opportunities, and secured climate resilience.

One project in Zambia, led by the Kasisi Agricultural Training Centre, has promoted conservation agriculture techniques. These include application of manure to soil, no burning, low or no tillage, and crop rotation. Higher soil fertility is achieved by using manure, which adds nitrogen, bacteria, and other organic compounds to the soil, while no burning and low or no tillage reduce soil disruptions, sustaining natural soil processes. Crop rotations are a natural way of getting different nutrients into the soil (in a leave-behind effect) and adapting to changing weather conditions. The percentage of farmers who reported an increase in production due to conservation agriculture in the Zambia project rose from 2.3% to 75%. An overall improvement in household food security was experienced, with staple crops lasting on average up to 9.5 months of the year, compared to 6.5 months previously. Additionally, there was an increase in the number of households with one or more surplus farm products for sale, from 26% to 69%. Nearly two-thirds of the households reported that sales of these products were contributing half or more of their income—boosting food security further due to greater purchasing power. Ensuring that food production is resilient to climate change impacts also means promoting diversification—for example, moving from reliance on sea fishing to fish farming in dug ponds, or planting multiple crops on a farm.

The UNEP report "keeping Track of Adaptation Actions in Africa" provides details of additional individual examples of how investment in EbA-driven agriculture has improved productivity and enhanced resilience in Africa. However, at scale, achieving resilient and transformational agricultural growth goes beyond what would be perceived as islands of success. In Africa, more than 80% of farmers are smallholders, cultivating less than 2 hectares of land. As a group, they are the centerpiece of achieving widespread and inclusive food and nutrition security. This, however, depends on three key aspects: their links to markets, both markets to buy their produce and those to supply inputs such as improved seeds, and to microcredit and insurance; enhancing their capacity to counter environmental degradation and climate change through training and introduction of appropriate technology; and enhancing the capacity of African people to enable them generate fruitful, diverse livelihoods that provide stable incomes, adequate nutrition, and good health through focusing on vulnerable groups like women and youth, scaling up nutrition, and building livelihood diversity (encouraging diverse income generating activities at village level, e.g., timber trade, retail trading, brickmaking, etc.).

Recommendations in these three key areas are discussed at length in the "Growth With Resilience: Opportunities in African Agriculture" report by the Montpellier panel, a group of African and European experts from the fields of agriculture, trade, ecology, and global development. They broadly revolve around encouraging public–private partnerships between government, the private sector, and the nongovernmental organizations (NGOs) and civil society organizations (CSOs) to ensure that the efficiency and entrepreneurialism of the private sector is harnessed to deliver better value for money, while concurrently utilizing public and NGO/CSO engagement to ensure that benefits are spread widely both geographically and by social stratum. This is seen as key to ensuring that sustainable small holder farming in Africa addresses three

key challenges facing the continent: climate change, ecosystem degradation, and food and livelihood security.

In establishing the role community organizations should play in empowering women as well as encouraging the adoption of sustainable agricultural principles such as tree-planting and use of organic manure, a careful consideration of barriers to achieving the same could be a starting point. Among key barriers to women's empowerment are limited knowledge, limited access to resources such as land and money, limited access to leadership positions at the community level, and limited decision-making opportunity. Among key barriers to EbA-driven agriculture is limited knowledge of its techniques and benefits at both community and national levels. Fostering women's empowerment may therefore involve deliberate action aimed at empowering women, such as improving the access of women (and disempowered men) to privately held resources and to resources held in common. Locally appropriate natural resource management strategies that are gender-inclusive and pro-poor are also required. Developing expertise in particular aspects of farming seems to provide a critical underpinning to leadership and the ability to express one's views. Those women who feel most disempowered are those who feel they lack knowledge. Training is therefore identified as a need, including training in technology use and in market analysis. Training and awareness creation seems to be a key component that community organizations can engage in to extend the benefits of EbA-driven agriculture to a wider segment of society.

Opportunities for Job Creation

Ten million young people will be entering the workforce every year over the next decade, requiring productive jobs. Working with nature and nurturing our soils is the single biggest opportunity for inclusive growth. What we are talking about is not just the production at the farm level, but developing the entire value chain, which is immense, including packaging, transportation, exporting, input supplies, processing, transforming primary goods into finished goods, and so on. This is where the unlocking of the potential of agriculture lies, and unlocking this potential is a job creation pathway that if not done could have some scary social consequences.

It is estimated that African agriculture and agribusiness could be worth USD1 trillion by 2030. An agribusiness private sector working alongside government could link farmers with consumers and create many jobs. The potential of agriculture in dealing with unemployment is therefore a viable pathway especially with the youth bulge currently underway in Africa. For example, the rice sector alone has the potential to employ many of the 17 million young people who enter the job market annually in Sub-Saharan Africa. Additional commentary on this issue states that more than 350 million young people will be entering the labor force between now and 2035. Projections of nonfarm jobs and wage employment indicate that it will, at best, absorb only half of these. The implication is that agriculture will still need to provide gainful employment for much of the reminder.

To realize this, there is need to enhance the capacity of African youth to engage in agribusiness, and hence ensure they generate incomes while feeding Africa. Creating the right policy environment is as essential as adequate education. This includes ensuring that youth are engaged, excited about, and well educated in different kinds of work related to food production. Use of electronic devices and mobile phones is one example of how new technologies are revitalizing traditional industries in Africa.

An Urgently Needed Paradigm Shift

A paradigm shift toward increased investment from oil earnings back into the earth's ecosystems that feed us and also toward embrace of agribusiness is needed. Nigeria seems to have realized this. In the article on why agriculture is Nigeria's new oil, the country's minister of agriculture and rural development discusses this paradigm shift. The goal of the country's agricultural transformation agenda launched in 2011 is to add 20 million metric tons of food to domestic supply by 2015 and in the process create 3.5 million new jobs in agriculture and food related industries. This initiative is built on the concept of treating agriculture as a business. As proof of the effectiveness of this focus, remarkable results can be reported. Within the first year of the transformation efforts, the country reached almost half of its 5-year food production target and 75% of its job creation target.

The rest of Africa can follow suit, with the aim of being food secure and simultaneously, creating jobs. Indeed, agriculture can even be oil. The vice-president of the World Bank in Africa also put it clearly: "Better education, health, nutrition, and other human development indicators, not just economic growth,

A Fulani woman in Ghana grinding grain.

Beautiful dark clouds over the landscape of Madagascar with rice fields.

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should be the benchmark for smart, effective oil and mineral investments."

It is therefore urgent for Africa's oil to fuel local economic development by transforming agriculture through investment in natural capital for sustainable development. This is desperately needed in Africa, with a population of 1 billion African citizens rising to 2 billion in less than 36 years from today under a changing climate. Reinvesting natural resource revenues into agriculture and ecosystems and understanding how best to measure progress should be the imperative next step to unlocking Africa's potential in leapfrogging into a society where its people do not experience the fear of want or need.

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