Transatlantic Academy

PAPER SERIES

CLIMATE CHANGE, FOREIGN ASSISTANCE, AND DEVELOPMENT

WHAT FUTURE FOR ETHIOPIA?

Christopher Paul
Erika Weinthal
Courtney Harrison

Transatlantic Academy
1744 R Street, NW
Washington, DC 20009
T 1 202 745 3886
F 1 202 265 1662
E Info@transatlanticacademy.org

This publication can be downloaded for free at **www.transatlanticacademy.org**.

Transatlantic Academy Paper Series
The Transatlantic Academy Paper Series presents research on a variety of transatlantic topics by staff, fellows, and partners of the Transatlantic Academy. The views expressed here are those of the author and do not necessarily represent the views of the Transatlantic Academy. Comments from readers are welcome; reply to the mailing address above or by e-mail to Info@transatlanticacademy.org.

About the Transatlantic Academy
The Transatlantic Academy was created in 2007 as a partnership between the German Marshall Fund of the United States (GMF) and the ZEIT-Stiftung Ebelin und Gerd Bucerius. The Robert Bosch Stiftung and the Lynde and Harry Bradley Foundation joined as full partners beginning in 2008, and the Fritz Thyssen Foundation joined as a full partner in 2011. The Compagnia di San Paolo joined in providing additional support in May 2009, as did the Joachim Herz Stiftung and the Volkswagen Stifung in 2011. In addition, the Academy received startup funding from the Transatlantic Program of the Government of the Federal Republic of Germany through funds of the European Recovery Program (ERP) of the Federal Ministry of Economics and Technology.

On the cover: Waiting to collect water in Ethiopia © Christopher Paul

Climate Change, Foreign Assistance, and Development

What Future for Ethiopia?

Transatlantic Academy Paper Series

August 2012

Christopher Paul,[1] Erika Weinthal,[2] and Courtney Harrison[3]

[1] Ph.D. Student, Nicholas School of the Environment, Duke University

[2] Associate Professor of Environmental Policy, Nicholas School of the Environment, Duke University

[3] Water Policy Associate, Nicholas Institute for Environmental Policy Solutions, Duke University

Acknowledgements: The authors thank the Transatlantic Academy for supporting the development of this White Paper. The paper draws on academic literature and media sources, as well as general observations made by the authors while conducting fieldwork in Ethiopia for an ongoing project on water, climate, and health, supported by the Duke University Provost's Problem-Focused Interdisciplinary Research-Scholarship Teams seed grant. Christopher Paul also receives support from the Duke Global Health Institute and the Nicholas School of the Environment.

Executive Summary

Alongside the persistent challenges of poverty and rural subsistence, many low-income countries such as Ethiopia face new problems brought by climate change and surging global economic activities. This paper examines the combined impacts of global climate change and the changing nature of donor assistance in Africa on economic development broadly and food security through the example of Ethiopia. What future does Ethiopia face and which, if any, foreign actors will influence it? How drastic will the effects of a changing climate be and what are the prospects for adaptation? Will swift economic development leave the poorest behind? These are questions this report hopes to confront.

Ethiopia is a useful case for understanding an agrarian economy in transition, faced with the threat of a changing climate and strong economic pressures to open up its economy to the global market. Located in the volatile region of the Horn of Africa, Ethiopia has long been a key recipient of foreign aid, but only in the last two decades has the pace of development and economic growth accelerated significantly. A 10 percent GDP growth rate over the previous decade is partially driven by foreign investments in infrastructure, agriculture, and industry. In addition to aid and investment flows from Europe and the United States, Ethiopia is receiving large amounts of investment from China, India, and Saudi Arabia. The fast pace of change and economic growth involving a wide range of actors and within a context of uncertainty over climate change, food security, and demographics may result in social disruptions and environmental impacts that are difficult to monitor and have serious security and human development implications.

In order to promote more equitable and sustainable development, we argue in this paper that the transatlantic community must engage other donors and investors to promote coordination and transparency. Moreover, donors and investors must follow best practices at the appropriate scales and do so with greater transparency. In particular, international efforts must be aligned with local interests, and, thus, special care should be given to the differential impacts across segments of society, particularly for the rural poor. Development and poverty must be acted upon within the context of climate change. In turn, acting at appropriate scales with transparency reinforces good governance and provides the groundwork for cooperation and coordination among actors.

1 Introduction

Since 2000, the United Nations has outlined a blueprint, the Millennium Development Goals (MDGs), for halving the number of people worldwide living in poverty by 2015 through reducing child mortality, improving maternal health, increasing gender equality, providing universal primary education, combatting major diseases, and enhancing environmental sustainability. Progress has been made towards each of these goals, measured by substantive targets. For example, in 2012, United Nations Secretary General Ban Ki-moon announced that the target toward drinking water access was achieved five years ahead of schedule when more than 2 billion people had gained access to improved drinking water (UNICEF and WHO 2012). Celebrations of such achievements are tempered by the reality there are still approximately 783 million people without access to water, quality and functionality are not accounted for, and such achievements are unequally distributed, across both regions and populations. The world's poorest whom Paul Collier has termed "the bottom billion" are stuck in a "development trap," still cut off from obtaining the necessary social welfare gains to help them out of poverty (Collier 2007). About 70 percent of the global "bottom billion" is in Africa, and many African countries are indeed likely to miss the 2015 MDG goals and targets. So, while the access to drinking water target was met five years ahead of schedule, supply coverage in sub-Saharan Africa remains at only 61 percent (UNICEF and WHO 2012).

Economic growth and poverty reduction are tightly intertwined. The development process must also address equity and conditions of poverty. A multitude of parties, including international actors, intergovernmental organizations, bilateral development agencies, state and private companies, and, increasingly, private funders, provide both assistance and investment fostering economic growth. It is also critical that domestic governments are viable actors in these processes, and that external actors engage a comprehensive development plan. Foreign investment affects poverty reduction efforts by providing economic growth, but such growth may be far from equitable. Particularly difficult to untangle is the relationship of large international investments by richer countries to enhance their own food security, while significantly altering livelihoods and security in the poorer recipient countries.

Compounding challenges for development and poverty reduction is climate change, which has broad potential effects on the well-being of people and communities, especially amongst vulnerable and poor populations. The results of climate change are already being experienced by the most vulnerable, especially those reliant on small-scale rain-fed agriculture. Such impacts are expected to magnify in the coming decades, potentially resulting in increased migration and other adaptation strategies.

Such contextual factors — capacity of national governments and their interaction with external actors, and the impacts of climate change and communities' ability to adapt — are critical for determining whether development activities will have positive or negative outcomes on the economic well-being of the poor. By identifying and describing these factors, development stakeholders can advance best practices at the correct levels of institutions and need.

Ethiopia is a particularly useful case for understanding an agrarian economy in transition, confronting increased integration into the global economy and world food markets while experiencing increased uncertainty from a changing climate. With an economy growing at 10 percent (World Bank 2012), Ethiopia is expected to continue growing at a fast rate across many sectors, including agriculture (OECD 2011). Despite such

Such contextual factors — capacity of national governments and their interaction with external actors, and the impacts of climate change and communities' ability to adapt — are critical for determining the well-being of the poor.

Ethiopia receives protracted humanitarian assistance but is increasingly becoming a "development darling" of the international donor community.

growth, in 2011, Ethiopia was ranked 174 (out of 187) on the United Nations Development Program Human Development Index (UNDP 2011). A populous East African country with over 93 million people, Ethiopia has experienced population growth rates over the last half decade of 2.2 percent, much higher than the global growth rate of 1.1 percent, but less than the sub-Saharan African average growth rate of 2.5 percent (World Bank 2012). Eighty-two percent of Ethiopia's population is rural and primarily engaged in small-scale rain-fed agriculture. Many Ethiopians live under highly food insecure conditions with inadequate access to food and 41 percent of the population suffers from undernourishment (FAO 2011). Less than 20 percent of the population has access to electricity (World Bank 2012).

Ethiopia's history of famine and food insecurity has made it one of the top recipients of humanitarian assistance worldwide. In 2009, it was the world's third largest recipient of humanitarian assistance after Sudan and the Palestinian territories, receiving $692 million (Global Humanitarian Assistance Report 2011). Ethiopia receives protracted humanitarian assistance but is increasingly becoming a "development darling" of the international donor community. In 2009, Ethiopia was the second largest recipient of official development assistance (ODA) after Afghanistan with $3.8 billion whereas in 2000 it was the tenth largest recipient with only $1 billion (OECD DAC cited in Global Humanitarian Assistance Report 2011, p. 71).

While discussions of aid impacts have traditionally focused on ODA and humanitarian aid, a more comprehensive understanding of all development funding sources at play should consider other foreign economic activities, particularly foreign direct investment (FDI). While receiving $3.8 billion in ODA in 2009, $2 billion of which is bilateral aid, Ethiopia received $221 million in FDI inflows (World Bank 2012). Although FDI is an order of magnitude less than the ODA, these funds are important as economic indicators and for the ways they impact Ethiopian society. Of the bilateral ODA, 36 percent comes from the United States, 30 percent from all European Union countries combined, 17 percent from the United Kingdom, and 10 percent from European Union institutions (World Bank 2012). In recent decades, the majority of FDI comes from non-Western countries (Woldnestel 2008).

Many large flows of FDI from a variety of investors are being channeled into expanding infrastructure, manufacturing, and the agricultural sectors, driving development. The United States, European Union, China, India, Israel, and Saudi Arabia are among the investors seeking to expand exports markets, secure financial profits, and achieve food security. For countries that are net-importers of food, such as China, India, and Saudi Arabia, investing in agriculture has become a means to hedge against their own domestic climate impacts where food production is declining or expensive (Daniel 2011).

Ethiopia approaches an important crossroads: how it manages inflows of aid and FDI and how it chooses to develop its land and water resources will have long-term implications not only for economic prosperity but also for human and political security. The Ethiopian constitution stresses that "the design and implementation of programmes and of development shall not damage or destroy the environment" (Article 92, cited in UNDP 2011). Pending uncertainties of climate change, informed development policies, planning, and practices adaptation mechanisms must then be incorporated to mitigate the potential impacts and bolster economic growth.

This report aims to explore the potential impacts of new investment flows for Ethiopia's growth and development in the context of climate change

and adaptation. To what extent are aid and investment likely to generate positive social and economic impacts, including poverty reduction and improvements in human development? In doing so, we generate a list of recommendations calling for increased transparent practices by governments, domestic and foreign, as well as foreign companies and non-governmental organizations, in order to improve coordination between these parties and provide for better accountability to Ethiopian citizens.

The report starts by discussing important features of Ethiopian development, including urbanization, migration, and agriculture. We then present data on development aid and foreign investment. China's changing and growing role in Ethiopia is discussed, particularly with regards to the impact on development. We then describe changes in land tenure and consolidation of agriculture, and its implication for Ethiopians' food security. The next section describes climate change in Ethiopia and its potential impact on human development, which is followed by a discussion of policies for adaptation to climate change. The paper concludes by making policy recommendations for those parties interested in transatlantic activities in Ethiopia, including development best practices, such as transparency, coordination, green investment, local involvement, and climate-sensitive development.

2 Development Context

Rural and Urban Division

Eighteen percent of the Ethiopian population lives in urban areas. In comparison, on average 30 percent of the population lives in urban settings in sub-Saharan African countries (World Bank 2012). More than 80 percent of Ethiopia's population is rural, spread across diverse terrain from the densely populated but agrarian highlands (where 85 percent of rural population resides) to the less populated eastern and southern arid areas (see Figure 1). As of the 2007 census, only 6 percent of the Ethiopian population lived in the Addis Ababa metropolitan area (CSA 2012). While Ethiopia is urbanizing, following global trends, the rate of urbanization continues to be slower than other countries (Figure 2).

Figure 1. Map of Ethiopia

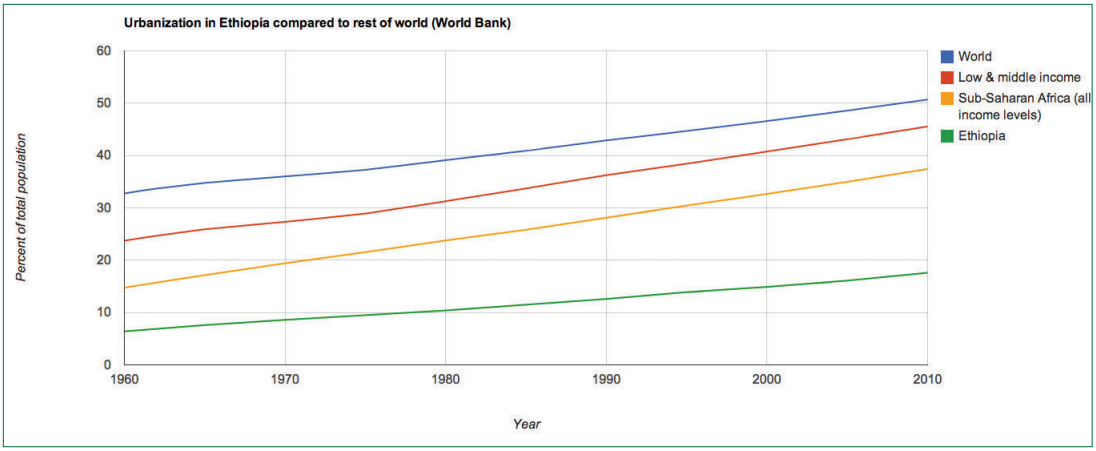
Urbanization is driven by migration. People move for a number of reasons. In the dry lands of Africa (as is true elsewhere), population movement has always been a livelihood or survival strategy for some (de Haan 1999). Barrios, Bertinelli, and Strobl (2006) classify the causes of urban migration as being "demand pull" such as potential for work in cities or "supply push" caused by adverse factors in rural areas, such as changes in climate. Given that conditions of poverty and food insecurity are also closely linked with internal rural to urban migration (Barrios, Bertinelli, and Strobl 2006), development may alter the effect of the demand pull or supply push conditions by providing local options for adaptation to climate change.

Historically, the Ethiopian government restricted population movement, focusing on encouraging engagement in the agricultural sector (de Haan 1999). Data from the 1994 census and 1999 labor force survey suggested that there was significant rural-to-rural flow of people and a very low net urbanization (Casacchia, Crisci, and Reynaud 2001). Approximately a quarter of the migration documented in the 1999 Labor Force Survey was specifically attributed to seeking work (demand pull) (Casacchia, Crisci, and Reynaud 2001). Only a small number of those surveyed in the national labor force survey moved for reasons of displacement (supply push).

Rapid urbanization brings many challenges for governments, ranging from the need for job creation and the extension of social services and infrastructure development and maintenance. One of the primary challenges is the provision of drinking water and sanitation, especially to informal settlements, which frequently populate the periphery of urban centers. Extension of such services is critical for spurring economic growth

Conditions of poverty and food insecurity are also closely linked with internal rural to urban migration.

Figure 2. Urbanization in Ethiopia compared to the rest of the world (World Bank 2012)



in all communities and preventing the spread of infectious disease. In Ethiopia, access to an improved drinking-water source is limited to around half the population, and in rural areas this drops to only 34 percent (World Bank 2012).

Agriculture

Ethiopia's economy has historically been dominated by small-scale agriculture, comprised largely of plots of less than 0.5 hectares, with nearly 90 percent of households farming less than 2 hectares total (Gebreselassie 2006). The agricultural sector accounts for approximately 47 percent of GDP, 90 percent of exports, and 85 percent of employment (IFAD 2008). Recognizing the importance of the sector to Ethiopia, increasing productivity in smallholder agriculture is a stated top priority for the government (MoARD 2010). Government strategy focuses on encouraging smallholder farmers and pastoralists to more efficiently use modern agricultural technologies to increase productivity. The strategy also promotes private sector investment (MoFED 2010). Fourteen percent of Ethiopia's 1 million square kilometers is arable land (World Bank 2012), but only 20 percent of this is cultivated (IFAD 2008). Seventy percent of total crops grown are cereals; other crops include coffee, maize, sorghum, wheat, barley, and millet. Coffee is the main export, and one-quarter of Ethiopia's population makes a living off of coffee production (Weissleder 2009). Livestock production is a major sector in the agricultural sector, and accounts for 15 percent of total GDP. The agricultural sector in general accounts for 60 percent of Ethiopia's exports (IFAD 2008).

Pastoralists, whose income and diet comes primarily from the herding of animals, represent about 14 percent of the Ethiopian population, primarily living in the lower altitude eastern and southern regions of the country (PFE, IIRR, and DF 2010). These areas are more arid, and thus the fragile environment can sustain a smaller population than the highlands. Pastoralist livelihoods are likely to be more sensitive to social and ecological change. In addition, the Ethiopian government is executing resettlement programs encouraging shifts away from pastoralist livelihoods, which may diminish traditional social structures (MoFED 2010).

Access to water is critical for supporting both Ethiopia's agricultural sector and pastoralist livelihoods. With 12 river basins and an average of 1,575 cubic meters of water available per person per

year (IWMI 2007), Ethiopia is known as the "water tower" of North-East Africa (World Bank 2008). However, a lack of water storage[1] and transport infrastructure along with temporal and spatial variations in rainfall prevents full water utility.

Rural Ethiopians are especially dependent on rainwater for their crops (only around 3 percent of food crops are irrigated) and are thus extremely vulnerable to variation in precipitation (FAO 2005). Ethiopia has a "difficult hydrology" of highly seasonal rainfall — that is, intense rainfall over a period of 3-4 months followed by little rainfall compounded by poor infrastructure and weak institutions (Grey and Sadoff 2007). This is particularly challenging for smallholding farmers whose entire income from crop production is subject to weather variability on an annual basis. Owing to the difficult hydrology, food insecurity in Ethiopia remains a high concern, particularly in consecutive drought years. Years of continued drought risks undermining development gains. In 2008, Ethiopia was one of the world's largest recipients of humanitarian aid to cope with continuing drought and food insecurity (Global Humanitarian Assistance Report 2011, 27).

Over the last decade, a large proportion of GDP growth has come in other sectors than agriculture. In 2009, the service economy surpassed agriculture as the leading share of GDP percentage (New African 2011). In FY 2010-2011, the agriculture sector[2] was 41 percent of the GDP; services, [3] 46 percent; and industry,[4] 13 percent (CIA 2012). Yet, neither the service sector nor industry employs a significant percentage of the population, as 85 percent of the labor force still works in agriculture (CIA 2012).

[1] Ethiopia has 50 cubic meters of water storage per person. For comparison, Australia has 4,700 (World Bank 2008, 15).

[2] Agriculture includes farming, fishing, and forestry.

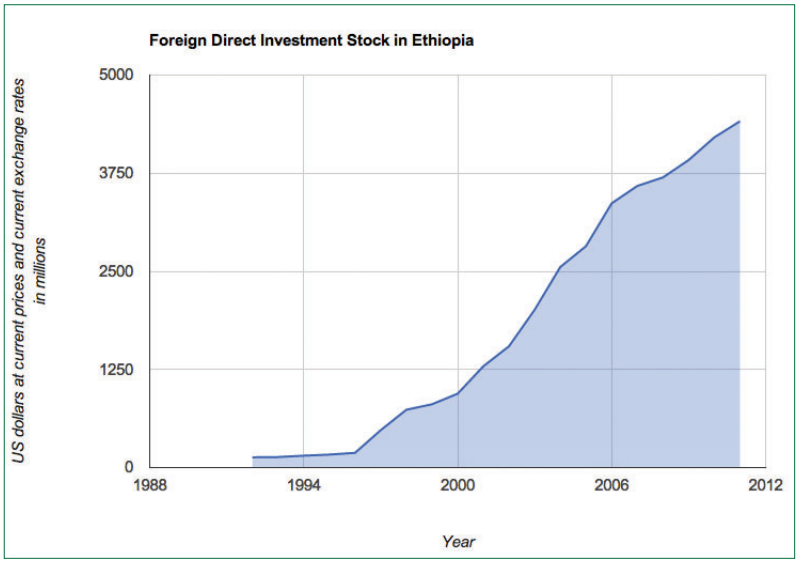
[3] The "Services" category includes government activities, communications, transportation, finance, and all other private economic activities that do not produce material goods.

[4] Industry includes mining, manufacturing, energy production, and construction.

3 Donors, Investment, and Development

Until the establishment of the current ruling government in Ethiopia in 1991, economic and social development was significantly restricted. The small landholding elite lost their land through the Derg's radical reform program in 1975 to nationalize land and redistribute plots of land among families and the program to expand the role of the state in agricultural development through promoting state-owned farms and cooperatives (Merrey and Gebreselassie 2011). The rise of international non-governmental involvement in Ethiopia occurred with the reoccurring famines of the 1970s and 1980s (Clark 2000). In the two decades since 1991, civil society development has grown rapidly along with the economy. Despite growth, economic reform, and change in government structure, coping with drought and food shortage remains a challenge for Ethiopia.

Figure 3. Foreign Direct Investment Stock in Ethiopia



(http://unctadstat.unctad.org/TableViewer/tableView.aspx?ReportId=88)

Historically, in periods of drought and famine, Ethiopia has received large amounts of foreign assistance: during the 1984-1985 drought, approximately 8 million people required food assistance and in the 2002-2003 drought, about 14 million people required food assistance (i.e., nearly 22 percent of the population) (World Bank 2006). The United States played a large role in providing food assistance, donating a total of $500 million worth of food assistance (World Bank 2006). Even in what has been termed "normal years," about 5 million Ethiopians need food assistance to survive (World Bank 2006).

Since the start of this millennium, a large number of foreign governments and private actors have sought to invest in Ethiopia across a wide array of sectors, which also foster development (for a good overview, see Weissleder 2009). The agricultural sector has received a significant portion of the flows of foreign direct investment (FDI), accounting for 32 percent of the total Ethiopian FDI inflows during the 2000s (Weissleder 2009, 9). Specifically, FDI in the agricultural sector has increased from $135 million in 2000 to $3,500 million in 2008 in the form of "pre-implementation investment" in land and resources (Weissleder 2009). Investments in agriculture were primarily in flori/horticulture for markets in the United States and Europe. Shipped on overnight flights, over 80 percent of the flowers go to markets in Europe and the United States (Belwal and Chala 2008). Over the past few years, investment has diversified, especially following the spike in food worldwide in 2007-2008 and the desire to produce biofuels from crops. Countries such as Saudi Arabia seek to enhance its food security through investments abroad; Saudi

The agricultural sector has received a significant portion of the flows of FDI, accounting for 32 percent of the total Ethiopian FDI inflows during the 2000s.

Figure 4. Ethiopia Aid at a Glance chart (OECD 2011)

Receipts	2008	2009	2010
Net ODA (USD million)	3,329	3,819	3,529
Bilateral share (gross ODA)	56%	48%	55%
Net ODA/GNI	12.5%	12.0%	11.9%
Net private flows (USD millions)	109	221	288
Reference data	**2008**	**2009**	**2010**
Population (millions)	79.4	81.2	82.9
GNI per capita (Atlas USD)	290	350	390

Top Ten Donors of gross ODA (2009-10 average, USD)
1. Int. Development Assoc.: $855M
2. United States: $801M
3. United Kingdom: $375M
4. African Development Fund: $229M
5. EU Institutions: $220M
6. Global Fund: $194M
7. IMF (Concessional Trust Funds): $144M
8. Canada: $114M
9. Japan: $96M
10. Germany: $88M

Based on: http://www.oecd.org/dataoecd/21/7/1880804.gif

Arabia is the top importer of meat from Ethiopia (Ndelcovych and Shiferaw 2012).

China's Growing Presence in Africa

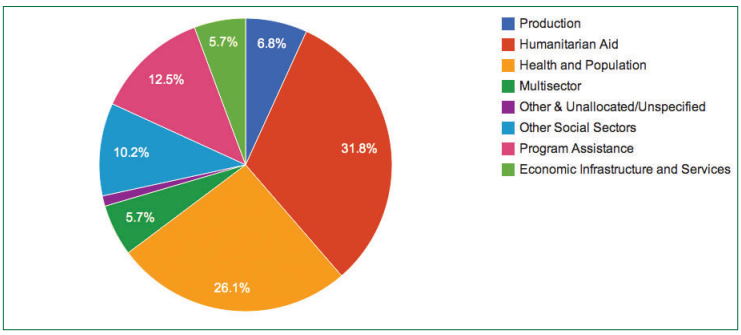
While China has invested in Africa since the 1970s,[5] there has been increased interest in China's investments as those from both the private and state-led sectors have been growing at an unprecedented rate throughout the African continent.[6] In July 2012, China pledged to provide $20 billion in credit over the next three years to Africa to support building agricultural technology centers, training medical and other personnel, and digging wells to expand access to clean water (AP Press 2012). This amount is double China's previous pledge made in 2009. Concurrently, exports from Africa to China have been growing: from 2001 through 2006, exports from Africa to China increased annually at a rate of over 40 percent (Wang 2007). In 2011, trade between the two sides was $166 billion, a three-fold increase since 2006 (AP Press 2012).

Chinese presence in Africa has prompted skepticism in the media and popular press as to China's methods and intentions. Unlike most countries that provide foreign assistance, China is not a member of the Organization for Economic Cooperation and Development (OECD) that largely establishes the norms and rules for foreign aid. Moreover, much of its official aid is still considered to be a state secret (Weston et al. 2011). However, a recent report finds that Chinese investment in Ethiopian agriculture is much less extensive than generally believed and that while investors investigate opportunities, few have actually invested (Brautigam 2012). Chinese development assistance, furthermore, is driven

[5] Diplomatic relations were established in 1970. Relations were severed in 1977, and reestablished in 1982. In 1988, the countries established the Joint Ethiopian-China Cooperation to promote investment and cultural ties (Davies, 32). See Brautigam (2012) for an overview of Chinese projects in rural Ethiopia, since 1970 and into the present.

[6] Unfortunately, information regarding exact amounts is very murky and not reliable. Research relies on news articles, imperfect indicators, and alternative definitions of what counts as foreign assistance, creating inconsistent data with highly variable figures. What can be extrapolated this imperfect data is that while Chinese aid to Africa is growing, it remains significantly smaller than aid from traditional donors.

Figure 5. Bilateral ODA by Sector (2009-2010)



by a concept of mutual benefit (as opposed to an altruism philosophy of aid) (Davies 2008). Coupled with bilateral aid, the Chinese government gives financial support to Chinese companies to establish a presence in Ethiopia as China seeks a global presence.[7] According to a 2012 *Economist* report, the Ethiopian government appreciates Chinese investment in markets: "though conscious that Western aid has kept millions of his people from starving, [the prime minister] complains about the relative failure of Western investors to put their faith in Ethiopia's economy" (*The Economist* 2012).

Investments have poured into the extractive industries (oil and gas, mining), infrastructure, manufacturing, and agribusiness throughout Africa. Whereas many other Western donors have pulled back from large infrastructure projects, Chinese investment is frequently directed toward building new highways and hydropower projects.[8] Here as well, the Ethiopian prime minister "says that China has 'rescued' Ethiopia with billion-dollar loans for roads, dams, and other public infrastructure projects" (*The Economist* 2012). Such involvement places China in a pivotal role in Ethiopia's transformation, both as funder and implementer of projects. For example, from 1998 to 2004, the Chinese provided 15 percent of the cost to build Addis Ababa's ring road (the rest was paid for by Ethiopia) and they control 50-60 percent of current major road construction (Brautigam 2011; Davies 2008).

Investments in large-scale infrastructure projects have been some of the most controversial. Growing demand in Ethiopia for developing its water resources from the Blue Nile — the principal tributary of the Nile — for agricultural production to feed its rapidly growing population has led Ethiopia to aggressively pursue the construction of several hydroelectric dams. Worldwide, the construction of large dams has represented what Ken Conca (2006) has termed the "new face of water conflict," in which ideas and norms over various development paths have pitted civil society groups against both the state and international actors. For many government leaders, large dams have been an obvious "development choice" for fostering economic development, as they smooth out high variability in water availability and offer hydroelectric production. Yet, the socio-economic and environmental impacts of large dams are generally well documented, including population displacement (Altinbilek 2002).

Because many donors, including the World Bank, began to pull back in the 1980s from channeling funds to such projects due to pressure from civil society groups, financing for these large dam projects has come from Chinese sources. Ethiopia, for example, has signed a $1.9 billion deal with China's Sinohydro Corporation to construct several hydroelectric dams (Nasrawi 2010). According to NGOs that campaign against dams, China is investing in large hydroelectric infrastructure such as the Gibe 3 dam (Banktrack.org 2010). Chinese

Whereas many other Western donors have pulled back from large infrastructure projects, Chinese investment is frequently directed toward building new highways and hydropower projects.

[7] This funding further complicates data on Chinese ODA (Brautigam 2010).

[8] All investments need to be registered in Ethiopia with the Federal Investment Bureau of Ethiopia (Weissleder 2009).

financing of the Tekeze hydropower project in Ethiopia (as well as the Merowe in Sudan) has elicited heavy criticism from NGOs for the social and environmental impacts of such projects (Brautigam 2009, 302).

Unlike aid from the OECD, Chinese aid remains tied to using Chinese goods and services.

While large hydroelectric dams receive much negative attention from international civil society actors, proponents say that dams have the ability to increase Ethiopia's productivity and electrification (in a country where 80 percent of the population still does not have access to electricity) (World Bank 2012). Africa has much untapped hydropower development potential with its vast rivers and water resources (Bartle 2002). *The Economist* in 2010 called Africa the "underdammed continent," noting that it only uses 3 percent of its renewable water resources in comparison to 52 percent in South Asia. Donors, government, and other stakeholders must mitigate the negative effects of infrastructure and dams while pursuing the benefits.

Understanding Chinese Investment with Western Norms

China's presence in Ethiopia (and Africa more generally) is having a profound impact on development. The increase in Chinese aid and investment has sparked concern in the United States and the European Union not only because of the scale of financial involvement but also because Chinese investment is often considered to be absent the same environmental and social standards applied to Western investors. While Western aid and other economic relationships are frequently contingent on making improvements to human rights and democracy, Chinese investment comes with no such caveats. However, Ethiopia continues to be a major recipient of aid from Western countries despite receiving six out of seven on Freedom House civil and political liberties, where seven represents the most restricted level of civil liberties.[9]

China's approach to development is unilateral in the sense that it is not a part of the official aid coordinating bodies such as the OECD Development Assistance Committee (Woods 2008). Such organizations attempt to coordinate actions, hold similar standards, and prevent duplication of efforts. Unlike aid from the OECD, Chinese aid remains tied to using Chinese goods and services. Chinese goods and services are highly competitive in the international market, so such a requirement is less inefficient than if practiced by Western aid, but still may harm local producers (Berthelemy 2011). Chinese investment frequently involves the importation of a large Chinese work force, and foreign workers can draw ire from Ethiopians if they are perceived as taking jobs or resources away from locals. For example, Rotberg (2008) reports on attacks in 2007 against Chinese oil workers in the Ogaden region of Ethiopia. If aid is not coordinated with local populations or if it invests in areas where conflict is ongoing, it risks fostering resentment against foreign actors and social disruption.

Consolidation of Agriculture

Insecurity of land tenure is common in Ethiopia (Deininger and Jin 2004). Since the Derg government's policy to nationalize land in 1975, land redistribution rights have been retained by the state at regional levels. Farmers may not sell their land, and are restricted in leasing it to others, but they can transfer land to children as the legal inheritors (Merrey and Gebreselassie 2011). Such restrictions affect not only economic activity, but also the ability to adapt to changing conditions, including due to climate. With the collapse of the Derg regime, the new government of Prime Minister Meles Zenawi created a decentralized

[9] http://www.freedomhouse.org/report-types/freedom-world

federal government, pushing agricultural decisions down to the regional and district levels, while at the same time it has retained the previous government's position against private ownership of land (Merrey and Gebreselassie 2011).

Increasingly, however, a two track system for land management appears to exist: one for the smallholders, who face stringent restrictions on land exchanges, and another for the large, often foreign-held corporations that can obtain usage rights to large swaths of land. This is partially permitted by the reality that traditional agricultural activities fall outside of official economic activities, and thus go undocumented. For example, much of the large tracts of land in Ethiopia promoted for international investment are described as having "no pre-existing users," although shifting cultivation and pastoralism are practiced by rural Ethiopians throughout the country (Cotula et al. 2009). Restrictions to smallholders theoretically reduces the ability of farmers protect their own land holdings or get a fair market price from agents consolidating land.

Over the last few decades, as the major donor countries are giving less aid to agricultural projects in the developing world, other actors are beginning to assume a more prominent role in the agricultural sector. One study reported that U.S. aid to support agriculture in sub-Saharan African declined from more than $400 million in 1984 to merely $60 million in 2006 (Thurow 2010).[10] In their place, private investors and government assistance from a new set of donor countries have had a significant impact in the development of agriculture in Africa.

Underdeveloped arable land and water resources make Ethiopia seemingly ripe for expanding industrial farming (Thurow 2010). Proponents argue that African countries could boost yields and productivity to not only feed their populations but also growing populations elsewhere if they were to use improved seed, fertilizer, and expand irrigation (Thurow 2010, Collier 2007). Likewise, the rest of the world could benefit from advancements in the agricultural sector in Africa given the increasing volatility of global food markets.

Such developments are not without peril. In particular, the global expansion of biofuel production led to a reduction in available food crops, and helped fuel the global food price spikes of 2007 and 2008 (Naylor and Falcon 2010). Facing rising global food prices compounded by a dearth of land and renewable water resources, countries such as Saudi Arabia, Pakistan, and China, in response, are seeking to enhance their food security through purchasing or leasing farmland abroad rather than purchasing food on the international markets (Cotula et al. 2009). Specifically, without sufficient renewable water resources to support food self-sufficiency, Saudi Arabia, for example, has been forced to drastically reduce its own grain production and instead look abroad to feed its growing population, signing leasing agreements and investing in industrial agricultural projects in Ethiopia and Sudan (Woertz 2011, Cotula 2009).[11]

Foreign investments and consolidation of agricultural land, popularly referred to as "land grabs," have generated significant interest in the media and popular press. As Cotula et al. (2009) show, these large-scale land claims in Africa are nevertheless only a small proportion of the total suitable land in any one African country. Yet, they hold the potential to reshape food security

Underdeveloped arable land and water resources make Ethiopia seemingly ripe for expanding industrial farming, yet such developments are not without peril.

[10] In response to the 2007-2008 global food crisis, there has been a revival of a global effort improve food security through ODA. In 2009, U.S. President Barak Obama introduced the Feed the Future initiative, pledging $3.5 billion.

[11] Saudi Arabia plans to phase out its subsidized wheat production by 2016 (Woertz 2011). Woertz also points out that many of these projects have yet to reach the implementation phase but rather are still at the phase of commissioning feasibility studies.

throughout Africa and globally. Development of the export agriculture and floriculture sector may lead to economic and social development because of the job-creating potential, but at the same time, such activities also can generate negative environmental and social impacts (Weissleder 2009).

Without transparency and regulation, expropriation of agricultural land for large foreign investment projects are likely to exacerbate poverty and human insecurity and violate basic human rights. Such property consolidation can increase and reinforce inequalities by creating competition for fertile land and access to water. Observers such as Human Rights Watch have reported on the forced displacement of populations in order develop such farms, in particular the case of the Gambella region (HRW 2012). According to Human Rights Watch, 45,000 households in Gambella will be moved in a "villagization" process, while 42 percent of the land has been marketed to investors (HRW 2012). These troubling scenarios are reported to be occurring elsewhere in Ethiopia, but documentation is limited. These reports should be cause for caution and attentiveness to any external actor engaged in Ethiopia.

Additionally, new, large agricultural projects often require large, stable flows of water. As such, irrigation is a critical aspect of the large-scale export farms, and the water needs of industrial farms may exceed the recharge capacity of the local groundwater. If poorly managed, however, irrigation to support large farms can exacerbate shortages and foster conflicts with communities dependent upon the same water sources. Foreign investors are motivated by enhancing their own financial returns and perhaps food security, and are unlikely to extensively consider the political context of the countries and regions in which they are investing or the impacts, including on food security of the host communities (Woertz 2011, Weissleder 2009).

4 Climate Change, Water, and Food Security

Climate change impacts could eliminate any development gains. Natural hazards are part of an agrarian existence and many Ethiopians already face the combined effects of climate variability, pressure from development, and degradation in the quality of existing water and soil resources (Ayenew 2007, Stark et al. 2011). However, climate change is likely to intensify challenges for those who are already vulnerable, with more variable rainfall, more frequent and longer droughts, more severe flooding, and more extreme temperatures. In a country that is largely dependent on rain-fed agriculture, such conditions could lead to greater food insecurity, loss of income, and higher mortality and morbidity.

Ethiopia's landscape is highly diverse, with lowlands surrounding high plateaus with elevations over 1,500 meters. These elevation differences influence microclimates and partially influence trends in regional rainfall (Cheung, et al 2008). Varying rainfall patterns help define the three climatic zones that make up Ethiopia: those with 1) a distinct wet and a distinct dry season, 2) two wet seasons and one dry season, and 3) two wet and two dry seasons. These seasons dictate agricultural growing cycles and crop production choice. Large regional climate models are of limited use in predicting what climate changes communities will face. Potential changes in these climatic zones will likely vary, and accordingly, local adaption plans are necessary.

There is overall agreement that temperatures will continue to increase. The past six decades, Ethiopia has experienced a warming trend — the average annual minimum temperature in Ethiopia has increased by 0.37 degrees Celsius every decade (NMA 2007). Intergovernmental Panel on Climate Change (IPCC) models project a mean temperature increase of 1.7 - 2.1 degrees Celsius by 2050, an increase that is greater than the global annual mean.

Rainfall predictions are less conclusive. The IPCC 4th Assessment Report predicts that there will likely be an increase in precipitation along with El Nino-like conditions in eastern Africa. Such predictions have dominated development agencies planning for water resources (Williams 2011). However, to more fully understand and plan for future rainfall, long-period averages must be disaggregated. While annual mean precipitation levels might remain the same (NMA 2007), studies find a significant decline in rainfall during the major crop-growing season from June to September (Cheung 2008). Funk and Williams suggest that the warming of the Indian Ocean, a factor not adequately accounted for by the IPCC models, will contribute to decreased rainfall from March to June (Williams 2011). Predictions also vary by region, with microclimatic zones posed to experience climate variability uniquely (Cheung, 2008).

Regardless of whether annual average rainfall increases or decreases, there will likely be greater intra-season variability. Normal seasonal patterns will no longer occur, which will limit the effectiveness of traditional knowledge and make growing crops more challenging. Considering such temporal and spatial variance, a World Bank study concludes, "that recent climate change impact assessments, based on optimistic precipitation simulations over Eastern Africa, may underestimate yield reductions" (ENRM 2008).

Drought and flood events are also anticipated to become more frequent and extreme. In the past, consecutive drought years have led to widespread famine. Climate change threatens to increase the frequency of drought, and with fewer wet years in between, people will have less time to rebound, causing them to face increasingly dire circumstance. Intense rains on dry land are more likely to result in flood events, damaging infrastructure, and crops. Irregular flood events

Climate change impacts could eliminate any development gains.

damage topsoil and may also result in reduced groundwater recharge.

Climate change in Ethiopia will likely bring increases in temperatures and uncertainty to rainfall patterns. To mitigate pending changes and bolster Ethiopia's development trajectory, it is imperative that development practices build community adaptive capacity and resilience to respond to an uncertain future. By increasing economic opportunity, education, and mobility, Ethiopians are more likely to have the resources they need to respond to any climate shocks.

According to a 2010 OXFAM report, rural Ethiopians are already reporting the effects of variable rainfall. Anecdotal evidence suggests that many areas are experiencing fewer days of rain, accompanied by more intense periods of rain (Regassa et al. 2010). While this might average out to the same annual precipitation amount, the resulting impacts are not the same ecologically or for individual farmers or pastoralists. Such uncertainty challenges traditional knowledge of when to plant and what type of crop to grow, and an error in judgment threatens an entire crop growing season and risks devastating a family's livelihood.

The greatest vulnerability remains drought (Tadege 2007). In the past, consecutive drought years have led to widespread famine. If there are to be fewer years in between droughts, people will have less time to recuperate, causing them to face increasingly dire circumstances. A decrease in agriculture production under climate change would be extremely detrimental to the economy and food security, with one study finding that over a 50-year period from 2010 to 2060, the projected agricultural productivity may lead to 30 percent less average income, compared with the possible outcome without any climate change (Grbreegziabher et al. 2011).

5 Adaptation Policies

With most of its population living in rural areas and highly dependent on rain-fed subsistence agriculture, Ethiopia is thus especially vulnerable to climate change (Stark et al. 2011). Indeed, many Ethiopians already face the combined effects of climate variability, pressure from development, and degradation in the availability of existing surface water resources (Ayenew 2007, Stark et al. 2011). An increase in the number of climate-induced droughts may worsen existing social problems and expand poverty levels, further exacerbating development challenges for those living in fragile environments.

Adaptation policies must reduce vulnerability to adverse and uncertain weather patterns and events, and key to this is investing in water management. Plans must be implemented that respond to both conditions of drought and floods. According to a World Bank report, "robust growth based on infrastructure investment is likely to be first line of defense against climate change impacts," and sectors deserving the most attention are agriculture, energy, and roads (World Bank 2010). While such projects might have been considered too expensive in the past, in the face of the uncertainties of climate change, they might be increasingly cost effective (Stern 2006). Strategies responding to climate variability must include mechanisms to maintain economic growth in addition to preventing catastrophe. These policies should be integrated with national plans for poverty alleviation efforts and the general economic growth strategy. Ethiopia has one of the lowest reservoir storage capacities in the world (ENRM 2008). Increasing this capacity is important to protect against both the risk of drought and flood: investment in multipurpose infrastructure can increase irrigation capacity and capture and store floodwater. This might include large-scale reservoirs and small-scale low-head river dams and retention ponds (Jiing-Yun You 2010).

In addition to expanding irrigation capacity, other measures must be incorporated in plans to protect the agricultural sector against climate variability. Agriculture productivity is highly vulnerable to climate change impacts, and its resilience is instrumental to Ethiopia's continued development (MoFED 2010). In some circumstances, shifting the labor force away from agriculture to other sectors is an adaptation recommendation. However, Ethiopia's larger agrarian population makes urbanization a less plausible adaptation strategy in the immediate term. Action must take place at both regional and community levels, including use of drought early warning systems, dissemination of information and promotion of educational outreach and cross-community exchange, investment in rain harvesting and storage techniques, development of seed banks, reversing soil degradation, and expanding access to financial capital (both loans and insurance, likely at the micro level).

Bolstering the energy sector will also be instrumental to mitigating the risk of climate change. Currently 95 percent of energy consumption in Ethiopia is generated from wood, dung, crop residues, and human and animal power. Hydropower supplies the 5 percent of Ethiopia's electricity consumption. According to the World Bank, only 2 percent of the economically feasible hydroelectric potential in Ethiopia had been developed as of 2006 (ENRM 2008).

Finally, building a quality road network throughout Ethiopia is vital to opening lines of commerce. As of 2008, about 90 percent of Ethiopian roads are for dry-weather use only, effectively impassable during the rainy season (ENRM 2008). The Ethiopian government has prioritized building roads to increase national connectivity as necessary to promote economic growth (MoFED 2010).

Adaptation strategies must be incorporated into development plans in order to mitigate future risks.

Strategies responding to climate variability must include mechanisms to maintain economic growth in addition to preventing catastrophe.

Effective regional development must be executed with the intention of benefiting entire communities to improve all households' adaptive capacities. Development for resilience should promote economic advancement while providing a support mechanism in the instance of adverse events. Special attention should be given to vulnerable groups such as minorities, pastoralists, and women.

For adaptation programs to be effective, they will also need to take place across different levels of scale, ranging from government-level adaptation to the household level. At the national level, countries like Ethiopia will not only need to invest in technological adaptations such as changing crops, adopting water harvesting technologies, soil conservation measures, and early warning meteorological systems, but also strengthening institutional capacity. USAID helped to create the Famine Early Warning Systems Network (FEWS NET), which supplies early warning data on emerging food security problems and has helped policymakers with decision-making.[12]

[12] http://www.fews.net/Pages/default.aspx

However, such information and the resources to act often fail to reach households where individuals must make choices about crop planting as part of their adaptive strategies. Farmers are often the first to notice changes in temperature and rainfall, yet they are often constrained in their ability to undertake adaptation measures (Bryan et al. 2009, Deressa et al. 2009). Expanding extension services to rural households, improving market access, providing credit, and introducing crop insurance may help farmers adapt to climate change. Ethiopia has a significant tradition of extension agents (called "development agents") who deliver improved seed and other farm inputs, in addition to extension advice. Further expansion of this extension worker network may provide a system for enhancing adaptation and resilience-building activities in even the most rural areas.

Development activities may positively influence governance if they promote transparency and local engagement. Outside agencies can demonstrate behavior such as stakeholder involvement. However, external actors can just as easily support and entrench the powerful rent seekers.

6 Policy Recommendations of Transatlantic Concern

This report uses the example of Ethiopia to highlight many of the challenges facing countries that are struggling to bring their populations out of poverty through policies to promote economic growth. A major proportion of Ethiopia's population remains at the lowest levels of human development, in a tenuous subsistence existence, yet holds great potential for growth. This report sheds light on two important factors that will influence development outcomes: the increasing diversity of monetary flows affecting development and the broad-ranging impacts of climate.

Ensuring that countries like Ethiopia can foster development that is sustainable and resilient to global change is critical for promoting broader political security. Ethiopia sits on the Horn of Africa, bordered by a variety of states facing similar pressures with a full range of political situations from functioning democracies to failed states. This location makes Ethiopia a country of strategic relevance to transatlantic development interests. The policy recommendations in this report extend beyond Ethiopia to foster broader economic development and regional security.

Work with New Players

Development assistance from the United States and Europe must now be considered with the context of other forms of development being advanced by investors from China, India, and other Gulf countries, for example. This aligns with the recommendation of Andrews-Speed et al. (2012) for the necessity to coordinate international resource politics with new major state actors globally as well as with both private and state-owned multinational firms. China and India are two countries that are becoming increasingly important actors within Ethiopia, in addition to countries such as Saudi Arabia. Investment and economic activities by foreign states, including China, is filling a critical need in many areas of development, despite potential shortcomings in transparency or local involvement. As indicated through efforts such as those of the Forum on China-Africa Cooperation (http://www.focac.org/eng/), Chinese policymakers are actively considering a broad set of development concerns, including the way Chinese activities are perceived by Western observers (Yang 2012). For aid from all parties to be more effective, the transatlantic community must engage these new actors. All parties may improve their development practices by scrutinizing aid from all other parties, not just relative newcomers such as China. Better coordination and openness in investment activities over the long term while better protecting the interest of Ethiopian citizens.

Utilize Existing Frameworks

The government of Ethiopia, in collaboration with external agencies, has devised a series of comprehensive plans to guide issues such as economic growth, agriculture growth, water management, and climate change adaptation (MoFED 2010, MoARD 2010, and NMA 2007). Such frameworks should be engaged and activated, and can serve as the basis for coordinated development. According to the OECD upon reflection on increasing aid effectiveness, "It is now the norm for aid recipients to forge their own national development strategies with their parliaments and electorates (ownership); for donors to support these strategies (alignment) and work to streamline their efforts in-country (harmonization)…" (OECD). Consulting national frameworks bolsters country ownership, which is a priority of both the Paris Declaration (2005) and Accra Accord (2008) and necessary for sustained results. Additionally, frameworks improve opportunities for coordination and more efficient distribution of finite funding.

Ensuring that countries like Ethiopia can foster development that is sustainable and is resilient to global change is critical for promoting broader political security.

Foreign investors and aid donors should be held to high standards of environmental and social protections rather than the status quo of variable standards for foreign actors.

Foster Local Involvement

Development assistance has often been criticized for failing to account for the preferences of local communities and local knowledge. In order to ensure that international efforts are well aligned with local interests, foreign investors and development agencies should adhere to a set of clear principles for local involvement, including free, early, and informed engagement in development activities. Academic research has long indicated that when recognized and enabled, local communities and decision-making bodies may develop and enforce effective solutions for resource management (Ostrom 1990).

As promoted in the recent report "Transformational Partnerships: Innovative Approaches to Addressing Food Security in Africa" (German Marshall Fund 2012), transatlantic actors have a particular motivation to promote core values of democracy and the resulting accountability. Consultation with local populations, including local government, can both help prevent projects from causing harm to populations' livelihoods and benefit from local knowledge. Such exchanges are critical as Ethiopia strives to increase agricultural productivity, and enables outside actors to participate. Engagement at the local level increases understanding of the possible unintended consequences of new development on land and water resources and the people reliant on these local resources, enhancing capabilities to avoid or mitigate potential hardships. Additionally, local people are more likely to be attentive to the evolving conditions on the ground (OXFAM 2010), and all parties can benefit from an open exchange of information regarding the potential impacts of climate change and adaption techniques.

Increase Transparency

One way in which development assistance and aid can be more effective is through mechanisms to promote transparency. Incidentally, this would be a byproduct of the above recommendation to foster local involvement, which would discourage deals from being made without the knowledge of affected communities. The agricultural sector needs a system to be more transparent about the nature of leases and land rights in order to minimize corruption and maximize public good and stability (ILC 2012). Communities should have access to complete information and the decision-making process to enable informed tradeoff decision-making strengthen democracy, and encourage stability. Full understanding of tradeoffs is especially important around issues pertaining to water access and quality and potential downstream impacts. There are examples of encouraging production transparency and revenue flows in the mineral sector; the Extractive Industries Transparency Initiative (EITI) and the Kimberly Process are considered standards. Transparency reduces the likelihood that these revenues will promote corruption and conflict in mineral-producing countries.

Promote Climate-Sensitive Development and Green Investment

Development interventions must be responsive to the effects of climate change. Countries that are highly dependent upon agriculture and experiencing rapid population growth, like Ethiopia are particularly vulnerable. Because climate change will most likely affect water availability and hence food production in the Horn of Africa, decision-makers and investors must plan for adaptation so as not to further exacerbate already existing development problems and human vulnerabilities. Specifically, to manage climate risk, policymakers must take climate change predictions into account in devising development strategies, particularly for the agricultural sector. The African Development Bank, in collaboration with the Global Climate Adaptation Partnership, established the Climate

Safeguards System to assess climate-relevant issues for projects supported by the African Development Bank (AfDB 2011). Others policy interventions could include programs that focus on crop insurance or water supply. Foreign investors and aid donors should be held to high standards of environmental and social protections rather than the status quo of variable standards for foreign actors.

7 Conclusion

This paper focuses on three pertinent issues facing Ethiopia: the challenges of adapting to a changing climate; the nature of useful foreign assistance, particularly in the face of climate change; and the make-up of foreign actors in Ethiopia, including relative newcomers such as China. As for all countries, climate predictions suggest Ethiopia should plan for increased weather variability, more extreme weather events, and general warming trends. The fate of economic development for Ethiopia's predominantly rural population is undoubtedly tied to being able to cope and adapt to a changing and challenging climate. Western countries and organizations continue to be a powerful source of funding and aid, and climate adaptation activities are grounded in local capacity building and stakeholder engagement practices, which are commonly promoted by Western agencies. However, new governmental and private actors from countries such as China, India, and Saudi Arabia are increasingly important to Ethiopia's development. Western observers have raised concerns about the transparency, human rights, and environmental concerns of new development activities in Ethiopia. While some of these concerns may be valid, scrutinizing foreign economic activity from all actors in Ethiopia will lead to improved development.

Ethiopia has made enormous strides in economic growth over the last two decades. However, large DGP growth and development of modern economic activities largely bypasses the huge majority of rural Ethiopians who depend on subsistence agriculture. These rural poor are the most vulnerable to global change, both that of climate change as well as global economic forces. The example of Ethiopia has lessons for aid, investment, and development in the face of a changing climate, which are applicable to countries throughout the Horn of Africa and sub-Saharan countries more generally.

The fate for economic development for Ethiopia's predominantly rural population is undoubtedly tied to being able to cope and adapt to a changing and challenging climate.

8 References

African Development Bank. (2011). "Climate Screening and Adaptation Review & Evaluation Procedures Booklet." http://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/CSS%20Basics-En_def.pdf

Altinbilek, Dogan. (2002). "The role of dams in development." Water Resources Development 18(1) 9-24.

Andrews-Speed, Philip et al. (2012). *The Global Resource Nexus: The Struggles for Land, Energy, Food, Water, and Minerals.* Washington, DC: Transatlantic Academy.

Associated Press. (2012). "China pledges $20 billion in credit to Africa." http://www.npr.org/templates/story/story.php?storyId=157013467

Ayenew, Tenalem. (2007). "Water management problems in the Ethiopian rift: challenges for development." *Journal of African Earth Sciences* 48(2-3): 222-236.

Banktrack.org. (2010). "Chinese loan underwrites Gibe 3 dam destruction." http://www.banktrack.org/show/news/chinese_loan_underwrites_gibe_3_dam_destruction

Bartle, Alison. (2002). "Hydropower potential and development activities." *Energy Policy* 30(14):1231-1239.

Belwal, Rakesh, Meseret Chala. (2008). "Catalysts and barriers to cut flower export: A case study of Ethiopian floriculture industry." *International Journal of Emerging Markets* 3(2):216 - 235.

Berthelemy, Jean- Claude. (2011). "China's Engagement and Aid Effectiveness in Africa," Series N° 129, African Development Bank, Tunis, Tunisia

Brautigam, Deborah. (2009). *The Dragon's Gift: The Real Story of China in Africa*. Oxford University Press.

Brautigam, Deborah. (2010). IFPRI seminar series presentation.

Brautigam, Deborah. (2011). "Ethiopia's partnership with China." Poverty Matters Blog. *The Guardian*. December 30, 2011.http://www.guardian.co.uk/global-development/poverty-matters/2011/dec/30/china-ethiopia-business-opportunitieshttp://www.guardian.co.uk/global-development/poverty-matters/2011/dec/30/china-ethiopia-business-opportunities

Brautigam, Deborah and Xiaoyang Tang. (2012). "An overview of Chinese Agricultural and Rural Engagement in Ethiopia." International Food Policy Research Institute.

Bryan, E., T.T. Deressa, G.A. Gbetibouo, C. Ringler. (2009). "Adaptation to climate change in Ethiopia and South Africa: options and constraints." *Environmental Science and Policy* 12: 413-26.

Casacchia, Oliviero, Massimiliano Crisci, Cecilia Reynaud. (2001). "Internal Migration in Ethiopia" in "Migration and Urbanization in Ethiopia, with special reference to Addis Ababa." *In-Depth Studies from the 1994 Population and Housing Census in Ethiopia.* Italian Multi-Bi Research Project ETH/92/P01Central Statistical Authority (CSA) Addis Ababa, Ethiopia and Institute for Population Research – National Research Council (Irp-Cnr) Roma, Italy. http://www.irpps.cnr.it/etiopia/sito/progetto3.htm

Central Intelligence Agency (CIA). (2012). *The World Factbook*. https://www.cia.gov/library/publications/the-world-factbook/geos/et.html. Accessed May 15, 2012.

Cheung, Wing, Gabriel Senay, Ashbindu Singh. (2008). "Trends and spatial distribution of annual and seasonal rainfall in Ethiopia." *International Journal of Climatology* 28: 1723-1734, DOI: 10.1002/joc.

Clark, Jeffrey. (2000). *Civil Society, NGOs, and Development in Ethiopia*. Washington, D.C.: The World Bank.

Collier, Paul. (2007). *The Bottom Billion*. New York: Oxford University Press.

Cotula, Lorenzo, Sonja Vermeulen, Rebecca Leonard, and James Keeley. (2009). *Land Grab or Development Opportunity? Agricultural Investment and International Land Deals in Africa*. IIED, FAO and IFAD

CSA (Central Statistical Agency of Ethiopia). (2012). "2007 Census tables." http://www.csa.gov.et/

Daniel, Shepard. (2011). "Land Grabbing and Potential Implications for World Food Security." In Behnassi et al. (eds.), *Sustainable Agricultural Development*. Springer: DOI 10.1007/978-94-007-0519-7_2

Davies, Martin, et al. (2008). "How China Delivers development assistance to Africa." Center for Chinese Studies. http://www.ccs.org.za/downloads/DFID_FA_Final.pdf

deHaan, Arjan. (1999). "Livelihoods and poverty: The role of migration - a critical review of the migration literature," *Journal of Development Studies*, 36:2, 1-47

Deininger, Klaus and Songqing. (2004). "Tenure security and land-related investment: Evidence from Ethiopia." *European Economic Review* 50(5):2145-1277.

Deressa, T. T., R. M. Hassan, C. Ringler, T. Alemu, and M. Yesuf. (2009). "Determinants of farmers' choice of adaptation methods to climate change in the Nile Basin of Ethiopia." *Global Environmental Change* 19(2): 248-255.

The Economist. (2010). "Dams in Africa." May 6.

The Economist. (2012). "On the march: Footwear may be Ethiopia's commercial future."

Environment and Natural Resource Management (ENRM). (2008). "Ethiopia: A Country Study on the Economic Impacts of Climate Change." World Bank Report No. 46946-ET.

FAO. (2005). "Irrigation in Africa in figures." *AQUASTAT Survey.* Frenken, K, editor. FAO Water Reports 29. ftp://ftp.fao.org/agl/aglw/docs/wr29_eng_including_countries.pdf

FAO. (2011a). Countries: Ethiopia. http://www.fao.org/countries/55528/en/eth/http://www.fao.org/countries/55528/en/eth/ Accessed April 19, 2012

FAO. (2011b). *The State of Food Insecurity in the World.* Rome: Food and Agricultural Organization. http://www.fao.org/docrep/014/i2330e/i2330e.pdf

Federal Democratic Republic of Ethiopia, MoARD (Ministry of Agriculture and Rural Development). (2010). "Ethiopia's Agricultural Sector Policy and Investment Framework."

Federal Democratic Republic of Ethiopia, MoFED (Ministry of Finance and Economic Development). (2010). "Growth and Transformation Plan (GTP) 2010/11 — 2014/15."

Gebreselassie, Samuel. (2006). "Land, Land Policy and Smallholder Agriculture in Ethiopia: Options and Scenarios." Future Agricultures Consortium meeting March 20-22, 2006

Gebreegziabher, Zenebe, et al. (2011). "Climate Change and the Ethiopian Economy." *Environment for Development*. http://www.rff.org/RFF/documents/EfD-DP-11-09.pdf

Global Humanitarian Assistance. (2011). GHA Report. http://www.globalhumanitarianassistance.org/wp-content/uploads/2011/07/gha-report-2011.pdf

Grey, David and Claudia W. Sadoff. (2007). "Sink or Swim? Water security for growth and development." *Water Policy* 9:545–571

Human Rights Watch. (2012). "Waiting here for death: forced displacement and 'villagization' in Ethiopia's Gambella Region." http://www.hrw.org/sites/default/files/reports/ethiopia0112webwcover_0.pdf

International Fund for Agricultural Development (IFAD). (2008) Federal Democratic Republic of Ethiopia Country Strategic Opportunities Programme.

International Land Coalition (ILC); The Oakland Institute; Global Witness. (2012). "Dealing with Disclosure: Improving transparency in decision-making over large-scale land acquisitions, allocations, and investment." http://www.oaklandinstitute.org/sites/oaklandinstitute.org/files/Dealing_with_disclosure.pdf

Jiing-Yun You, Gene and Claudia Ringler. (2010). "Hydro-economic modeling of climate change impacts in Ethiopia." International Food Policy Research Institute. Discussion paper 00960.

Kolbe, Jim and Jean-Michel Severino. (2012). Transformational Partnerships: Innovative Approaches to Addressing Food Security in Africa. German Marshall Fund. http://www.gmfus.org/archives/transformational-partnerships-innovative-approaches-to-addressing-food-security-in-africa/

Lum, Thomas, et al. (2009). "China's Foreign Aid Activities in Africa, Latin America, and Southeast Asia." Congressional Research Service. http://www.fas.org/sgp/crs/row/R40361.pdf

Merrey, D.J. and Tadele Gebreselassie. (2011). "Promoting improved rainwater and land management in the Blue Nile (Abay) basin of Ethiopia." NBDC Technical Report 1. Nairobi, Kenya, ILRI.

National Meteorological Agency. (2007). "Climate Change National Adaptation Programme of Action (NAPA) of Ethiopia." Addis Ababa, Ethiopia, Ministry of Water Resources. http://unfccc.int/resource/docs/napa/eth01.pdfhttp://unfccc.int/resource/docs/napa/eth01.pdf

Naylor, Rosamond and Walter Falcon. (2010). "Food security in an era of economic volatility." *Population and Development Review* 36(4):693-723.

Nedelcovych, Mima and David Shiferaw. (2012). "Private Sector Perspectives For Strengthening Agribusiness Value Chains in Africa." Partnership to Cut Hunger and Poverty in Africa. http://www.partnership-africa.org/sites/default/files/Agribusiness%20Perspectives%20-%20Case%20Studies%20and%20Annexes%20-%20May%202012.pdf

New African. (2011). "Ethiopian Economy: Finding the Right Balance." October 4. http://www.newafricanmagazine.com/special-reports/country-reports/ethiopia-focus-on-investment/ethiopian-economy-finding-the-right-balance

OECD. (2012). "Paris Declaration and Accra Agenda for Action." Accessed July 19, 2012. http://www.oecd.org/document/18/0,3746,en_2649_3236398_35401554_1_1_1_1,00.html

OECD. (2011). Ethiopia Country Note. African Economic Outlook 2011: Africa and its Emerging Partners, OECD Publishing. doi: 10.1787/aeo-2011-en

Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action.* New York: Cambridge University Press.

Pastoralist Forum Ethiopia. (2010). "Pastoralism and Land: Land tenure, administration and use in pastoral areas of Ethiopia." Nairobi: International Institute of Rural Reconstruction. http://www.pfe-ethiopia.org/pub_files/pastoralism%20&%20Land%20full%20Book.pdf

Regassa, Senait, Christina Givey, and Gina E. Castillo. (2010). "The Rain Doesn't Come on Time Anymore: Poverty, Vulnerability, and Climate Variability in Ethiopia." Oxfam International Research Report. http://www.oxfam.org/sites/www.oxfam.org/files/rain-poverty-vulnerability-climate-ethiopia-2010-04-22.pdf

Rotberg, Robert I. (2008). *China into Africa: Trade, Aid, and Influence.* Brookings Institution Press.

Schmidt, Emily and Mekamu Kedir. (2009). "Urbanization and Spatial Connectivity in Ethiopia:
Urban Growth Analysis Using GIS."

Senbet, D. (2010). "Determinants of Child Labor Versus Schooling in Rural Ethiopia." *European Journal of Social Sciences* 17 (3). http://www.eurojournals.com/ejss_17_3_10.pdf.

Stark, J., K. Terasawa, and M. Ejigu. (2011). "Climate change and conflict in pastoralist regions of Ethiopia: mounting challenges, emerging responses." CMM Discussion Paper No. 4.

Stern, Nicholas. (2006). "Stern Review on the Economics of Climate Change." HM Treasury, London.

Tadege, Abebe. (2007). "Climate Change National Adaptation Programme of Action of Ethiopia." Addis Ababa: Ethiopian National Meteorological Agency.

Thurow, Roger. (2010). "The Fertile Continent: Africa, Agriculture's Final Frontier." *Foreign Affairs.* Nov/Dec.

UNDP. (2011). "Human Development Report."

USDA. (2002). Production Estimates and Crop Assessment Division. http://www.fas.usda.gov/pecad2/highlights/2002/10/ethiopia/baseline/eth_annual_rainfall.htmhttp://www.fas.usda.gov/pecad2/highlights/2002/10/ethiopia/baseline/eth_annual_rainfall.htm

Wang, Jian-Ye. (2007). "What Drives China's Growing Role in Africa?" Washington, DC: IMF.

Weissleder, Lucie. (2009). "Foreign Direct Investment in the Agricultural Sector in Ethiopia." Ecofair Trade Dialogue Discussion Papers No. 12, Misereor and Heinrich-Böll-Stiftung.

Weston, Jonathan, Caitlin Campbell, and Katherine Koleski. (2011). "China's Foreign Assistance in Review: Implications for the United States." U.S.-China Economic and Security Review Commission Staff Research Backgrounder.

Williams, A. Park and Chris Funk. (2011). "A westward extension of the warm pool leads to a westward extenstion of the Walker circulation, drying eastern Africa." *Climate Dynamics* 37: 2417-2435, DOI: 10.1007/s00382-010-0984-y.

Woertz, Eckart. (2011). "Arab Food, Water, and the Big Landgrab that Wasn't." *Brown Journal of World Affairs*18 (1): 119-132.

Woldemeskel, Solomon Mamo. (2008). "Determinants of Foreign Direct Investment in Ethiopia." Master's Thesis, Maastricht University.

Woldemicael, Gebremariam. (2000). "The effects of water supply and sanitation on childhood mortality in urban Eritrea. *Journal of biosocial sciences* 32:207-227.

Woods, Ngaire. (2008). "Whose aid? Whose influence? China, emerging donors, and the silent revolution in development assistance." *International Affairs* 84:6.

World Bank. (2010). "Ethiopia: Economics of Adaptation to Climate Change Study." http://climatechange.worldbank.org/content/ethiopia-economics-adaptation-climate-change-study

World Bank. (2012). Databank. http://databank.worldbank.org/data/home.aspx Accessed April 19, 2012.

Yang, Guang. (2012). "China Africa Relations: Frog-Leap Development and Future Challenges." http://www.focac.org/eng/xsjl/xzzs/t920757.htm.

1744 R STREET NW

WASHINGTON, DC 20009

T: 1 202 745 3886

F: 1 202 265 1662

E: INFO@TRANSATLANTICACADEMY.ORG

WWW.TRANSATLANTICACADEMY.ORG