

Pressures on the Plundered Planet

As the world economy grows, it increasingly faces natural constraints. These provide both new opportunities and new risks for the poorest countries; managing them well will be central to their exit from poverty. These were the themes of *The Plundered Planet*. Here I bring out some of the key current issues.

Industry needs natural resources, for energy and material inputs, but many of the natural resources we use for these purposes have a fixed endowment, which we are depleting. A growing global population needs food, and food needs land, but land suitable for agriculture is finite. Both industry and agriculture emit carbon dioxide into the atmosphere, but the stock that can be safely absorbed by the atmosphere is finite, and as it builds up it gradually changes the climate. How concerned should we be about these constraints, and what do they imply for development?

I think that the concerns about industrialization grinding to a halt because of shortages of vital natural-resource inputs are misplaced. As any particular resource becomes depleted,

its price rises. In turn, this induces fresh investment in prospecting and so furthers discoveries, and ultimately research into innovation. This has happened so many times across such a wide range of activities that we can be fully confident of it. The past decade of rising prices for natural resources has already triggered these waves of investment. Currently, by far the highest-valued natural resource is carbon-based energy, from oil, coal, and gas. The high prices of the past decade have triggered an astonishing wave of new technologies that enable us to tap into endowments that were previously inaccessible: The United States has already discovered enough additional resources through these new technologies to be self-sufficient for several decades. Beyond technology-based discoveries are technology-based substitutes: For example, in the 19th century, nitrates were considered vital and finite; then we discovered modern fertilizers.

Similarly, the global population will not face hunger because of land shortages. There are still huge areas of grossly underutilized fertile land;



USAID has played a pioneering role in advancing co-management of natural resources by communities and government in Bangladesh. Building upon successes with forests and inland fisheries, USAID is now working to scale up the approach to all ecosystems. | Photo: KlausHartun

beyond that are drip-feed and greenhouse technologies that open up lands that are currently too dry or cold.

Nor will we face a stark choice between energy shortage and overheating. Although global supplies of carbon-based energy are finite, there are many non-carbon sources of energy waiting to be developed. Indeed, modern physics tells us that the endowment of other forms of energy is infinite: The challenge of permanently sustained energy supply is entirely technological, and we can be confident that innovations will be forthcoming.

But although we are not facing a nature-imposed Armageddon, natural resources, climate, and food are interconnected in ways that pose new opportunities and new risks for the poorest developing countries.

Can Poor Countries Harness the Opportunity of High Commodity Prices?

The new resource discoveries that are being triggered by high global prices for natural resources are creating major new opportunities that are concentrated in the poorest countries. There is a simple reason for this concentration. The poorest countries are the last frontier for land-based discoveries using traditional technologies. As of 2000, per square mile of territory, only one-quarter as many natural resources had been discovered in the poorest countries—the “bottom billion”—as in the rich parts of the world. This is not because they have less to be discovered, but because historically there has been less prospecting: Mining and oil companies are now making up for it.



USAID's rural economic growth program expands agribusiness opportunities in such niche markets as specialty coffee, chili peppers, baskets and essential oils. For example, in 2000 no specialty coffee was exported from Rwanda; in 2006, 3,000 metric tons were produced. Export revenue from this sub-sector has grown to \$8.5 million, and Rwandan specialty coffee has been featured by Starbucks and Green Mountain Coffee as their "best of the best." | Photo: USAID

This spasm of new discoveries in low-income countries will, during the coming decade, generate massive revenue flows for the governments of some of the poorest countries of Africa and central Asia. It is an opportunity without precedent, but one that comes with huge risks. The historical record of resource extraction in these regions is one of plunder—the few expropriating what should have benefited the many, and the generation that is currently in control of decisions expropriating what should have benefited many future generations. There are evident pressures for valuable natural resources to induce such misgovernance. The challenge, both for these societies themselves and for the international community, is to prevent the current opportunity from being squandered.

The default option is indeed for history to repeat itself, but this is far from inevitable: Societies can and do learn from their own history and from the mistakes of others. To offset the pressures for plunder, societies need to enact rules,

build institutions that are dedicated to implementing the rules, and create a critical mass of citizens who understand why the rules and the institutions are needed and so defend them.

The United States has already shown leadership through enacting the Cardin-Lugar amendment to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, and this has already triggered complementary legislation in Europe. It requires all the resource extraction companies that have listings on U.S. stock exchanges to comply with full disclosure of their payments, making bribery and corruption much more difficult. The United States has also recently become a signatory to the Extractive Industries Transparency Initiative, a voluntary, multi-stakeholder process that supports the same objective. These important steps to strengthen the integrity of financial flows were the right place to start, but harnessing the opportunity of resource revenues requires much more. Local communities in the vicinity of

resource extraction must be treated decently; otherwise, there is a risk of violence and disruption. Revenues from the inherently unsustainable process of extraction must be used prudently. To offset depletion, revenues need to be invested, mostly in the domestic economy. To cope with the inherent volatility of commodity prices, they also need to be saved to provide a financial cushion for shocks. The full chain of decisions involved in transforming the potential of undiscovered natural resources into the reality of a sustained exit from poverty is long and complex. The *Natural Resource Charter*, which sets out guidelines for the entire decision chain, is being supported by a partnership of donors: USAID should surely be an important member. An international academic and civil-society initiative, it has been adopted by the New Partnership for Africa's Development, the economic arm of the African Union, and is helping governments and citizens to assess how well prepared their countries are to handle the new opportunities.

A key reason why the new revenues from resource extraction must be managed prudently is that they will not last. As the new supplies from discoveries (including the technology-based discoveries in North America) come on-stream, commodity prices may decline. More fundamentally, the extraction of carbon-based energy will hit two natural limits. The most evident is exhaustion: Many of the discoveries in poor countries are small and will only last a couple of decades. The less obvious limit, but the one that will be globally binding, is that we cannot actually use up the global endowment of carbon-based energy without dangerously overheating the planet. Hence, the binding global constraint on carbon-based energy is not how much there is in the ground, but how much we dare to send up into the atmosphere. Over the coming decades, by some combination of regulation and financial incentives, all the major

nations will need to curtail their carbon emissions. A consequence is that those poor countries that are becoming dependent upon revenues from exporting carbon-based energy will lose their source of income. The windfall from high prices and new discoveries in low-income countries must be seized, while it lasts, to finance transformation.

Can Africa Harness the New Opportunities for Green Growth?

As the world economy shifts its sources of energy from carbon-based to green technologies such as hydro, nuclear, solar, biofuels, and wind, this will create new opportunities for the poorest countries. Africa has superb sites for hydropower, its abundant sunlight gives it a potential advantage in solar power, and its abundant land gives it a potential advantage in biofuels. It also has the advantage of being a latecomer to industrialization: Most of the energy-related capital that Africa will need has yet to be installed. It will generally be much cheaper to fit the emerging green energy technologies on new sites, rather than to retrofit them into the existing generation and usage of energy as must be done in much of the rest of the world.

However, for each of these advantages, there is currently some offsetting disadvantage because Africa must take decisions based on prices and costs that differ markedly from those prevailing in the rest of the world. For example, although Africa has many sites suitable for hydropower, they are mostly unexploited. This is because hydropower requires huge fixed capital investments, while the cost of finance in Africa is far above world levels. Hence, these investments are not viable at the cost of finance faced by African governments. International private investors have access to much cheaper capital, so could they fill the financing gap? Probably not. Because of the political risks, hydropower investments are left on the drawing board.

Yet it is in the global interest to curtail carbon emissions from anywhere on the planet. The fundamental criterion should be to do it as cheaply as possible. In failing to finance hydropower, leaving Africa to invest in carbon-based energy instead, the world is missing an opportunity to reduce carbon emissions much more cheaply than by retrofitting green technologies in developed economies. The international community appears to lack the political architecture for matching the opportunity of hydropower investment to the vast global pool of low-cost finance. Actually, we don't lack the political architecture: Aid can perform this role. The obstacles have been that funding has been both inadequate and insufficiently innovative. For example, partial risk guarantees might overcome the inhibitions of private investors.

Similarly, solar panels, though potentially ideal for African conditions, are expensive investments for households and small firms that typically face severe credit constraints. Additionally, panels require a network of reliable maintenance, but Africa currently lacks the organizations capable of providing such a service. In the developed parts of the world, these problems have been overcome: The obstacle is usually the lack of sunshine. Between them, the global microfinance movement and social enterprise might be able to provide both the credit and the network of maintenance that solar power in Africa needs for viability.

Although biofuels can be grown in Africa, they compete for land that could be used to grow food. As long as Africa continues to be a huge food importer, there is little rationale in producing biofuels. Given high transport costs, exporting biofuel in exchange for imports of food is unlikely to be as economic as using the same land to grow more food. In fact, Africa is so abundant in land that it should be possible for the region to meet its food needs and still have arable land to spare

for biofuels. But for biofuels to make sense, food production must first increase.

Even Africa's latecomer advantage is not as advantageous as it might seem. The region is already extremely short of electricity. Indeed, so severe are power shortages that the value of extra electricity in Africa is far greater than in any other region. Currently, none of the green technologies are as cheap as coal for electricity generation, but coal is the most carbon-intensive form of energy. Hence, while Africa is facing an electricity crisis, it cannot afford to wait for the new green technologies to improve.

Each of these frustrated advantages points to a potential opportunity for a low-cost means of curtailing global carbon emissions that will be missed given the constraints that Africa currently faces. It is therefore in the global interest to overcome the obstacles that impede Africa from making more use of its opportunities for green energy. Aid in its various forms can do just that.

Can Poor Countries Cope with Climate Change?

Curtailing global carbon emissions is both technically and politically difficult. As the major nations stumble toward effective action that shares the burden of adjustment, excessive emissions will continue to build up and so, given the long lags between emissions and climate, a prolonged phase of climate change becomes increasingly likely. The problems posed by climate change affect, selectively and systematically, the poorest regions of the world. The channels of transmission work through both production and consumption.

In terms of production, neither people nor crops are infinitely adaptable to climate: Some parts of the world are hotter than would be ideal, and others are colder. Systematically, the poorest countries tend to be too hot. Globally, the likely

consequences of climate change are rising temperatures and increased volatility. Rising average temperatures disadvantage mostly poor regions that are already too hot while advantaging mostly rich regions that are currently too cold. Increased climate volatility is detrimental everywhere, but it particularly disadvantages those areas in which economic activities are most vulnerable to climatic shocks.

The poorest countries are particularly vulnerable because they are far more dependent on rain-fed agriculture, which is evidently more sensitive to climate than other activities. Within the poorest countries, it is the poorest households that are most dependent on food production as a source of income. And within the poorest households, food production is predominantly the domain of women. Yet women are often disadvantaged as food producers in terms of access to finance, weak legal rights over land, and competing claims on their time. African agriculture, and women in particular, need help to adapt to this climatic deterioration, which has obviously not been caused by Africa. Without accelerated adaptation, food productivity, which is already low, will be further menaced. Fortunately, some are at least beginning to recognize this problem. The Obama Administration's Presidential Initiative for Global Food Security called "Feed the Future" places a critical focus on climate-change adaptation and has launched a global research portfolio of investments to create more productive crops, sustainably intensify agricultural production systems, ensure food security, and enhance access to nutritionally improved diets. Much more needs to be done, but this is a start.

In terms of global consumption, the good most vulnerable to climate change is food. The world food market is sensitive to supply shocks in a few major exporting countries, such as Australia, Russia, and the United States. This sensitivity has

twice been demonstrated in recent years. In 2008, the Australian grain crop was hit, while in 2011, it was the Russian. In each case, as a direct result of these production shortfalls, global food prices rose, but the price increase was then accentuated by the responses of the governments of some of the other food-exporting countries, which imposed export bans to protect their own consumers from the surge in global prices. These export bans were acutely damaging, accentuating the price increase and so generating a spike in food prices.

In the short term, high prices for food cannot increase supply, and so prices equilibrate the market by squeezing demand. In less technocratic

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language, some people eat less. The food needs of Africa's big coastal cities are largely met by imports, so food is priced around world levels. Africa's urban poor are particularly exposed to surges in food prices. Lacking land, they are unable to grow their own food. Lacking income, they are sensitive to high prices. In the case of food, this income-selective squeeze works twice over. Because food is a necessity, poor people spend a larger proportion of their budget on food than do richer people. The typical poor urban household spends around half of its budget on food, whereas for high-income households only around a tenth of income is spent on food. So, when food prices rise, for a poor household to keep eating the same

quantity of food would require a much larger squeeze on other expenditures than for a richer household. But of course, poor households are least able to cope with a squeeze of any magnitude. They have fewer assets to fall back on and fewer discretionary items of expenditure that can be dropped. And so, the global food market equilibrates to a shortfall in world supply by forcing poor urban households to eat less.

Within such households the most vulnerable are the young children. If a young child is malnourished for more than two years, the result is stunting. Two aspects of stunting are truly disturbing. First, it is not only a physical but also a mental condition: As the term implies, the children will be short, but their mental abilities will also be impaired. Second, it is irreversible: Physical and mental impairment will last for the rest of a child's lifetime, and indeed, evidence on physical impairment shows it to be passed on from one generation to the next, taking several generations to work itself out. We do not know whether this is also the case with mental impairment. Both the U.S. Global Health Initiative and the Feed the Future Initiative support country-owned programs to address the root causes of poverty and malnutrition and improve the future potential of millions of people. This commitment to building local technical capacity will enable developing countries to manage nutrition programs over the long term. Through effective collaboration with other development partners, the United States also supports the Scaling Up Nutrition movement, which focuses on collaboration, results, harmonized multisector approaches, and the critical 1,000 days from pregnancy to a child's second birthday.

As carbon emissions build up as a result of global industrial growth inadequately mitigated by incentives and regulation, a climatic shock to one or more major producers could quite easily reduce

global food supplies for a few years. On current patterns, this would have adverse consequences for some of the poorest people on earth that would echo down the generations. Such inherited disadvantage is the antithesis of the opportunities for social justice proclaimed by the United States in the iconic symbol of the Statue of Liberty. While the core leadership on this issue must lie with African leaders and citizens, as the greatest food producer on Earth, and home to some of the world's major international agricultural companies, the United States has an undeniable leadership role in ensuring global food security.

Both to address the adverse effects of climatic deterioration on food production, and to guard against the consequences of shocks in the global market, it is important for Africa to increase its own food production. It is indeed extraordinary that the region is a major food importer given that it has so much arable land per capita. Dependence on food imports has emerged due to a prolonged stagnation in African food productivity, in contrast to trends elsewhere in the world. Climate change is set to make matters worse, but rapid adaptation could mitigate the damage. For example, investment in irrigation would reduce exposure to rainfall shocks, and the development of new crop varieties could increase resilience to rising temperatures and drought. U.S. research into genetically modified organisms puts it at the forefront of innovation in crop varieties, and this is a technology that Africa urgently needs. Indeed, the yield gap between African agriculture and global agriculture is now so pronounced that in one sense it is hopeful: There must be considerable scope for productivity growth simply through learning from agriculture in other regions.

Recently, international investors have woken up to the potential opportunities of African agriculture. Following the price spike of 2008,



USAID works with conservationists and the Waorani indigenous community to protect *charapas* river turtles in Amazonian Ecuador. In 2008 and 2009, community member Roque Alvarado and his children Renata, Orlando, and Annabelle (pictured) gathered 1,000 eggs and carefully tended 700 hatchlings before releasing them back to the wild. | Photo: Julie Larsen Maher/Wildlife Conservation Society

food producers in the food-exporting economies became concerned that periodic resort to export bans would make them unable to take advantage of high world prices, and so started to look elsewhere to expand production. Further, in the high-income food-importing countries, governments and food importers became concerned that during future periods of global food shortfall export bans would prevent them from purchasing adequate supplies on the global market. Hence, they too started to look to new locations in which, if necessary, they could grow food supplies that could preempt the global market.

Coincident with the 2008 global food price spike, there was a spike in the global price of oil. This too triggered new investor interest in African agricultural land, in this case to grow biofuels.

Hence, there were three distinct international investor interests in African agriculture: harnessing the opportunity of the widening productivity gap, protecting against future food price spikes, and preparing for future energy price spikes. After half a century of neglect, African agriculture was suddenly attracting international commercial interest.

These three types of investor interest have very different implications for Africa—the first potentially highly beneficial. International commercial agricultural enterprises could bring the management, technology, finance, and market connections that could unlock Africa’s agricultural potential. Further, the first investors will be pioneers. Given the specificities of agricultural production and marketing, it is usually not possible to assess whether the first such venture in



Smallholder farmers harvest cowpeas. | Photo: Elisa Walton/USAID

a locality is commercially viable other than by trying it. As pioneers, they will be taking risks which, if successful, will serve as demonstrations for many others, including international firms and African farmers. As with most pioneering, these demonstration effects are benefits to society that the investors themselves cannot capture, and so there is a good case for their public support. Fifty years of limited success for international public efforts to assist Africa's small farmers directly suggests that new, more commercially based approaches are needed. Meanwhile, commercial farming in countries such as Brazil has been hugely successful: Not only does commercialization raise food production, but it has the potential for complementarities with small farmers through imitation of methods and piggybacking on technology and logistics through outcropping. The Feed the Future initiative has developed a strategy to engage these private-sector pioneers in a meaningful, comprehensive way that speaks to core business interests while also addressing critical development objectives. It is these types of "win-win" partnerships that can foster private-sector-led growth in emerging markets, increasing the collective impact of donor

interventions in sustainably reducing poverty.

However, the other two types of investor are primarily speculators. Typically, they seek long leases at nominal rents for idle land, in the hope that a future price spike, whether in food or energy, will make the cultivation of their holding commercially attractive. Until then, the land is barely cultivated: The attraction to the investor is what economists term the "option value." The circumstances under which the option becomes valuable are precisely those in which African governments would regret having parted with it. In other words, these transactions depend upon African governments signing away land rights that may become valuable, in return for a very small immediate gain.

Evidently, the future of food production, both globally and in the poorest countries, faces risks. Policies can affect these risks. There is considerable scope for partnerships between governments and the private sector in support of African-led investment plans and policy frameworks. The U.S. government, with its unrivaled network of aid and diplomatic links to Africa, and the world's foremost agricultural sector, is in a strong position to guide the many U.S. enterprises that could contribute to African development in the region. Sometimes with aid as pump-priming, U.S. firms could enable Africa to adopt those green technologies in which it has a potential advantage, but that would otherwise be unviable because of a variety of impediments. U.S. enterprises, allied to appropriate policies adopted within Africa, can be pioneer investors in agriculture, while refraining from the speculative accumulation of option values in land. The U.S. government is encouraging African governments to create enabling policy environments and physical infrastructure that facilitate private-sector investment by individual agricultural producers,

small and medium enterprises, and larger businesses. Such structures might shift, for example, from import bans to regulations for new genetic crop technologies, then pump-prime their adoption by African farmers. Through these and other means, supportive U.S. aid policies can accelerate the pace at which African agriculture becomes more productive and more resilient.

Aid in an Age of Austerity

Africa is at last starting to catch up. Over the next decade, the commodity booms will be injecting revenues that dwarf all past financial flows, including aid. Meanwhile, the United States and other members of the Organisation for Economic Co-operation and Development face a decade of austerity. Africa will, therefore, inevitably self-finance much of its development. As it succeeds, it will also find it easier to attract private capital on commercial terms. Yet, within this newly hopeful African environment, there are also grave new risks. Africa faces important new policy challenges: managing the commodity booms, determining the pace of adoption of green energy, and meeting Africa's food needs while responding to a deteriorating climate. Africa cannot be coerced into good public decisions on these matters, but it can be informed and supported. The continuing role for development assistance in the new environment of African self-financing of development is to be smartly targeted onto such issues, and thereby become highly leveraged.

The pulse of revenue to African governments from commodity exports is likely to be temporary, though of unknowable duration. The challenge is for societies to build the defenses of rules, institutions, and a critical mass of informed citizens needed to prevent a repetition of the plunder that has despoiled Africa. The U.S. combination of legislation to regulate the behavior of the extractives

industry and pump-priming finance for international policy guidelines is an example of a smart and supportive intervention.

The necessary greening of the world economy will shift energy technologies away from the carbon-based energy that is currently Africa's chief source of income, but will introduce other energy sources for which the region is potentially well suited. Currently, however, each of these potential technologies faces Africa-specific impediments, such as high-cost finance. Helping to get green energy established in Africa by partnering with the private sector to break these impediments is a further example of smart development assistance. Cheaply curtailing the growth of carbon emissions in Africa reduces the need to curtail them more expensively in the United States.

Climate change is inevitable for the coming decades, and this threatens African food security. Africa has the potential to produce far more food than it does, but realizing this potential requires a combination of money, expertise, and appropriate policies. While the key leadership in meeting these challenges lies with Africans themselves, as the world's foremost agricultural economy the United States has an evident supporting role. The appalling consequences of food insecurity, both the immediacy of hunger and the persistence of stunting, make it a clear priority for the U.S. government.

Austerity is indeed a time to get smart, but not to abrogate the responsibility of global leadership.

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