



BACKGROUND PAPER

Policy and Regulatory Options for Sustained Agricultural Growth and Transformation in Africa

Policies and Regulatory Framework

Prepared by:
Dr. Ousmane Badiane, IFPRI

Co-Conveners:
Prof. Sule Ochai, Jackson SU

EXECUTIVE SUMMARY

Sound policies and regulations are vital mechanisms for achieving agricultural growth and transformation. After several decades of relative neglect of and even bias against agriculture, improvements in overall macroeconomic and agricultural sector policies have contributed to the longest sustained economic growth recovery in the history of the African continent. The launch of the Comprehensive Africa Agriculture Development Program (CAADP) in 2003 signaled the recognition by African leaders of the central role of agriculture in the development process and their commitment to increasing investment in the sector. In Malabo in 2014, leaders not only renewed their commitment to CAADP but also outlined a far broader and more transformational agenda. In addition to the initial goals of increased investment and accelerating agricultural growth to reduce poverty, the Malabo Declaration commits countries to promoting inclusive growth that caters for the needs of the young and women, to ending hunger and reducing malnutrition, to boosting agribusiness growth and expanding intra-African trade, and to enhancing resilience to a changing climate. Policy and regulatory choices of leaders and the actions of agricultural sector stakeholders will determine the continent's success in achieving the desired agricultural transformation.

This note reviews the challenges and opportunities and suggests a way forward in several key areas in which policy and regulatory action is needed to enhance agricultural sector growth and transformation outcomes. Key areas include overall macroeconomic and sector governance as well as specific policies and regulations related to trade, agribusiness and value chain development, sustainable land and water management, technology innovation, nutrition, gender inclusivity and social services. The note draws on research carried out by the International Food Policy Research Institute (IFPRI) and other institutions.

Policy and regulatory challenges and opportunities

Improved macroeconomic management towards the end of the last century has contributed to the economic recovery of African countries of the past 20 years. Governance and institutional quality has also improved in many areas but greater progress needs to be made. The lack of institutional memory in more pluralistic open political systems poses a particular challenge. New generations of leaders who have had little exposure to the profound policy changes that have taken place during the decades leading up to the current recovery face the risk of yielding to populist temptations and revert to policies that have failed in the past. Trade, marketing, and input sector policies that placed a heavy tax burden on smallholder farmers either explicitly or implicitly, and discouraged or even banned private sector participation and investment in agricultural sector value chains have played a significant role in slowing down agricultural sector growth and transformation in the first three decades after independence. In many cases, the weak analytical and evidence base of policy design and implementation processes made it difficult to develop and execute targeted, smart, and responsive policy and regulatory regimes that produce positive and sustainable growth outcomes. In such an environment, even the opportunities provided by booming natural resource and

commodity export earnings have ended up destabilizing entire economies and hurting growth and transformation prospects.

Africa's overall share of global trade is increasing after earlier declines. Intra-regional trade is also increasing albeit from a low base. However, the African continent still trades less than would be expected considering income levels and other factors. Although much of the continent benefits from preferential trade access to developed countries, technical barriers to trade such as sanitary and phyto-sanitary regulations present obstacles to increasing export volumes. Trade is also hampered by poor transport and communications infrastructure.

Dietary change is fueling rapid growth in the midstream segments of food value chains and has led to the rise of domestic agribusiness firms. However, the latter face numerous constraints to growth, in particular a lack of hard infrastructure and market infrastructure. Although, options for farmers to participate in modern value chains - such as contract farming arrangements and farmer organizations - exist, new institutional designs are needed to improve performance and avoid conflicts. Ensuring food safety along the value chain remains a difficult issue.

There is evidence that agricultural land and labor productivity are on the rise. Still, very little arable land in Africa is irrigated and knowledge on available water resources and irrigation capacity is insufficient. Land and water rights are often poorly defined. The governance of irrigation is often fragmented and uncoordinated. Low soil fertility is a widespread problem limiting yields and crop response to fertilizer. The widespread input subsidy programs (ISPs) do not appear to have addressed soil fertility issues. ISPs are often not well-targeted and partially crowd out private sector fertilizer markets, limiting their benefits in terms of increasing food security and reducing poverty.

Technology innovation and particularly biotechnology are greatly constrained by the lack of effective, transparent and functional biotechnology regulatory systems in most African countries. Existing regulations are often overly risk-averse, lack transparency and culminate in prohibitively high costs imposed on domestic institutions. There is a great deal of disagreement that surrounds biotechnology much of it not necessarily fact-based. So far communication and outreach efforts around biotechnology have not been well-coordinated nor strategic.

The nutritional status of populations has improved significantly in some areas but progress needs to be accelerated in order to meet the Sustainable Development Goal (SDG) on nutrition and other targets. Governments are increasing spending on social services (education, health, and safety nets) in order to meet the needs of the persistently high numbers of poor people. Given tight budget constraints and the pressure to meet mounting investment needs in both social and farming sectors, there is an urgent need to enhance the synergy between expenditures in the agricultural and social sectors so as to maximize the impact of overall public investments on agricultural growth and transformation. Such a calibration of spending would allow governments to invest more in productivity growth and future poverty reduction while meeting more of the immediate social needs of the poor.

Gender disparities continue to exist in many areas limiting the capacity and choices of women and hindering progress toward reaching other development outcomes. Women achieve lower agricultural productivity and tend to participate in lower-value segments of value chains. Future national agricultural policies and investment plans have to be more responsive to the needs of women farmers and entrepreneurs.

THE WAY FORWARD

These policy and regulatory challenges and opportunities should be addressed through actions that help achieve the outcomes listed below. The actions are indicative. All may not be relevant for every situation and the ones that are may have to be tailored to local realities. Nevertheless, they summarize the most important actions and outcomes that are called for in order to avoid policy reversal, sustain the current recovery, and ensure successful transformation of Africa's agricultural sector and rural economy. They include:

Sector governance policies that:

- Improve quality of service delivery and foster the rule of law
- Maintain macroeconomic stability and agriculture-friendly fiscal, monetary and trade policies
- Foster inclusive, comprehensive and technically robust sector policy review processes
- Strengthen fiscal and foreign exchange management systems in resource-exporting countries
- Build capacity of civil society to participate in policy dialogue platforms

Domestic market development and trade policies apt to:

- Reduce trading costs through effective infrastructure investments
- Simplify cross-border trade regulations and reduce harassments, delays and corruption
- Assist domestic producers and traders in meeting global standards and norms
- Strengthen the trade negotiation capacity of African countries

Agribusiness and value chain development policies that:

- Improve selection of geographic areas and segments for value chain development and upgrading
- Prioritize complementary investments in hard and soft infrastructure in such areas and segments
- Improve institutional design of farmer organizations to enhance their sustainability and provide capacity building and tools to improve their performance
- Improve access to training to upgrade skills along the entire value chain, including for smallholder farmers and informal enterprises
- Improve design of contract farming arrangements to increase transparency, raise performance and reduce scope for conflicts
- Institute standards to provide financial incentives for quality upgrading

Sustainable land and water management policies to better:

- Prioritize and raise investment in crops and areas where irrigation projects can be profitably developed
- Define water rights and strengthen coordination and management capacities in irrigation and rain fed farming systems
- Scale up access to training on integrated soil fertility and water management (ISFWM)
- Improve targeting of inorganic fertilizer subsidies, make them more private-sector friendly and link them to adoption of ISFWM practices

Technology innovation and adoption policies that:

- Identify emerging and future technologies, including biotechnology and information communication technologies (ICTs), and promote investment in technical capacity and institutional infrastructure to master such technologies
- Build capacity and assist countries in developing regulatory frameworks for these technologies
- Encourage harmonization of regional laws and regulations relating to the same technologies
- Promote and protect intellectual property rights (IPR)

Gender inclusivity policies to:

- Set gender-related goals and targets and institute accountability mechanisms, including regular collection of gender-disaggregated data
- Increase women's access to professional training, productive assets, credit and extension services
- Strengthen the legal rights of women with respect to land and other productive resources

Nutrition, safety nets, and social sector policies to better:

- Define national nutrition targets, milestones and institute accountability mechanisms
- Scale up and mainstream nutrition and safety net programs to reach the most vulnerable groups
- Better link health, education, social protection and farm policies in rural areas so as to maximize their combined effects on agricultural labor productivity and growth

Investing in technical and institutional capacities for evidence based policy formulation and implementation

Policy-making is carried out on a daily basis and is therefore best supported through domestic expertise and analysis. In order to effectively design and successfully implement the policies that are required for sustained growth and agricultural sector transformation, African countries would have to: (i) invest in building policy research and analysis capacities among national centers of knowledge; and (ii) create institutional mechanisms to systematically link the domestic supply of

and demand for policy relevant data and research findings. Countries are already investing heavily in universities, research centers, planning units, bureaus of statistics and other local centers of expertise. In most cases, what is required is marginal investments in coordination, planning and knowledge brokering functions to leverage these broader investments. Based on various experiences on the ground such as the country Strategic Analysis and Knowledge Support Systems (SAKSS) supported by IFPRI, the Alliance for Green Revolution in Africa's (AGRA) Policy Hubs, and the Food and Agriculture Organization's (FAO) Monitoring African Food and Agricultural Policies (MAFAP) program, the level of marginal investment should not exceed US\$500,000 per country per year.

1. BACKGROUND

Policies and regulations are vital determinants of competitive agricultural sectors and therefore of the capacity for agriculture to upgrade value chains, raise incomes and sustain growth for the overall economy. Policies and regulations shape the environment for private sector investment by determining the scope to reduce costs, to react to market signals and to increase investment in new technologies and make other necessary investments to access markets.

It is clearly not possible to say which policy is right for which country, let alone which value chain. Policies and regulations respond to local scarcities and obstacles as well as opportunities, which are not just specific in terms of geography but also evolve over time. Nevertheless, there are useful lessons to be drawn from existing evidence from various countries as to what characteristics and specificities of policies and regulations that are more conducive to stimulating and sustaining growth. This note aims to draw key messages from existing evidence to serve as a guide for the identification of opportunities to further improve the policy and regulatory environment in the agricultural sector and in line with each country's own local realities.

Agricultural outcomes are affected by policy and regulations in a number of areas, including areas outside the agricultural sector itself. This note, therefore, reviews challenges, opportunities and required actions in a number of key critical policy and regulatory areas for agricultural transformation, overall sector governance, international and domestic trade, agribusiness and value chain development, sustainable land and water management, technology innovation, nutrition, gender, social protection, education and health. Emerging evidence on each of these areas is examined to provide guidance for future efforts to accelerate agricultural transformation in Africa.

Several of the policy and regulatory areas reviewed here have seen positive developments in recent years; others have experienced more mixed progress. The economic recovery over the past two decades maybe attributed to macroeconomic management which has improved in most African countries. Governance and institutional quality have improved in many areas, but progress needs to be accelerated in order to more fully reap from the potential growth benefits. Africa's share of global trade is increasing, mostly driven by energy and mineral exports and to a lesser extent by exports of other goods and services. Not including North Africa and the Republic of South Africa, the share of the rest of the continent in global trade has continued to decline. Tariffs have become less of an issue, but non-tariff barriers (NTBs) and other regulatory issues remain a major concern and a hindrance to improving Africa's trade performance. Regional trade within Africa is growing but remains at low levels (Badiane, Makombe and Bahiigwa, 2014). More complex value chains and local agribusiness firms have been proliferating in Africa, presenting opportunities for employment and income growth and expansion into higher-value products (Reardon et al., 2015).

Water and land management as well as broader technical innovation, particularly in emerging areas such as biotechnology and ICTs will be vital areas for policy action in the near future. The resurgence of input subsidy programs in the past decade presents particular challenges, but with careful design, some of the disadvantages of these programs can be addressed allowing them to

serve as part of initiatives to promote sustainable land management. The share of agricultural land under irrigation remains extremely small in Africa, but efforts are underway to clearly define the potential for expanding irrigation. Several countries have recently made progress in better defining biosafety regulations and moving forward with biotechnology research, but overall progress has been quite limited and more work needs to be done to devise transparent and effective biosafety and biotechnology frameworks (Chambers et al., 2014). Modern ICTs are being deployed in many areas to reach and provide services to smallholder agriculture. The fragmentation and experimental nature of current applications and tools mean that comprehensive solutions that address the broad and interlinked needs of the agricultural sector are yet to be developed (CTA, 2015).

Impressive improvements have been made in the nutritional status of populations in some countries, but progress has been uneven and actions will need to be scaled up in order to meet global nutrition targets. Accountability for nutrition commitments on the part of governments and other stakeholders is lacking, impeding efforts to accelerate progress (Harris et al, 2015). Efforts are being scaled up to integrate gender into agricultural policies and strategies. Significant disparities do remain, reflecting insufficient progress in advancing gender equity and empowering women and hampering increases in agricultural production and reductions in hunger and poverty (Kovarik et al., 2015). Public expenditure on education, health and social protection has shown an increase at least in countries for which data is available, and seems likely to continue to increase in the future. Spending on these sectors is much larger compared to spending on agriculture and there is strong evidence that access to social services has a significant impact on agricultural sector productivity and growth and that this impact varies across categories of services and between poor and non-poor households (Badiane and Ulimwengu, 2013; Allen et al., 2014). Conscious efforts are needed to forge greater synergies between policies and investments in the social and farming sectors in order to maximize their combined contribution to agricultural productivity growth. This will allow governments to most effectively use tight budgets to tackle the roots of poverty and invest in future growth while meeting the immediate social needs of the poor.

The new and expanded CAADP agenda would greatly benefit from a bolder and more ambitious initiative from the African Development Bank Group. Lessons have been learned from the first 10 years of CAADP implementation. The current initiative could build on progress on the ground and help scale up and deepen implementation. Countries have made efforts to raise investment levels but the remaining gap is sizeable. Multilateral and bilateral development organizations have made tangible progress in aligning with country programs. Other financial and technical agencies and institutions, including UN technical organizations, CGIAR centers, and leading centers of knowledge across the continent are supporting implementation on the ground. Planning, coordination, partnership and accountability processes are continuously improving in a growing number of countries. Therefore, most conditions are in place to support more effective intervention by the Bank.

2. CHALLENGES AND OPPORTUNITIES

Policymakers in Africa are confronted with a wide range of challenges in designing, implementing, reviewing and improving policies to accelerate agricultural growth and enhance the contribution of agriculture to the economy. In addition, policies outside of the agricultural sector as well as policies of governments beyond the African continent can strongly affect progress within agriculture. This section reviews some key challenges in major policy areas relevant to agricultural transformation, as well as recent initiatives, progress and opportunities.

Sector governance

Policies beyond the realm of agriculture can be as important for agricultural growth as well as agricultural sector policies. Using the examples of Nigeria and Zaire, Oyejide (1986) and Tshibaka (1986) document the strong negative effects that industrial and trade policies have had on African agriculture. Over the last two to three decades, governments have removed many of the policy biases examined by the two authors against agriculture and have noticeably improved overall macroeconomic management. These developments accompanied by increasing levels of investments have set the stage for dramatic improvements in agricultural growth followed by an acceleration of overall economic growth.

Recent analysis by Badiane et al., (2015) of the sources of the African growth recovery since the early 1990s indicates that lower inflation - a key element of macroeconomic stability - increased savings, foreign direct investment and development assistance all contributed to the economic turnaround. Other contributing factors include improvements in the rule of law, control of corruption and improvements in human capital. These changes have made it possible for national economies to respond positively and more broadly to rising global commodity prices, as was not the case during episodes of favorable global market conditions in earlier decades.

Maintaining macroeconomic stability must be a priority but continued improvements in political governance is of equal importance. The World Bank's Worldwide Governance Indicators that measure perceptions of a range of governance categories including the rule of law, government effectiveness and control of corruption, show uneven improvement for Africa as a whole over the past two decades. Persistent caveats in governance and government effectiveness are reflected in a weak capacity that constrains progress in many of the policy and regulatory areas described below.

Macroeconomic management also remains a challenge, particularly in the current era in which more and more African countries are joining the ranks of oil producers and natural resources exporters. The analysis of Badiane et al., (2015) suggests that during the recovery period, African countries as a group have managed to avoid the potential negative side effects of increasing natural resource export booms. This is a welcome change from earlier periods during which commodity booms contributed to currency appreciation, lost competitiveness, and large declines in agricultural

exports (see e.g. Oyejide, 1986 on Nigeria). However, high levels of natural resource exports still present potential risks of Dutch Disease effects on other export sectors as well as excessive volatility in public spending, which would provide a disincentive for other investments (Budina, Pang, and van Wijnbergen, 2007).

Good governance and good macroeconomic management are linked particularly in regards to effective management of natural resources. An IMF study found that oil funds and fiscal rules did not have an impact on non-oil fiscal deficits and expenditure growth in oil-exporting countries but that institutional quality and governance indicators did reduce non-oil deficits (IMF, 2007). The challenge will be to use resource revenues to strengthen non-resource sectors so as to diversify the economy and lessen dependence on commodity prices. In particular, improved management of earnings from oil and natural resource exports provide countries with means to invest in bridging the large infrastructure gaps that are necessary to accelerate economic growth and transformation.

Although the governance issues discussed above are broader and go beyond the agricultural sector, developments in the latter sector do provide good examples of efforts to improve governance and management through inclusive dialogue and mutual accountability. Agricultural joint sector reviews (JSRs) as promoted under the CAADP process provide an example of platforms for inclusive, responsive and accountable governance within the agricultural sector. JSRs aim to assess policy and program implementation progress and performance against established targets and to assist governments and other stakeholders in setting sector policy and priorities. They examine how well state and non-state stakeholders play their roles and meet their responsibilities as defined in the CAADP compacts, national agriculture and food security investment plans and related cooperation agreements in the agricultural sector. By allowing a broad spectrum of stakeholders to obtain insights into the sector and to influence overall policies and priorities of the sector, JSRs serve as a management and policy support tool for inclusive planning, execution, monitoring and evaluation and transparent governance of the sector. IFPRI and the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) are currently leading efforts to help more countries assess their agricultural review processes and develop and improve JSRs. Work carried out by FAO under MAFAP is also contributing to the above efforts as are activities being supported by the AGRA Policy Hubs.

Trade

As mentioned above, Africa has increased its share of world trade during the 2000s. However; this development follows steep declines in the 1990s and is driven by large increases in exports in a few countries. Africa's overall global trade performance is lower than expected based on its gross domestic product (GDP), location, and market access. This difference may be largely explained by the inadequacy of transport and communication infrastructure (Bora, Bouet and Roy, 2007).

Technical barriers to trade (TBTs) present another factor limiting Africa's global exports. The majority of African countries benefit from trade agreements offering preferential access to wealthy countries, such as the African Growth and Opportunity Act (AGOA) for the United States but

technical barriers to trade, customs procedures and administrative rules affect the benefits afforded to African countries from preferential trade agreements. Under AGOA, low-income African countries face less stringent rules of origin for apparel, which has permitted several countries to build apparel assembly industries (Edwards and Lawrence 2013). More strict rules of origin are applied to higher-income African countries, which reduce their benefits from AGOA (Mattoo, Roy, and Subramanian, 2002).

Sanitary and phytosanitary (SPS) regulations in developed countries also affect Africa's exports to these markets. SPS regulations and TBTs including surcharges, inspections, customs formalities, etc. have been found to significantly reduce exports from developing countries to the Organization for Economic Co-operation and Development (OECD) member countries, although they did not affect trade between OECD countries (Disdier, Fontagné, and Mimouni, 2007).

The lack of benefit that African countries derive from trade may also be limited by their limited negotiation capacity. Several African countries are named as third parties in disputes on the World Trade Organization (WTO) website, but only two - Egypt and South Africa - are respondents in dispute cases and no African countries are complainants in other cases. This may reflect a lack of human resource capacity and of the necessary expertise to bring a case to the WTO.

Although trade within Africa and within the Regional Economic Communities (RECs) is increasing, it remains at low levels. Challenges for intra-regional trade include the high cost of cross-border trade and outwardly biased trading infrastructure (Badiane, Odjo and Jemaneh, 2014). A high percentage of cross-border trade is informal (Lesser and Moisé-Leeman, 2009). High trade costs do not only reflect poor infrastructure; corruption and road harassment also hinder intra-regional trade. Bromley and Foltz (2011) find that costs due to corruption (bribes and enforced delays at checkpoints) represented 15–30% of total transport costs for various commodities and trade corridors in West Africa.

Several initiatives are underway to mitigate these challenges. The WTO leads an Aid for Trade initiative intended to increase resources available to assist low-income countries in building trade capacities, including negotiation capacities and infrastructure. USAID provides technical assistance and other support through three regional trade hubs in West Africa, East and Central Africa and Southern Africa. The trade hubs provide assistance to private sector companies, governments, and civil society organizations (CSOs) to increase competitiveness and boost intra-regional and external trade and sponsor projects to improve communications, infrastructure and transport costs.

Trade also represents enormous opportunities in terms of its potential impacts on food security and income growth. Intra-African and intra-regional trade in particular, shows significant potential for growth that could have sizeable positive effects on regional food security and resilience. Regional food production levels tend to be less volatile than national levels while individual country production levels are only weakly correlated, indicating significant potential for larger volumes of regional trade to stabilize food supplies and mitigate the effects of shocks at the country level, an

important occurrence in an environment of climate change. In all three main RECs, member countries exhibit sufficiently dissimilar patterns of trade and specialization to indicate significant scope for expanding regional trade (Badiane, Odjo, and Jemaneh, 2014).

African heads of state recognized the potential and importance of intra-African trade when they committed to triple intra-African agricultural trade by 2025 at the 23rd Ordinary Session of the AU in Malabo in 2014. They also agreed to accelerate the establishment of a continental free trade area and a common external tariff, to invest in trade infrastructure and to enhance coordination mechanisms to allow for the development and promotion of shared African positions during international agricultural trade negotiations. The initiative under consideration by the Bank could make a real contribution to these targets.

Agribusiness and value chain development

Enormous change is underway in African value chains. Dietary changes resulting from rapid urbanization and the growth of the middle class are giving rise to rapid growth and transformation of staple value chains, particularly in the midstream processing and packaging segments. Small domestic agribusiness firms are proliferating but they are not meeting their potential due to infrastructural and other constraints (Reardon et al., 2015). Given the critical importance of modernizing traditional value chains for future smallholder growth, employment generation and wealth creation in rural areas and beyond, actions are needed to identify and remove constraints and undertake the necessary investments to develop and upgrade value chains for key commodities.

Evidence and action are needed to identify and address vulnerable points for food safety along the value chain. Aflatoxins in staple food pose significant threats to consumers and mitigating contamination is difficult (Unnevehr and Grace, 2013). Behavioral change to improve food safety will require financial incentives and better strategies are needed to address food safety issues in informal sectors (Florkowski and Kolavalli, 2014). Failure to achieve progress in these areas will not only continue to pose significant health risks, it will also continue to undermine competitiveness and market access for African products.

In order to take advantage of expanding opportunities, smallholder farmers need to be able to do business with service providers, financial institutions, traders, and processors. However, high transaction costs often prevent them from participating in value chains. Although Smallholder Producer Organizations (SPOs) offer potential benefits for smallholders to achieve economies of scale and integrate into value chains, many are underperforming or nearly inactive. Better institutional design for SPOs should be developed and incentives created to help them collect sufficient operating revenue from members to sustain their activities. Capacity building and tools for SPO leadership will help these organizations to serve as more credible business partners for other value chain actors and provide better services to members. Contract farming arrangements are another way to connect smallholders to the opportunities afforded by expanding markets, but here as well, new institutional designs should be developed to mitigate potential disadvantages

such as information asymmetry between companies and smallholders regarding quality standards. ICTs present considerable opportunities to overcome the often prohibitive financial, institutional and infrastructural obstacles to integrating smallholder farmers into the rapidly growing and modernizing value chains (CTA, 2015; Tadesse and Bahigwa, 2015).

The opportunities to expand local agribusiness are vast. Urbanization, the growth of a middle class, and changes in employment are resulting in rapidly changing consumption patterns with a decreasing share of staples and a larger share of purchased and processed food in the diets of both the poor and non-poor. Although imports are increasing, domestically-produced food represents a larger share of diets. These trends are likely to continue and present opportunities for mid-stream segments of value chains to expand to meet sharply rising demand. There are large potential gains in terms of employment and income growth if domestic agribusiness firms can be supported to grow and increase their productivity (Reardon et al., 2015).

IFPRI is conducting research and disseminating evidence on many of the policy issues around value chain development, including food safety, contract farming arrangements and SPOs. IFPRI's AgriConneXions project is developing ICT tools that will permit SPOs to increase their capacity to provide services to members and help them integrate more thoroughly into value chains. IFPRI is also constructing E-Atlases for several African countries that will provide detailed, spatially disaggregated typologies to allow better targeting of areas and commodities for value chain development.

Sustainable land and water management

Irrigation and water management have suffered from a lack of focus on rural infrastructure development and underfunding of rural infrastructure in general. Africa experiences higher annual variability in water resources compared to other regions creating uncertainty and hampering investment. As in many of the policy areas discussed above, irrigation capacity is seriously lacking and it appears difficult to acquire the knowledge and skills necessary to design and implement irrigation projects.

Challenges associated with water management consist of a lack of understanding of what the available water resources are and a lack of clearly defined water resource rights. The planning and governance of irrigation is fragmented: in some countries, the Ministry of Agriculture is responsible for small-scale irrigation projects while the Ministry of Irrigation or Ministry of Water is responsible for large-scale projects. There is a lack of coordination among responsible ministries and irrigation plans are not created in a holistic and comprehensive way.

Sustainable land management presents many of the same types of challenges. Poorly defined or insecure land rights cause farmers to underinvest in planting trees and making other sustainable and climate-smart land management investments. Policies ensuring land rights for women need to be complemented by effective communication about rights. For example, in several areas in

Ethiopia despite high levels of land registration for both male- and female-headed households, gender gaps in knowledge about land rights were found to reduce soil conservation practices and tree planting (Quisumbing and Kumar, 2014).

Poor soil fertility is a widespread, serious and overlooked issue which limits crop yield response to fertilizer. Soil acidity and the lack of irrigation also contribute to low yield responses. While ISPs have become widespread over the past decade and have, in some cases, enabled countries to increase agricultural production, their impact has been limited by the above mentioned factors (Jayne and Rashid, 2013). Other factors undermining the effectiveness of ISPs to improve fertility include poor targeting in some countries with beneficiaries found to be wealthier than non-beneficiaries and signs of political motivations for geographical targeting. There is also an indication that the effectiveness of ISPs in increasing the amount of fertilizer used is limited by at least partial crowding out of private sector input markets. All of these factors reduce the cost effectiveness of ISPs. These programs often represent large shares of public agricultural spending reducing funds available for more productive and cost-effective investments such as agricultural research and development (R&D); however, once institutionalized, subsidies are difficult to remove (Jayne and Rashid, 2013). In contrast, there is not enough emphasis on agroforestry and other Integrated Soil Fertility Management (ISFM) practices. Equally absent are well-articulated fertility management policies and programs that integrate organic as well as inorganic fertilizer. ISFM can lower the cost of subsidy programs, increase their sustainability and reduce climate-related risks.

IFPRI is conducting research in Malawi and Mozambique on making fertilizer subsidies conditional on sustainable land management practices such as tree planting. Early results suggest that this approach can be successful (see Marenya, Smith and Nkonya 2014). Experiences elsewhere demonstrate the potential of ISFM to increase profitability, lower fertilizer costs and lessen vulnerability to climate change. An ISFM project in Senegal revealed that less inorganic fertilizer was needed when its application was combined with the planting of leguminous trees. In Senegal, the education of communities on ecosystem services has proved successful in encouraging people to sustainably manage and invest in forests (Sow et al. 2015). Land management policies in Niger present another example of successful local management of natural resources and the benefits of providing incentives for sustainable land management (Moussa et al., 2015).

On the sustainable water management front, IFPRI is conducting spatially disaggregated research on the potential for small-scale and large-scale irrigation expansion in Africa based on agronomic and economic conditions as a first step in identifying areas for profitable irrigation investments (You et al., 2011).

Technology innovation

Africa faces an urgent need to scale up efforts to foster productivity-raising technological innovation in agriculture. The issues of research and development are being dealt with in a different

paper. Here, we limit ourselves to biotechnology because existing policy and regulatory regimes in this area will prove inadequate to respond to short- and medium-term developments without concerted efforts to formulate clear and effective policy frameworks (Chambers et al., 2014).¹

The main challenge in this area is a lack of policies and regulations for biosafety in general and biotechnology in particular and especially for genetic modification (GM) of crops and livestock. This caveat in policies and regulations represents the main obstacle for the marketing of modified crops. Relatively few African countries have implemented functional regulatory frameworks for genetically modified crops (GMOs) such as the 2003 Cartagena Protocol on Biosafety - an international agreement intended to minimize potential risks to biodiversity from GMOs - which serves as a de facto regulatory framework in other countries. This caveat has resulted in a risk-oriented approach to biotechnology regulations. Existing policies and regulations often lack transparency and are precautionary to an extent that is not warranted by existing evidence. What is more, these policies and regulations prove difficult for local research institutions to navigate. Biosafety laws and regulatory frameworks in some cases contradict other national policies and regulations and are not harmonized with the regulations of neighboring countries.

Capacity issues have culminated in constraints on several fronts. There is a lack of capacity to design and implement coherent policies and regulations with many regulators lacking understanding of and experience with the technology. IPR present many issues that call for dialogue but in most countries there has been a lack of progress in addressing these issues and developing IPR systems, which hampers the development and transfer of agricultural biotechnology. IPR education for senior policymakers as well as technology practitioners is needed. Finally, and more importantly, most countries lack capacity for biotechnology R&D and spending on R&D is generally low. Future interventions need to target the acquisition of the technical, regulatory, and infrastructural capacities required to master biotechnologies and their safe use for long-term growth and development.

In recent years, capacity-building efforts have helped a number of African countries start work to improve biosafety regulations and advance trials of biotech crops. IFPRI manages the Program for Biosafety Systems (PBS), which builds capacity for biosafety in Africa and South Asia through training, advice and policy research. The African Biosafety Network of Expertise (ABNE) is another capacity-building program under the auspices of African Union Commission (AUC) and the New Partnership for Africa's Development (NEPAD) which provides resources and support for developing biosafety systems. Another positive development is work within Common Market for Eastern and Southern Africa (COMESA) on regional harmonization of biosafety regulatory frameworks, which resulted in the approval of COMESA's Guidelines for Harmonization in 2013. Although overall levels of regulatory and technical capacity remain low, these developments can be accelerated in the future and expanded to more countries and regions.

¹ The rest of the section is based on Chambers et al., 2014.

Nutrition, safety nets and social sector services

Although encouraging progress is being made on nutrition, current progress and actions are not sufficient to meet the SDG goal of ending all forms of malnutrition by 2030 or the World Health Assembly (WHA) targets for 2025. Undernutrition remains unacceptably high in Africa. Adult overweight and obesity are increasing in nearly all countries. Current levels of funding for nutrition are insufficient both on the part of governments and of donors.

A lack of accountability for nutrition commitments and actions presents a constraint to improving outcomes (IFPRI 2015). Although a number of African countries made nutrition commitments at the 2013 Nutrition for Growth (N4G) summit in London, many of these commitments were vague and difficult to assess progress on. Other countries have failed to report progress on commitments. Relatively few countries are on course to meet clear and measurable commitments. Inadequate data makes it more difficult to track progress toward nutrition targets and hold governments and other stakeholders accountable to commitments.

Momentum is growing on a global level to draw attention to and mobilize resources for nutrition. Within Africa, more efforts are being made to integrate nutrition into national agriculture policies though much more needs to be done. IFPRI has carried out extensive research on the determinants of progress in nutrition and co-leads (with the International Center for Tropical Agriculture) Harvest Plus, a program which develops and disseminates nutritious bio fortified food crops. Within the broader CGIAR, IFPRI leads the Consortium wide program on Agriculture for Health and Nutrition, under which it is working with and supporting countries and technical organizations across Africa to develop and implement policies to advance nutrition goals.

Faster progress towards the goal of ending hunger and malnutrition requires broader and more effective social safety net programs. Beyond Ethiopia and South Africa, most African countries have very limited experience with operational social protection programs. There is a large number of well documented and successful programs in Asia and Latin America that could provide useful lessons for African countries seeking to scale up safety net programs (Alderman and Hoddinot, 2007). IFPRI has also carried out extensive research on social protection programs including evaluations of Ethiopia's Productive Safety Net Program (PSNP), which recently underwent design changes in order to become more nutrition-sensitive (IFPRI 2015). Other IFPRI research programs have analyzed the benefits of different modalities for social protection, cash, food and vouchers (de Brauw and Hoddinot, 2008; Adato, 2007; Maluccio. et al., 2006).

Social service expenditure is another area in which the choices made outside of the agricultural sector can have a significant impact on agriculture. African countries face considerable pressure to emphasize short-term concerns related to the symptoms of poverty at the expense of the longer term need to raise agricultural productivity and incomes thereby tackling the real root causes of poverty and food and nutrition insecurity. Spending on health, education, and safety nets has risen significantly in recent years, more than spending on agriculture and seems likely to continue to increase.

As long as countries operate under tight budget constraints, the best option is to devise strategies that maximize the contribution of social services to productivity in agriculture and the overall rural economy. Apart from the level of investment in social services and their known long-term impact on productivity, evidence points to significant scope for maximizing their impact by exploiting the differential impact and thus optimizing the allocation of expenditures across categories of services within a given social sector. Recently, IFPRI completed the Convergence research project, which accumulated evidence from Africa and elsewhere on the potential for optimizing social expenditure across subsectors in order to maximize the impact on agricultural productivity. Findings from the Convergence project show that different categories of health and education services affect the marginal productivity of labor and other inputs differently and that the impact can vary across geographic areas and between poor and non-poor. The findings can both inform immediate expenditure allocation decisions and pave the way for future research to help more countries optimize spending.

Gender inclusivity

The issue of gender is relevant to all of the policy areas above. Disparities and differences remain in the participation of men and women in agricultural production, trade and agribusiness, in their access to land and water and in their roles and needs regarding nutrition, health and education. Policies and regulations in each area may affect men and women differently and must be sensitive to gender issues (Harvey et al., 2015).²

Inequality remains in women's access to education, ability to work outside of agriculture and decision-making power within the household (United Nations 2013). Ending gender disparities is an important goal in its own right as reflected by the fifth Sustainable Development Goal (SDG) to achieve gender equality and empower women and girls. Gender disparities also make it more difficult to increase agricultural growth and reduce poverty and hunger. Agricultural productivity of women has remained lower compared to men and as a result agricultural transformation is more difficult to achieve. For reasons related to, amongst others, access to assets and services, decision-making power, domestic and other responsibilities, female farmers have less access to inputs and also achieve lower returns from inputs used. Women usually experience more limited rights to land, water and other natural resources. Although women participate extensively in agricultural value chains, they tend to be active in lower-value segments of value chains and in lower-value commodities.

The opportunities offered by more equitable gender outcomes are vast. Closing gender gaps in agriculture would increase agricultural productivity and incomes. Increasing incomes for women are likely to result in increased spending on children's health and education (Quisumbing et al., 2003). For such improvements to materialize, gender should be integrated more systematically into new and revised National Agriculture and Food Security Investment Plans (NAFSIPs), and

² This section draws upon a paper by Harvey et al. (2015.)

gender-disaggregated data should be collected on a more regular basis to monitor the existence of disparities and progress toward goals of reducing these disparities. The African Union Commission (AUC) is currently working to integrate gender into CAADP and to promote the integration of gender actions and targets into the next generation of NAFSIPs.

3. SUGGESTED ACTIONS/WAY FORWARD

Sector governance

Governments must continue to work towards and CSOs to advocate for improvements in institutional quality, governance and the rule of law. Policymakers should place high priority on maintaining macroeconomic stability and low or moderate inflation. In the agricultural sector, efforts on the part of RECs, countries and national stakeholders to advance mutual accountability through agricultural JSRs should be expanded. The inclusiveness of review processes should be enhanced through careful design of the review and through capacity building to allow private sector and CSOs to fully participate. Countries with successful review processes should share experiences and advice with countries formulating their first reviews.

Countries with high volumes of natural resource exports are presented with particular governance and management challenges and must tread carefully to avoid repeating past mistakes, which culminated in fiscal trouble and agricultural decline in oil-rich countries. Oil-producing countries should prioritize the strengthening of public financial management systems to enable them to handle the increased spending resulting from oil revenues (IMF, 2007). Gelb and Glassman (2010) find that countries with good records of natural resource export management benefitted, among others, from the presence of influential constituencies from non-oil tradable sectors that help advocate for cautious spending. The above suggests that capacity building of CSOs in countries with large natural resource export sectors may help to achieve more diversified economies by advocating for limiting spending and directing public investment to strengthening non-natural resource sectors.

Trade

Producers in African countries face rapidly expanding and increasingly sophisticated staple value chains. Policies and interventions are needed to effectively address institutional and regulatory obstacles related to quality standards and norms and sanitary and other requirements associated with participation in domestic and export markets. In addition to effective policies towards training and capacity building for quality management, efforts must include actions to facilitate the emergence of domestic certification service providers that can lower the cost of exporting to foreign markets.

The growth in intra-regional trade could be accelerated through even moderate reductions in trade costs and reduction of barriers to trans-border commodity movement (Badiane, Odjo, and Jemaneh, 2014). Policies for increased investments in and maintenance of trade infrastructure are

a clear action area to reduce trade costs as are actions to mitigate road harassment and corruption. Actions to encourage informal cross-border trade include simplifying or reducing documentation requirements, lowering import and export fees, expediting customs delays, increasing the transparency and predictability of requirements and fees, improving coordination of border agencies across and within countries and putting in place a greatly simplified regime for low-value transactions. Complementary measures should include technical assistance to help traders comply with regulations, raising awareness among traders of the benefits to formalizing their trade and improving the integrity of customs officials through effective leadership, improved human resource management policies such as salaries and training and audit mechanisms (Lesser and Moisé-Leeman, 2009).

Finally, Africa's trade performance is adversely affected by policies and regulations in importing OECD countries that require costly and technically complex compliance actions. Required efforts should focus first and foremost on helping producers and traders comply with the various technical barriers and regulations. Here it is also vital to improve capacity among African countries to better articulate and defend their interests in global negotiations.

Agribusiness and value chain development

A first step for policies to accelerate agribusiness growth is to improve the spatial targeting of areas where profitable value chains can be developed or upgraded. Assessment of market potential needs to focus, among others, on available resources, access to infrastructure and demand for the commodity. Infrastructure investments should be planned according to the needs of a particular area. In general, significant investments are needed in hard infrastructure, including transport, electricity, irrigation, and value chain infrastructure such as storage capacity and cooling systems. Some of these infrastructural needs can be developed with the private sector. Governments can lead efforts to develop standards and grades. Country policies and regulations have to be designed to effectively deal with these various aspects.

Policy and regulatory actions to advance institutional development are also needed, in particular actions that promote producer organizations with strong commercial and technical skills as well as smallholder friendly contract farming arrangements. As indicated earlier, policies and regulations to develop norms and quality standards and certification systems are critical to providing financial incentives for safe and higher-grade products that will command higher prices and open up access to more markets.

Finally, growth of emerging value chains requires policies towards scaling up vocational and professional training to build and upgrade skills along all segments of agribusiness value chains, including advanced training in product innovation, quality control, marketing, labor and financial management. Weaknesses in these areas are major constraints to improvements in productivity and profitability and hence enterprise creation and growth (Badiane and McMillan, 2015).

Sustainable land and water management

Policies to develop better capacity for irrigation and agricultural water management should be a priority. Such policies should be guided by a good understanding of what types of irrigation could be profitable in which areas and for which crops. These policies should also ensure that such irrigation infrastructure is built, rehabilitated, and operated at the lowest possible cost. However, irrigation alone will not be sufficient to secure adequate water resources for farming and most agricultural area will remain rainfed. Therefore, policies and regulations for improved water management in rainfed systems are equally important.

In general, improved national water management policies would include provisions for defining water rights and monitoring water use, including ground water, and the establishment of incentives to conserve water. Governments would need to enforce water pollution standards where they exist and create new ones where there are none. Effective policies would also ensure coordination between the different ministries responsible for irrigation and water management as well as the development of comprehensive joint strategies.

Policies for sustainable land management should promote decentralization of the management of natural resources so that local people would have the mandate to manage their resource, accompanied by education to raise awareness of the benefits provided by natural resources. Policies should be cognizant of the fact that ISFM is achieved through a number of complementary avenues. Inorganic fertilizer subsidies, for instance, need to be linked to incentives for farmers to adopt land management practices that integrate organic fertilizer. Nkonya (2015) has shown that when combined with policies to promote good agroforestry practices, fertilizer subsidy programs have a greater impact at a lower cost.

Jayne and Rashid (2013) also suggest a number of good practices and actions to improve ISPs. For instance, the benefits of ISPs can be increased, and the crowding out of private markets minimized, by targeting households that would not otherwise buy fertilizer. ISP design should promote private sector market development by allowing all private dealers to participate e.g. by issuing vouchers that can be redeemed from any private seller rather than from a limited group of distributors designated by the government. Good policies would first seek to make fertilizer more profitable without subsidies by investing in cost-reduction to lower the farm gate price of fertilizer and by developing output markets to raise returns to fertilizer use. Such policies would also expand farmer access to education and training as well as soil testing services to increase efficiency of use and improve soil management. Regulations to define and enforce fertilizer grading and quality are critical for lowering the cost, raising the profitability and hence promoting the use of fertilizer.

Technology innovation

The most pressing medium-term action to facilitate biotechnology innovation and adoption is to build functional regulatory frameworks in more countries. IFPRI's PBS and the ABNE of AUC/NEPAD can play leading roles in building national capacity to develop policies and regulations and advance efforts to further the development of biotechnology products. Recent work to better coordinate the efforts of PBS and ABNE should be extended.

Capacity-building efforts should be undertaken on a variety of fronts involving a number of different actors. Platforms should be established to provide opportunities for COMESA, which has worked to harmonize regulatory frameworks among its member countries to share experiences with other RECs. Emerging biotechnology actors such as Brazil, China and India should be included in dialogue and outreach efforts and invited to share their expertise on harnessing public-private partnerships (PPPs) to develop biotech products. Opportunities for dialogues on issues related to intellectual property rights (IPR) should be created and training in IPR provided for lawyers and technology practitioners.

More and better data and analysis are needed in several areas. Ex ante impact assessments of GM products in the pipeline should be carried out in order to inform policymaking. Better data on ongoing biotechnology work and on biotechnology capacity within national R&D systems are needed; the Agricultural Science and Technology Indicators (ASTI) initiative of IFPRI, which collects and publishes data on agricultural R&D capacities, would be a natural partner. Research and data on the effects of current GM products on farmers are needed and data should be disaggregated by gender as impacts are likely to differ between men and women.

More concerted and coherent outreach and communication strategies should be formulated in order to lessen the polarization of the debate about biotechnology and GMOs in particular. Assessments of current public opinion on biotechnology and GMOs should be carried out to inform strategic plans for communication and outreach (Chambers et al., 2014).

Targeted policies and regulations need to be developed to harness the potential of the rapidly expanding ICT services for agricultural value chain modernization. In lieu of the dispersed and often disjointed pilot and demonstration efforts, countries would need comprehensive frameworks for the use of ICTs in the agricultural sector. These would identify the most promising technologies, develop partnerships with service providers to lower cost of access and provide incentives for product innovation to target constraints in various value chain segments, including at farm level.

Nutrition, safety nets and social services

In order for African countries to meet the Malabo commitment of ending hunger by 2025, actions and financing for nutrition must be scaled up significantly. IFPRI's 2015 Global Nutrition Report notes that the countries that have shown large improvements in nutrition have each created

conducive political environments, invested in nutrition interventions and pursued complementary nutrition-sensitive policies. Countries should increase funding for nutrition, maximize the impact of spending by using evidence to guide interventions and be aware of the need to address all forms of malnutrition, including diseases stemming from overweight and undernutrition

A key area for action is to increase political accountability for nutrition targets. A first step is for every country to establish national nutrition targets based on global targets from the World Health Assembly and World Health Organization (WHO) and to establish mechanisms to monitor these targets. Governments should convene multi-stakeholder platforms to explore the constraints and challenges their countries face and identify actions to be taken. Countries should participate in the 2016 Nutrition for Growth Summit in Rio de Janeiro and use the opportunity to report on their progress.

Policies to exploit the scope for synergies between investments to meet social needs and in raising agricultural productivity would promote joint programming between social sector ministries and ministries in charge of agriculture. Ministries of health, education and social protection would prioritize services and programs in rural areas that have the greatest impact on agricultural labor productivity. Such policies would avoid competition for funding between agriculture and social sector ministries and encourage cooperation around the use and targeting of social expenditures that are conducive to agricultural growth and meeting development goals.

Gender

A range of actions exist to reduce gender disparities and increase the agricultural productivity of women that can be included in agricultural policies and programs. These include policies to increase the access of women to information, assets, credit, and extension, including the recruitment of women extension agents and the establishment of extension programs targeting women. The productivity of women may be affected by the demands on their time; this constraint can be loosened by reducing the domestic work burden through policies that improve access to water and childcare and access to labor-saving technologies. Gender inclusive policies would focus on the development of the necessary skills to enable women to participate in higher-value commodity value chains. These policies would also facilitate more active participation of women in producer and community organizations. Policies and programs to train women scientists (such as AWARD) and expand access to tertiary education need to be adopted at the country level.

Gender inclusive policies would need to create and/or revise laws to strengthen women's rights over land, water and other natural resources and undertake educational and outreach campaigns to raise awareness of new resource rights regimes. In order to establish accountability for improved outcomes, good policies would set gender-related goals and targets. In the particular case of CAADP, gender-related actions, goals and targets should be integrated into NAFSIPs. National statistical agencies should mandate and set standards for gender disaggregated data collection. Gender-related goals and targets must be tracked, possibly by a dedicated unit or agency. Feedback and accountability mechanisms should be gender-inclusive.

4. ESTIMATED COSTS

The policy actions listed above have to be seen as indicative. Individual countries should adapt and adjust actions to reflect their specific constraints and opportunities. Such actions have to be rooted in a solid understanding of the challenges and opportunities facing every country. Moreover, these challenges and opportunities are not static but change over time. Policy-making essentially takes place on a daily basis, and requires continued changes, adjustments, refinements and fine-tuning. Effective policy regimes have to be supported through locally based expertise and analysis in order to anticipate and respond to challenges and devise appropriate solutions. At this general level, it may make more sense to define the types of investment that can be supported by the Bank across all countries, independent of the specific characteristics and nature of policies to be put into place. Such investments could focus on capacity needs to effectively design and successfully implement policies conducive to sustained growth and agricultural sector transformation.

In other words, investments would focus on ensuring that countries succeed in: (i) building policy research and analysis capacities among national centers of knowledge; (ii) creating institutional mechanisms to systematically link the domestic supply of and demand for policy relevant data and research findings and (iii) establishing inclusive accountability mechanisms for policy review and dialogue. African countries are already investing heavily in universities, research centers, planning units, bureaus of statistics and other local centers of expertise. In most cases, what is required is marginal investment in coordination, planning, and knowledge brokering functions to leverage these broader investments. Additional investments would go towards institutional innovations to support and promote inclusive review and dialogue processes.

Based on various experiences on the ground such as the country Strategic Analysis and Knowledge Support Systems (SAKSS) supported by IFPRI, AGRA's Policy Hubs, and the Food and Agriculture Organization's Monitoring African Food and Agricultural Policies (MAFAP) program, the level of marginal investment should not exceed US\$500,000 per country per year. These investments would focus on the narrow target of meeting the technical and institutional capacity needs for evidence based policy planning and implementation. They do not include investments needed for instance for biotechnology and ICT promotion, trade facilitation or integrated soil and water management. Such investments are best handled as part of broader programs in these respective areas.

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