

Global Approaches to Human Security



Cities After Sandy: Climate Change and Urban Resiliency

By Nancy E. Brune

Global Food Security in a Volatile World

By Timothy A. Wise

Beyond Ideology: Rebalancing Education Aid

By Stephen P. Heyneman

CITIES AFTER SANDY: CLIMATE CHANGE AND URBAN RESILIENCY BY NANCY E. BRUNE	3
GLOBAL FOOD SECURITY IN A VOLATILE WORLD BY TIMOTHY A. WISE	9
BEYOND IDEOLOGY: REBALANCING EDUCATION AID BY STEPHEN P. HEYNEMAN	15
ABOUT WPR	21

CITIES AFTER SANDY: CLIMATE CHANGE AND URBAN RESILIENCY

BY NANCY E. BRUNE



More than half of the world's total population, currently roughly 7 billion, now lives in cities. As the world's population increases to a projected 9 billion by 2050, so too will the trend toward greater urbanization. Urban growth is most rapid in the developing world, where cities grow **by an average of 5 million residents every month**. By 2050, urban dwellers will likely **account for 67 percent of total population** in the developing world and 86 percent in the developed world.

Many of the world's cities, and some of its biggest, may be particularly vulnerable to climate change and the expected rise in global temperatures. In metropolitan centers like Dakar, Delhi, New York, Sao Paulo, Shanghai and Tokyo, average temperatures **are projected to rise** between 1 and 4 degrees Celsius by 2050. Climate change is expected to lead to greater droughts in some areas, as well as greater storm surges, flooding from glacier melt and rainfall, and rises in sea level. It is estimated that by the end of the century, **"seas will climb 80 centimeters or roughly 2.6 feet."**

According to the Intergovernmental Panel on Climate Change (IPCC), the Middle East and North Africa region **is particularly vulnerable to climate change impacts**. If temperatures increase up to 4 C by 2050, the results could be a 20-30 percent decrease in water availability. Meanwhile, in North African urban hubs, a temperature increase of up to 3 C could expose up to 25 million people to flooding.

In its **"Climate Change and Environment Risk Atlas,"** the British-based private consulting firm Maplecroft ranks countries most vulnerable to climate change. Six of the world's fastest-growing cities received extreme risk ratings: Kolkata, Manila, Jakarta, Dhaka, Chittagong and Addis Ababa.

Port cities, in particular, which constitute more than half the world's largest cities, **are at** "increasing risk from severe storm-surge flooding, damage from high storm winds, rising and warming global seas and local land subsidence." **According to a 2005 OECD environmental report** that estimates the exposure of the world's largest port cities to coastal flooding and damage due to high winds, the most vulnerable cities in terms of potential damage to assets are Miami, Guangzhou, New York, Kolkata, Shanghai, Mumbai, Tianjin, Tokyo, Hong Kong, Bangkok, Ningbo, New Orleans, Osaka-Kobe, Amsterdam, Rotterdam, Ho Chi Minh City, Nagoya, Qingdao, Virginia Beach and Alexandria.

In addition, many of the world's biggest cities **are located in low-elevation coastal zones (LECZs)**, defined as the contiguous area along the coast that is less than 10 meters above sea level. LECZs cover just 2 percent of the world's land area but contain 13 percent of the world's urban population. Roughly half of the world's population lives within 62 miles of a coast. In Australia, 80 percent of the country's population lives in coastal cities.

Of the roughly 200 countries in the world, 21 **have more than 50 percent of their population living in LECZs**. A number of countries with a large share of their residents living in LECZs are small island countries, such as the Bahamas and Maldives. But others are large countries with heavily populated delta regions, such as Nigeria and Bangladesh, where 46 percent of the population lives

in an LECZ. Developing countries have a higher share of their population living in such zones (14 percent) than do OECD countries (10 percent). And 21 percent of urban dwellers live in LECZs, compared to 11 percent for rural dwellers.

The area with the greatest overall exposure to LECZs is Asia, where large numbers of residents are located in flood plains of major rivers and in cyclone-prone coastal regions. [According to Gordon McGranahan, Deborah Balk and Bridget Anderson](#), “Between 1994-2004, about one-third of the 1,562 flood disasters, and half of the 120,000 people killed, and 98 percent of the 2 million people affected by flood disasters were in Asia.” As of 2000, there were approximately 31 million people living in LECZs in Asia and Africa. By 2060, that number [is expected to rise to around 220 million](#) (.pdf).

One particularly troubling aspect of this situation is that many cities vulnerable to climate change impacts are significant drivers of overall national economic well-being. The costs of climate change in these areas could be exponentially higher given the importance of these metropolitan hubs as the engines of national economic growth. For example, preliminary estimates suggest that Superstorm Sandy [caused roughly \\$20 billion in property damage](#) and an additional \$10 billion to \$30 billion in lost business in the New York-Newark region.

Some of the heavily populated urban areas that are port cities or located in low elevation coastal areas are critical to their country’s overall GDP and house a significant share of the national population. Shanghai, which accounts for almost 14 percent of China’s national GDP, has already seen sea levels risen 11.5 centimeters over the past 30 years, and they are expected to rise another 10-15 centimeters in the next 30 years. Ho Chi Minh City, on the Saigon River, just north of the Mekong River, is Vietnam’s largest city and accounts for more than one-fifth of the country’s economy. The Asian Development Bank has warned that if adequate measures are not taken to address flooding issues, more than 70 percent of the city could be affected by “extreme flooding” by 2050.

THE COSTS OF INACTION

Climate adaptation and mitigation policies are quite expensive, on the order of billions of dollars. Infrastructure adaptation measures may require changes to operations and maintenance, materials, design, engineering and location of infrastructure. In the United States, for example, [a recent study estimates](#) that addressing climate change impacts and implementing adaptation measures to address waste water and drinking water systems could cost between \$448 billion and \$944 billion. Consolidated Edison, the utility that supplies electricity to most of New York City, estimates that adaptations like installing submersible switches and moving high-voltage transformers above ground level would cost at least \$250 million for the city alone.

Other adaptation measures may focus on land use rather than on expensive design and engineering solutions. However, these options, particularly if they require relocating communities, may be politically costly and hence difficult to implement. The projected financial and political costs as well as the uncertainty related to the timing, intensity and frequency of climate change events have led planners and decision-makers in both the developing and developed world to postpone significant adaptation measures.

Prior to Superstorm Sandy, [critics had noted](#) that New York City, was “moving too slowly to address the potential flooding that could paralyze transportation, cripple the low-lying financial district and temporarily drive hundreds of thousands of people from their homes.” Sadly, Sandy revealed how completely unprepared New York City and neighboring cities were to address what are likely to be more-frequent extreme weather-related events. The devastation caused by Sandy may encourage local governments to adopt legislation requiring planners to assess climate change risks in new development and construction projects.

In Jakarta, which lies less than 10 meters above the Java Sea and is home to 9 million people,

critics have also noted the slow pace at which city officials are undertaking measures to address flooding, principally by dredging 10 of Jakarta's 13 rivers and several reservoirs in order to restore their full holding capacity. The lack of progress is surprising given that Jakarta knows all too well the financial and human cost of flooding, having suffered devastating floods in 2002 and 2007. The latter, which affected three-fifths of the nation's capital, killed 52 people, displaced almost half a million and caused nearly \$1 billion in damage.

While the costs of adapting to changes in the natural ecosystem are staggering, so, too, are the costs of inaction in terms of the loss of human lives and destruction of physical and financial assets. Already we have an indication of the devastating economic impact of climate change and flooding in some of these large and vulnerable port cities. In Thailand last year, flooding around Bangkok caused \$46 billion in damage and resulted in a 9 percent year on year contraction in quarterly GDP, the worst since the Asian Financial Crisis of 1997-1998.

At the time this article went to press, Superstorm Sandy had taken the lives of over 100 East Coast residents and caused an estimated \$50 billion in total property damage and lost business. Some power systems and transportation networks are expected to be offline for days if not weeks.

In Latin America and the Caribbean, climate change damage could cost countries \$100 billion per year by 2050, due to damaged infrastructure and agricultural export losses, if temperatures were to rise by 2 C. Researchers at MIT and Yale estimated that annual damage from hurricanes and superstorms along the U.S. coast is expected to increase from \$26 billion annually to more than \$109 billion annually by 2100, owing largely to continued urbanization in coastal urban centers and climate change. Another report estimated that in the U.S., more than 4 million residential structures are at risk from storm surge flooding in a worst-case scenario storm, with a total estimated price tag of \$710 billion.

The Inter-American Development Bank estimates that the cost of helping Latin American countries adapt to the effects of climate change would be minor relative to the cost of potential damage: Around 0.2 percent of GDP for the entire region would be needed to support climate adaptation, approximately 10 percent of the forecasted costs of physical impact and damage.

POLICY RECOMMENDATIONS

Some governments around the world are already taking proactive steps. Many countries in Latin America have started to develop adaptation plans. The Netherlands has a 100-year strategy to address climate change adaptation and plans to spend \$2.5 billion per year in that time. In Italy, the city of Venice has committed to investing \$6.4 billion on tidal gates to hold back the rising waters.

However, those efforts need to be generalized and expanded. Government officials, planners and decision-makers in cities, particularly those located on the coast or in LECZs where increasing populations will challenge resource availability, must begin to plan and implement adaptation policies to address the impacts of climate change. Given the pressures on cities as urbanization increases, adaptation policies must be viewed not simply as environmental issues but as development and disaster-preparedness issues. The burden of implementing policies will fall onto local governments, which often lack human and financial capital. National governments must therefore commit to directing greater resources to local governments to effectively address these issues. And local governments must work together on a regional level, since flooding and natural disasters do not respect municipal boundaries. In light of the expected impacts of climate change, local governments should focus on the following recommendations.

Build Resilient Infrastructure. Rapid urbanization, climate change and natural disasters will continue to challenge infrastructure systems, especially in the developing world. Whether improving current infrastructure systems or planning new projects, governments must build resiliency and redundancy into their urban infrastructure systems with an aim to make them hazard-resistant. According to the U.S. Department of Homeland Security, "Infrastructure resilience is the abil-

ity to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends upon its ability to anticipate, absorb, adapt to and/or rapidly recover from a potentially disruptive event.” By injecting redundancy and resiliency into the system now, planners are actually building future adaptive and response capacity.

As documented in the United Nations Office for Disaster Risk Reduction’s recently published “[Making Cities Resilient Report](#),” (.pdf) many cities are already undertaking public infrastructure projects and new construction with an eye to building resiliency into the system. For example, in New York City, city planners and developers are incorporating flood-protection measures for new projects. In some waterfront neighborhoods, they are installing porous riprap rock and sidewalk swaled drainage courses. The city has indicated that it will spend more than \$2 billion on such adaptive measures over the next 18 years. In downtown Boston, a new rehabilitation hospital is being built to sit more than 12 feet higher than sea level. Patient rooms are on upper floors, and the mechanical equipment, as well as the heating and cooling systems, are going to be placed on the top floor, as opposed to in the basement, the traditional location.

Government officials and planners in the developing world are also building resiliency into their infrastructure. In Kuala Lumpur, Malaysia, to address chronic flooding caused by heavy rain, planners built a 6-mile, \$514 million tunnel with three levels, the lowest for drainage and the upper two for road traffic. The drain allows large volumes of flood water to be diverted from the city’s financial district to a storage reservoir, holding pond and bypass tunnel. Over the period 2007-2010, the project, known as the Stormwater Management and Road Tunnel (SMART), [has been used 114 times to divert excess water](#), successfully averting at least seven flash floods and saving hundreds of millions of dollars in potential economic losses.

In India, the city of Pune, which has also been affected by severe periodic flooding for decades, has put programs in place to build capacity, assess hazards and vulnerabilities, and implement a citywide action plan that contains structural and planning measures for restoring natural drainage, widening streams, extending bridges and applying natural soil infiltration methodologies. Planners have also used watershed conservation techniques, enacted tax incentives to change behavior and made improvements in flood monitoring and warning systems.

Revise Land Use Policies and Zoning Laws. The concentration of trade and industry in coastal areas, which facilitates access to international transport networks, continues to attract people to port cities and low-elevation coastal zones in many countries. For example, the top five coastal provinces of China [experienced a net in-migration of about 37 million people](#) between 1995 and 2005. In Dakar, Senegal, located on the Atlantic Coast, 40 percent of those who moved to the capital city between 1998 and 2008 moved to areas of high flood risk. New York City, one of the world’s most dynamic financial and commercial gateways, is expected to have 1 million new residents in the next 20 years.

Cities can enhance their adaptive capacity to climate change through their urban land management, which includes legal and political systems, planning departments, zoning regulations, infrastructure services, land markets and fiscal policies (including tax incentives). As the Asian Development Bank, the United Nations and others have suggested, governments should craft land use policies as well as zoning and land reform laws that take disaster risk reduction into account by limiting or relocating urban and industrial/commercial expansion, and by encouraging settlement in less vulnerable areas. While relatively small-scale adjustments to land use and zoning regulations may seem like an easier, cheaper pathway to climate adaptation than building and modifying infrastructure systems, this option is harder than might be expected in many parts of the world due to the lack of capacity to analyze and control development and the weak institutional mechanisms to enforce regulations. So support from the developed economies will be necessary.

But even cities in wealthy nations are avoiding policies that would change land use and zoning policies as well as migration patterns. For example, New York City is located in a LECZ. Nearly

200,000 New Yorkers live less than four feet above high tide. If sea levels were to rise four feet by 2080, more than one-third of the city's streets [could lie in a flood risk zone](#), compared with just 11 percent now. Not surprisingly, the “risks . . . could be reduced if people and enterprises [could be encouraged to move away from the coast](#).” However, despite the risks, the city to date has failed to implement new laws or regulations [that would restrict development along the city's shoreline](#), “especially because the city anticipates another million residents over the next two decades.”

Given continued urbanization, the absence of new land use and zoning policies to divert settlements of new urban dwellers might actually magnify the costs of human loss and suffering when disaster strikes. This is because urban migrants, particularly those leaving the countryside, are often forced to reside in shantytowns located in flood plains or other hazard-prone areas. Shantytowns or urban slums are constructed without the benefit of urban planning, without the full range of urban services, such as transportation, and without regulations regarding land use and water management. All of these factors make shantytown dwellers more vulnerable to severe weather disasters and less able to evacuate quickly.

The hard reality for local officials and planners is that effective policies to significantly redirect the flow of people away from the coastal or LECZ areas must include specific viable economic alternatives and incentives. This increases both the economic and political cost of these policy options. Furthermore, [as recommended by the United Nations Office of Disaster Risk Reduction \(.pdf\)](#), efforts to minimize the impacts of natural and other disasters must include enforcement of and compliance with building codes and regulations; incorporation of risk assessments in city and land use planning; measures to improve informal settlements; and the development of local human and technical capacity in the area of land use and urban planning.

Improve Regional Planning Efforts. Thus far, our focus has been on vulnerable cities. Unfortunately, natural disasters, like flooding and hurricanes, do not acknowledge municipal boundaries. And often, the magnitude of natural disasters overwhelms local resources, forcing residents to evacuate to and rely on the services and infrastructure systems of other nearby cities. For example, in the aftermath of Hurricane Katrina, residents of Louisiana were required to seek emergency shelter and long-term assistance in Houston and San Antonio, Texas. Thus, local officials and planners must work with their counterparts within their specific geographic region to improve the resiliency of urban infrastructure, implement effective land use and zoning policies, improve management of water-health system interdependencies and improve disaster response.

Strengthening regional planning efforts is not without challenges. As we know, local officials, particularly those in developing countries, lack capacity and awareness about building resiliency into infrastructure and effective urban planning policies. Unfortunately, there is even less awareness and capacity regarding the design and implementation of regional planning efforts. Even when there is capacity, obstacles may remain, such as when policies to reduce risk in one area require action by other jurisdictions.

Fortunately, some cities are trying to improve regional planning. For example, [a pilot project called WET](#), for Weather-Extreme Trends, in Minnesota is encouraging city planners, public works officials and hydrologists to assess vulnerabilities and devise new solutions jointly among the 27 cities and two townships that depend on the Minnehaha Creek Watershed District. The Philippines' Quezon City is part of the Alliance of Seven Cities/Municipalities, a group that works cooperatively to reduce the impact of flooding. In Indonesia, the Jakarta Regional Government has helped form a coordinating board for the region's rivers and watercourses.

CONCLUSION

Cities will continue to be dynamic, vibrant and networked, and they will continue to attract people, ideas and innovation to drive growth. But they will also be the battlegrounds where the stresses of population growth and competition for scarce resources among disaffected demographic groups

play out. Whether these dynamic metropolitan centers will be able to manage -- and relieve -- these pressures to weather the brewing storm will depend on the extent to which local officials, planners and decision-makers pursue smart policies: smart growth policies that inject resiliency into urban infrastructure systems, and smart land use and planning policies that effectively divert and redirect people in ways that avoid disadvantaging certain societal groups.

Unfortunately, most cities currently lack the technical, human and financial capacity to pursue this range of smart policies, while national governments continue to underfund their local counterparts. Helping cities prepare for and adapt to climate change risks will require a dramatic departure from this business as usual attitude. Without the concerted efforts of national governments, international agencies and international financial institutions, there will be little hope for cities to remain above water. □

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Photo: Damage from Hurricane Sandy in Red Hook, Brooklyn, Oct. 29, 2012 (photo by Flickr user Sunset Parkerpix, licensed under the Creative Commons Attribution Share-Alike 2.0 Generic license).

GLOBAL FOOD SECURITY IN A VOLATILE WORLD

BY TIMOTHY A. WISE



This summer's drought in the U.S. has triggered the third major food price spike in the past five years, leaving the world's poor to wonder if global leaders learned anything from the first two. To judge by their actions so far, they haven't.

The [food crisis of the past five years](#) has indeed energized food and agricultural policymakers, bringing long-overdue attention to chronic problems, from underinvestment in smallholder agriculture to overreliance on high-input industrial production. It has seen welcome new institutions brought into being and existing ones revitalized, stimulating new investment in agricultural research and serving as a reminder that governments have an important role to play in managing agricultural development at the national level.

But the three price spikes have yet to prompt global leaders to address the key drivers of the food crisis: biofuels expansion, food commodity speculation, the lack of adequate public grain reserves, insufficient investment in sustainable smallholder agriculture and the impact of climate change.

A WAKE-UP CALL ON FOOD SECURITY

The advent of the crisis in 2007 awakened the global community in the way only food riots seem to do, causing a flurry of activity at the international level. In April 2008, U.N. Secretary-General Ban Ki-moon named a High-Level Task Force (HLTF) on the Global Food Security Crisis, which brought together the heads of U.N. agencies, the World Bank, the International Monetary Fund, the World Trade Organization and the Organization for Economic Cooperation and Development. The task force developed a two-track approach based on the U.N. Food and Agriculture Organization's existing Anti-Hunger Program, which focused on assisting vulnerable populations and building "resilience." The FAO created its Initiative on Soaring Food Prices to stimulate food production and assist small-scale producers. The FAO also took the lead in overseeing the rapid re-formation of the Committee on World Food Security (CFS) to serve as the multistakeholder coordinating body for the international response to the food price crisis.

Donor countries stepped up as well. In 2009, the G-8 countries committed \$22 billion over three years for agricultural investment in developing countries, leading to the creation of the Global Agriculture and Food Security Program (GAFSP) to serve as a central fund for longer-term agricultural investment in these countries. In 2010, the World Bank developed a three-year Agricultural Action Plan, with a commitment to raise funding levels from \$4.1 billion per year to between \$6.2 billion and \$8.3 billion per year. G-20 leaders subsequently made food security one of their priority areas, adopting an agenda that came to include, under France's leadership in 2010, addressing commodity price volatility and speculation, slowing so-called land grabs by promoting "responsible agricultural investment," and reviewing nutrition and humanitarian aid.

Meanwhile, governments of developing countries implemented their own new approaches to food security and agricultural development. Some were defensive, in reaction to the export restrictions that a number of food-exporting countries put in place to ensure domestic supplies, which had

exacerbated the price spikes. Others signaled a more fundamental shift, as a number of poor net-food-importing countries adopted new policies to reduce their dependence on food imports. For instance, African governments reaffirmed earlier commitments to increase agricultural development budgets to at least 10 percent of government expenditures, while new South-South cooperation, such as Brazil's support for agricultural research in Africa, also took shape.

As a result of these efforts, major policy issues that had been kept on the margins of the global debate over food security were moved to front and center: public agricultural investment, small-scale producers and women in agriculture, commodity speculation and price volatility, food reserves, sustainable versus high-input agriculture, climate change and its impact on food production, and biofuels expansion and its impact on food prices.

To date, however, there has been an unwillingness on the part of major agricultural powers to address the need for reregulation of commodities markets, nor have they been willing to discipline the behavior of agricultural exporters and the agribusinesses that control these markets. Instead, we have seen a structural shift toward increased integration of agricultural, energy and financial markets. Industrial biofuels expansion, supported by hefty subsidies and incentives, now ties food prices more closely to high and volatile oil prices. Financial speculation in still-deregulated commodity futures markets adds further volatility. Reforms have yet to address these realities. In fact, a U.S. court just threw out one of the most important reforms to derivatives markets under the Dodd-Frank Act.

The world needs policies that discourage biofuels expansion, regulate financial speculation, limit irresponsible land investments, encourage the use of buffer stocks, move agricultural practices away from fossil fuel dependence and toward agro-ecological practices, and reform global agricultural trade rules to support rather than undermine food security objectives. Despite all the flurry of activity since 2008, there has been very little effort to achieve these objectives. It should surprise no one, then, that we are inflicting another price spike on the world's poor.

REDUCING THE IMPACT OF ENERGY CROPS ON FOOD PRICES

One of the most disappointing policy failures in response to the global food price crisis has been the refusal of the United States and the European Union to reconsider their support for the expansion of energy crop production and the diversion of agricultural land from food crops to biofuel feedstock. Besides the three recent price spikes, we have seen a general rise in agricultural commodity prices in recent years, and most analysts presume these will persist for at least the next decade. There is near-consensus among researchers that the expansion of corn ethanol and biodiesel are important contributors to these food price increases, raising demand for crops, land and water at a time when inventories are tight. Most commentators also agree that the net carbon benefits of many biofuels are at best limited, especially when it comes to corn-derived ethanol.

Nevertheless, the United States and the European Union have maintained policies that protect, subsidize or mandate the use of biofuels, instead of reversing or eliminating them. While the U.S. did end tariff protections for corn ethanol and associated subsidies in December 2011, it still mandates a minimum use that creates an inflated market for ethanol.

Though rising oil prices make it less likely that the elimination of these policy supports will stop biofuels expansion completely, virtually every international study has called for the U.S. and EU to reform their biofuels policies. [My own study](#) estimated that U.S. corn ethanol alone raised corn prices more than 20 percent in recent years and added more than \$9 billion to the import bills for developing-country corn importers. Because the U.S. is the price-setter in international markets, corn ethanol adds to already high food prices for poor consumers, even in net corn-exporting countries.

While the EU is set to announce limited reductions in its mandates for crop-based biofuels, the

U.S. seems nowhere near ready to take even such tepid actions. And though the U.S. Environmental Protection Agency is now considering a waiver of the U.S. ethanol mandate, which is bankrupting U.S. dairy farmers and other livestock producers, little action is expected.

REDUCING PRICE VOLATILITY

Food price volatility is recognized as a problem by nearly all international institutions, yet little has been done to reregulate commodity markets after the disastrous financial crisis. Two particularly necessary reforms would be the development of publicly held food reserves and the tight regulation of financial speculation on commodities markets.

Publicly held food reserves have been implemented at the national level all over the world, and they have often proved crucial in reducing food-importing countries' vulnerability to international price spikes. Governments that have used controlled releases of reserves have been able to ease price pressures and cool speculation, and though prices still rose, they did so at a more acceptable pace.

But the international community, led by the United States, has repeatedly rejected the use of reserves as a wasteful and expensive market distortion, despite widespread calls for a closer examination of the historical record of publicly held reserves, and despite stocks-to-use ratios for major grains that remain at dangerous levels. Corn stocks recently dipped under 14 percent of use, well below the threshold considered safe.

There has been similar inaction when it comes to curbing financial speculation in commodities markets. While economists continue to argue about the extent to which such speculation accounts for price volatility, in the United States, the bailed-out financial industry has mounted a well-funded lobbying effort to undermine the implementation of Dodd-Frank measures designed to curb it. A hostile Republican majority in the U.S. House of Representatives has prevented regulatory bodies from functioning effectively, while industry groups challenge the new laws in increasingly conservative courts. Reforms in the EU have moved only slightly further and faster.

Meanwhile, the conditions that produced the price bubbles in 2007-2008 remain, as excess liquidity sloshes around Wall Street in the absence of strong demand and productive investment opportunities. No important new regulations have yet been enacted to prevent that financial capital from flooding food commodity markets in search of a quick buck.

CLIMATE CHANGE AND AGRICULTURE

As agriculture [assumes greater importance within global climate negotiations](#), climate change is also receiving greater attention among institutions, governments and donors concerned with agricultural development. It is remarkable, in fact, how much attention the issue gets in institutional documents and statements on food security and agricultural development. It would appear to be a near-consensus that agricultural development must limit its climate impact, that climate change is already affecting agro-ecosystems and that farmers need support adapting to those changes. However, decisive action to address any of these challenges has been lacking.

Three issues stand out. First, though it is encouraging that so much emphasis is being placed on the links between climate change and agriculture, there is inadequate attention to the underlying causes of the problem: the industrial model of high-input, fossil fuel-based agricultural production. So far, the global discourse on the issue does not even remotely resemble the kind of paradigm shift called for by the multiagency International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) and others toward more-resilient, low-input systems. Second, the general bias toward private sector incentives rather than direct public sector investment has drawn widespread criticism from developing countries, which argue that such measures allow rich countries to evade their responsibilities for financing climate mitigation and

adaptation, and that they will be ineffective in any case. Third, the reliance on carbon markets to address climate change is controversial, and nowhere more so than in agriculture.

PROMOTING A TRANSITION TO AGRO-ECOLOGY

Agricultural development must operate within increasingly severe natural resource constraints. Yet long-term agricultural development strategies, [such as the well-funded AGRA program](#), continue to emphasize new “green revolution” approaches, with support from Monsanto and other transnational firms that benefit from such programs. Responses to the recent crisis have focused primarily on productivity increases achieved in the short run through the increased application of chemical fertilizers and in the medium term through more widespread use of improved seeds. However, these approaches deepen farmers’ dependence on external inputs that have too often proved unaffordable. Indeed, during the food price crisis of 2007-2008, fertilizer prices increased more than those of most other commodities, and fossil fuel-based chemical and fertilizer prices are projected to continue increasing. They are also a significant source of greenhouse gas emissions.

There are notable and encouraging alternative approaches, well-documented by the IAASTD [in a 2009 report](#) (.pdf). A project funded by the new GAFSP in Rwanda, for instance, makes good use of local resources and knowledge to raise food production for farmers and local markets, while improving resource management. Impressive gains have also been documented in the widely lauded strategy of “sustainable intensification” using a varied array of methods tailored to local conditions.

The director of the IAASTD Secretariat, Robert Watson, summarized the main lesson from the report when he said, “Business as usual is not an option.” Unfortunately, the evidence suggests that despite encouraging exceptions, the international community has not accepted the need to aggressively promote a transition to environmentally sustainable, low-input agriculture.

HALTING ‘LAND GRABS’

There is a clear consensus that foreign land acquisitions, referred to by critics as “land grabs,” [represent a major threat to food security](#). These acquisitions are driven largely by sovereign wealth funds in some richer developing countries that wish to ensure long-term access to food by leasing or buying arable land abroad; by biofuel producers looking to produce feedstock; and by international investors speculating on land and the water beneath it. The problem is notoriously hard to document. [A recent Oxfam report](#) (.pdf) uses data from the collaborative Land Matrix Partnership to estimate that as many as 227 million hectares of land has been sold or leased since 2001, mostly to international investors, with the bulk of these land acquisitions occurring over the past two years. The Donor Platform estimated foreign land acquisitions were worth \$91 billion in 2008 alone, the year the phenomenon first exploded, a scale that dwarfs official overseas development assistance for agriculture.

Oxfam has called this trend “development in reverse.” While developing country agriculture is starved of capital, the leases and sales tie up food-producing resources far into the future, taking land that would have been available for food production out of the local communities’ control. The agriculture practiced on the land is generally capital-intensive, high-input monoculture, creating few jobs and undermining efforts to move food systems to a more environmentally sustainable path. Where land tenure is collective, poorly defined or poorly enforced, the contracts dispossess people who have no alternative means of making a living.

The international response has been woefully inadequate to the urgency of this trend. The World Bank’s proposed Principles for Responsible Agricultural Investment have been widely criticized as too weak. More promising, and now given priority in the international system, are the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests, which were passed by the CFS earlier this year. Such an approach is closely in line with the “right to food”

approach advocated by the U.N. special rapporteur on the right to food, Olivier De Schutter.

The Voluntary Guidelines are an important and positive initiative. But in practice, it will fall to investing-country governments to insist on high standards and stronger policies for such investments and on receiving-country governments to take actions to protect their land, national resources and rural populations. Some have already imposed moratoria on foreign land sales to allow governments to establish better norms and oversight. The African Union has also proposed its own guidelines to slow the land sales.

Nevertheless, as agricultural, energy and financial markets become more integrated on a global scale, the power of transnational firms within the global food system grows. This poses significant threats to global food security, despite the advanced production and communication systems these firms bring.

As De Schutter has pointed out, current systems of global governance are poorly equipped to address the concentration of market power as an obstacle to achieving the right to food. In fact, the expanded interest in public-private partnerships and the continued commitment to the expansion of industrial agriculture lead toward greater corporate concentration in developing country agriculture.

CONCLUSIONS

The policies needed to address the causes of the recent food price crisis are known and urgently necessary, yet they continue to be neglected by the world's most powerful economies. Instead, reform efforts have focused too heavily on increasing production, which, though necessary, is a short-sighted supply-side approach with problematic consequences. It encourages the expansion of industrial agriculture rather than more sustainable and affordable methods. It accepts current demand trends -- biofuels, meat-based diets and postproduction food waste, among others -- as immutable, rather than challenging the policies that encourage them. Nor does it challenge the inequities in the system we use to distribute the food we do produce, which is more than enough to feed everyone.

Fortunately, many developing countries are not waiting for international action to more aggressively address the problems that can be dealt with at a national or regional level. Many recently launched projects in Africa, for example, are emphasizing the kinds of changes that are needed. The same is true of efforts to promote regional integration, which are too often met with resistance by international donors. In fact, donors have remained more interested in globalized markets than local markets and are overly willing to rely on humanitarian aid and social safety nets to address poverty, rather than supporting political and economic change processes that would eradicate poverty.

In this context, the African Union's response to the G-20's June 2011 Action Plan on Food Price Volatility and Agriculture is instructive:

African countries are not looking forward to depending continuously on external supplies that will remain uncertain in prices and quantities. Actually, our ultimate and unquestionable ambition is to develop our agriculture and markets. . . . In our opinion, we must rely on our own production to meet our food needs. In fact, importation is not Africa's goal.

The recent food price crisis has exposed the fragility of the global food system. Though there has been much progress in international policies and practices on food and agricultural development, the underlying causes of the crisis have yet to be addressed. Governments of developing countries will be central to bringing about such changes, but they will need the policy space to pursue their own solutions, and they will need the support of the international community to demand deeper reform in developed country policies. In particular, they will need key reforms in wealthy countries

to reduce the frequency and severity of price spikes and slow generalized price increases.

Perhaps the third price spike will be the charm that can spur needed action. □

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Photo: Rice farmers in Mali (USAID photo).

BEYOND IDEOLOGY: REBALANCING EDUCATION AID

BY STEPHEN P. HEYNEMAN



Education has been found to have two categories of influences. In terms of monetary influences, the higher one's level of education, the less likely one is to be unemployed or in poverty, and the more likely one is to be advantaged in terms of income and income security. Moreover, what is true of individuals is also true of communities and nations. In terms of nonmonetary influences, education has been found to affect personal health and nutrition practices, child rearing and participation in voluntary activities. It also influences the efficiency of public communications and the degree to which adults seek new knowledge and skills over a lifetime.

How communities learn, therefore, is a principal ingredient of their development. In modern economies, schools and universities are the primary means by which knowledge is passed to new generations and how new knowledge is systematically incorporated.

Education first began to be included as a component of foreign assistance in the early 1960s. Initially, education aid was deployed to support workforce development plans, so programs emphasized vocational training, engineering education and immediately applicable work skills. Infrastructure investments such as highways, railroads, dams, bridges and agricultural and industrial machinery were still the most important priorities of development aid, but they needed skilled maintenance. Education aid was a way to make sure the necessary skills were locally available.

By the 1980s, education aid had grown to include primary and secondary education, humanities and social sciences, professional education and education research. The shift was triggered by the World Bank's publication of an education policy paper in 1980 that diversified the analytic models for assessing education outcomes beyond forecasting manpower needs to include calculating the economic rates of return on education investments. A common finding was that primary education had the highest economic returns, leading to calls for public financing to shift from higher to primary education, and for higher education to be financed by raising private costs through tuition.

That was followed in the 1990s by an approach known as "Education for All," with strong emphasis placed by donors on primary education. This approach has since become the dominant paradigm of education aid, with significant and often negative consequences for the sector as a whole.

RECENT TRENDS

Though aid to education has fluctuated over the years -- totaling \$3.3 billion in 1965, but only \$1.7 billion in 1995 -- it has grown steadily over the past two decades and today accounts for \$8.4 billion worldwide, or about 8 percent of total official development assistance. The major multilateral aid providers include the World Bank (\$1.7 billion), UNICEF (\$709 million), the Asian Development Bank (\$647 million) and the Inter-American Development Bank (\$465 million).

In terms of its size within organizational budgets, education aid varies significantly, from 1 percent of the European Union's development budget, to 4 percent at the World Bank and the Inter-

American Bank, and 5 percent at the Asian Development Bank. Surprisingly, perhaps, the African Development Bank allocates the lowest portion to education, at just 0.9 percent.

Among national aid organizations, major donors include the U.S. Agency for International Development (\$1.3 billion), the U.K.'s Department for International Development (\$960 million) and the Japan International Cooperation Agency (\$185 million). However, the portion of development aid dedicated to education by Western aid agencies is relatively small, at just 3 percent for both USAID and Norway's development agency, NORAD, and 4 percent for Sweden's SIDA. By contrast, education is more of an aid priority for many bilateral agencies in Asia, with JICA devoting 14 percent of its aid budget to education, Australia's AusAid 17 percent and South Korea's KOICA 25 percent.

Though basic education continues to dominate education aid, funding is also directed toward a wide variety of other priorities. These include primary and secondary education, teacher training, adult education and literacy, science education, vocational skills and higher education. In many cases, private foundations and nongovernmental organizations focus on particular areas. For instance, the Ford and Carnegie Foundations have concentrated on higher education, while the Open Society Institute (sometime called the Soros Foundation) has focused on primary and secondary education, particularly civics education. Many organizations fund particular areas of education that correspond to their institutional mission: The Food and Agriculture Organization funds rural education, for instance, and the World Health Organization funds education related to health.

National aid organizations tend to emphasize aspects of education aid that are particularly popular or strategic to domestic interests. These may include particular areas, such as technical schools or folk development colleges, as well as particular reforms and innovations, such as bilingual education, televised education and diversified education.

THE EFFECTIVENESS OF EDUCATION AID

Evaluation processes may exist to assess particular aid programs, and specific research projects have generated important, but incomplete, information on their experiments. However, for a variety of reasons, there is no scientific way to assess the effectiveness of education aid in general. Often assistance is fungible: External aid may supplant domestic resources, thus generating situations in which aid to education may increase but investment in education may be flat or even decrease. Further complicating efforts to assess the effectiveness of education aid is the fact that in many cases education outcomes are not directly related to aid levels. For example, rates of primary school completion climbed to 100 percent of the age cohort in South Korea, Malaysia and Thailand, despite the fact that none of these countries received education assistance. Similarly, completion rates have climbed to almost 100 percent in India and Brazil, countries with low levels of education assistance.

A more reliable indicator of outcomes seems to be the stability of an aid-receiving country's institutions. For example, in Malawi, a country that receives high levels of aid and has stable institutions, primary school enrollment rates have climbed from 21 percent in 1975 to 66 percent in 2010. However, in Liberia, a country with weak institutions, completion rates have fallen from 69 percent in 1976 to 62 percent today, in spite of high aid levels. Secondary school enrollment suggests a similar pattern. Significant increases are experienced by countries with no aid, with low aid and with high aid if they have strong institutions. But secondary school enrollment rates remain flat or increase at a lower rate in high-aid countries with weak institutions. This lack of a clear link between aid and education outcomes has raised questions as to its effectiveness.

PROBLEMS WITH EDUCATION AID

While it is difficult to assess the overall effectiveness of education aid, it is far easier to identify the problems that undermine efforts to successfully implement the programs it funds.

Institutional imbalance and overlap. There is both imbalance and duplication in the mandates of the many institutions involved in education aid. Some have mandates covering only the wealthier parts of the world, while others have regional mandates in Africa, Asia and Latin America, creating funding imbalances that do not necessarily respond to areas of need. Still other organizations, such as UNESCO, have worldwide mandates but are burdened by weak governance and a disconnect between the few member states that pay for the organization and the many others that vote on a one-vote-per-country basis on how the budget is allocated. This disconnect between those who pay and those who benefit makes it extremely difficult to set priorities or maintain professional standards.

Meanwhile, lack of coordination between institutions at various levels of aid distribution leads to duplication and at times even conflict, of aid efforts. In one instance, the Asian Development Bank and the World Bank both launched education textbook projects in the same country, with the result being that one part of the country used ADB-sponsored textbooks, while the other used World Bank-sponsored textbooks. Project preparation, appraisal, staff training, technical assistance and evaluation were conducted separately, in spite of the fact that the project implementation authorities were situated only minutes apart.

Information Capacity. Education systems cannot perform professionally without reliable information, but there is a widening gap in the ability of countries to provide this information, with the result being that in many instances education data are unreliable. There are no accurate counts of school attendance by student age, no accurate information on unit expenditures, little evidence of trends in academic achievement and wide variation in their quality from one part of the world to another. As a result, it is difficult to map education progress in terms of enrollment, completion and efficiency.

Weakened Domestic Institutions. In some cases, instead of strengthening domestic institutions, aid can actually weaken them. Policy decisions can be left to external authorities as a way of avoiding difficult decisions and controversy, since it is politically safer to blame external authorities if things go wrong. In the 1960s, it was common to suggest that local authorities did not have the technical experience to make complex policy decisions. Today, however, such claims of local incapacity are not as viable. Local experts are perfectly capable of making policy decisions, yet their development is often handicapped by the tendency to rely on international authorities.

Funding Shortfalls and Aid Volatility. UNESCO's annual education budget has now declined to approximately \$200 million. Though the World Bank allocates 20 times this amount to education programs each year, the portion of loans it allocates to education is only 4 percent, a level no higher than it was 20 years ago. In addition to being insufficient, education aid varies in parallel fashion with domestic priorities and military and commercial interests. There are also many examples of education aid being diverted, as well as instances of graft and corruption pervading the education sector.

Dependency. In many countries, education aid has created dependency. In 2008, overall aid was greater than 10 percent of GDP in 21 countries in sub-Saharan Africa and exceeded domestic public spending in one out of three countries. In terms of education assistance, aid constituted 70 percent of the domestic education budget in Gambia, 66 percent in Mozambique, 60 percent in Kenya, 55 percent in Zambia and 51 percent in Rwanda. This level of dependency creates problems of many kinds, the most important of which is the impression that national sovereignty has been ceded to external authorities.

Inconsistency. China received \$697 million in educational aid in 2007, while India received \$423 million. Yet these countries have sufficient resources to finance space programs, nuclear arsenals and militaries of significant size. The question might be raised as to why these countries cannot finance their educational requirements by reordering their domestic priorities.

Interdonor Coordination. Another counterproductive influence has been donor coordination, by which donors combine programs and direct them to a coordinated purpose. Though duplication is a problem in its own right, excessive donor coordination can reduce choice and competition, while leaving an aid-receiving nation more vulnerable to mistakes in direction due to short-term fads in development priorities. Single-issue aid prioritization also results in little assistance being directed to regions where that issue is not the problem. With regard to education aid, in regions where basic education is not the most important priority, such as Eastern and Central Europe, Latin America and the Middle East, foreign aid to education has all but disappeared.

THE IMPACT OF IDEOLOGY ON EDUCATION AID

The question of interdonor coordination leads to one of the biggest problems facing education aid today, namely the ideological emphasis on basic education as the single highest priority for education aid programs worldwide. It would perhaps help illustrate the nature of the problem by considering other aid sectors.

Foreign assistance to the health sector could not be successful if the only priority considered legitimate was assistance to rural health clinics. Rural clinics function as part of an interdependent system that includes hospitals, research and development facilities, an efficient pharmaceutical industry and networks to care for specific significant diseases, such as HIV/AIDS or malaria. Developing a sustainable system of specialized training and expertise in health economics, epidemiology and health statistics are as necessary as rural health clinics. The same diversity of components that makes for successful foreign assistance to the health sector is also applicable to aid for the environment, agriculture, transport and public administration.

What pertains in these sectors is also true of education. However, since the 1990s, the donor community has become infatuated with basic education and Education-for-All, an international statement of intent signed in 1990 committing signatory countries to ensure that all children are enrolled in school with an adequate quality by a certain date. That date has arrived, and the results have not been up to the original aspirations.

There is certainly a need for basic education, and education aid should not neglect it. But what began as common sense has turned into an ideology in which other education subsectors were treated as heresy. Agencies that express the desire to assist secondary or higher education, research or statistics, medical education or engineering, are now treated as having a disregard not only for the world's poor but also for rational economic policy.

This could have been offset if other agencies had exercised intellectual leadership. But they did not. The resulting lemming-like behavior is one reason why the level of educational assistance as a portion of overall aid has stagnated, and why assistance to higher education, where there are natural fiscal economies of scale, has slipped to only 6 percent of World Bank education lending in 2010. It also explains why organizations with interests in subsectors other than basic education, such as universities and vocational associations, have lost interest in development.

The effect of this ideology has been deeply disruptive to the effort to achieve a consensus regarding the role of education in national economic development. It has, to the contrary, splintered the education aid community into warring camps, with some arguing for basic education as if it were a holy war, while others criticize international agencies such as the World Bank for providing false evidence to justify its view. UNESCO, UNICEF and the major national aid agencies are equally to blame. The international community had already allowed the education statistics function of the United Nations to all but disappear in the 1990s, making it difficult to monitor progress with comparable statistical standards used in other sectors. No agency has been sufficiently courageous to deviate from the accepted Education-for-All message. None has taken the lead in demanding that education policy be more balanced. Some agencies, such as UNESCO and the International Institute of Education Planning, have been so focused on the least developed countries that they have

virtually recused themselves from making a contribution to education development anywhere else.

The absence of professional leadership in education aid has resulted in the development community shifting its energy and attention to other priorities, notably human rights, the environment and good governance. The absence of a balanced development strategy for the education sector has also meant that private organizations, including major associations of universities, technical institutes and private businesses, have taken only a marginal interest in development on the grounds that the development community had little interest -- or in the case of private business, a hostility -- toward what they could offer.

IMPROVING EDUCATION AID

There are a number of ways in which education aid can be improved. They begin with broadening the scope of education aid beyond the current fixation on basic education. Development assistance agencies need to take a leadership position with respect to articulating a diversity of educational priorities. Bilateral agencies should pioneer areas in which their countries excel and have a comparative advantage, such as technology, higher education, vocational education and private education. Agencies with specific educational mandates, such as UNESCO, need to reiterate the interdependence of education subsectors, both public and private, and the importance of all of them. They should also attempt to live up to their real mandate and speak to education problems and challenges worldwide, including in the U.S., Europe and the industrial democracies. By limiting their attention to developing countries, they fail to live up to their true purpose: to speak for education globally.

In high-aid-impact countries such as Gambia, where foreign assistance accounts for 70 percent of the public spending on education, or in conflict countries such as Liberia, foreign aid should be taken as an indicator that the country has already in essence lost its sovereignty over the education sector. In these cases, a trusteeship council should take charge of the education sector until such time as domestic institutions are sufficiently capable and sustainable to be effective. In technically competent, yet poor countries with significant military expenditures, educational assistance should cease.

[The most recent education policy paper \(.pdf\)](#) of the World Bank recommends a worldwide priority on gathering data to monitor and evaluate educational progress and assisting countries to bring this monitoring up to international standards. This seems sensible. The number and mandates of the multilateral development agencies should also be rationalized. Overlapping authority should be reduced, while basic functions on which all depend, such as statistics, evaluation and research, should be coordinated across institutions.

Finally, the next frontier for education assistance will be to assist countries in thinking through the complexities of establishing world-class universities. This is an area of high demand, but which development assistance has yet to explore.

The problems of education aid parallel the problems of development aid generally. Corruption, overdependence on aid, lack of institution-building and faddish ideologies are known in other sectors as well. The key to appreciating the past half-century of education assistance is perhaps to acknowledge that what commenced as a novel idea is today taken to be the norm: Human capital, in the form of educated populations, is a sine qua non of development. Basic education has become largely universal, while gender equity in education access is close to being realized. Furthermore, attention has shifted from providing access to education to providing quality of education. Now policymakers must turn their sights on what the next half-century of education aid should accomplish. □

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Photo: Schoolchildren in Alto Paraíso de Goiás, Brazil (photo by Wikimedia user UNiesert, licensed under the Creative Commons Attribution ShareAlike 3.0 License).

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Cover image: Students in line for lunch in Mali, October 11, 2010 (USDA photo).