



Rigorous Monitoring to guide Inclusive Agri-food Systems Transformation in Africa

Policy Brief

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Introduction and Context

Agri-food systems are critical levers for economic development in Africa. In 2021 alone, the agricultural sector employed about 65% of the continent's labor force. Research further shows that the catalytic and multiplier effect of growth in agriculture on overall economic progress is higher than what is obtainable from other sectors (AfDB, 2016)¹. However, Africa's agri-food systems continue to face numerous challenges, including the recent increase in oil and gas prices, climate change, the COVID-19 pandemic, and other stressors. From a food supply perspective, Africa's food systems continue to experience low levels of productivity, per capita agricultural output being just 56% of the world average. The Food and Agriculture Organization (FAO) 2022 State of Food Security and Nutrition report shows that Africa continues to bear the heaviest burden of malnutrition with an undernourishment prevalence rate of over 20%. Projections by the United Nations Economic Commission for Africa (UNECA, 2019) also point at an increase in Africa's annual food imports, reaching \$110 billion by 2025. These trends highlight the failure by the continent to harness the full potential of its agriculture sector. For a step-change, inclusive agricultural and food systems transformation must be central in shaping Africa's development agenda. The business-as-usual approach will cause serious consequences in terms of the social outcomes, environmental impacts, and the effectiveness of the development efforts across the continent.

Over the years, African governments have made concerted efforts to try and get the institutional and policy architecture right to guide investments that are critical to getting agriculture moving and spurring economic growth. Notable initiatives and programs include the creation of the New Partnership for Africa's Development (NEPAD), the Maputo Declaration of 2003, and the Comprehensive Africa Agriculture Development Program (CAADP), as well as the African Development Bank's (AfDB) Technologies for African Agricultural Transformation initiative. However, progress in agricultural transformation varies significantly across countries, depending on existing macro-economic contexts, the pathways and models of transformation pursued, and the general effectiveness of existing support institutions in shaping and supporting inclusive and transformative growth. There is no template or model for agricultural transformation that can be universally applied across countries, and the pace of transformation depends on the underlying drivers and political dynamics of each country.

Efforts to drive transformation, and the effectiveness of policy instruments in catalyzing inclusive agricultural transformation, are often curtailed by a lack of frameworks effective identification of gaps, assessment of investment priorities, and setting clear targets. Such frameworks should form the foundation for the development of metrics and indicators that can be used to set benchmarks and facilitate the rigorous monitoring of efforts and progress towards driving transformation at country, regional and continental levels. Recognizing the importance of such frameworks, AGRA collaborated with the Economist Intelligence Unit (EIU) of the Economist Group to develop an Inclusive Agricultural Transformation (IAT) benchmarking tool that will be crucial to assessing the status of agricultural transformation in Africa. The tool was deployed in 15 countries in Africa, namely Ghana, Malawi, Tanzania, Burkina Faso, Ethiopia, Ivory Coast, Kenya, Morocco, Nigeria, Togo, Mali, Mozambique, Rwanda, Uganda, Zambia. The IAT tool provides a comprehensive guiding framework for analyzing the complex agricultural transformation landscape, identifying the key drivers, and building blocks, and identifying interventions and investment areas that can be prioritized by public, private, and donor investors and partners. As AGRA embarks on its Strategy 3.0, the IAT benchmarking tool offers several utilities, including:

- Identifies key gaps and prioritized interventions to inform AGRA's country strategies, setting clear targets for action, and illustrating how the different business lines can potentially contribute to the broader inclusive transformation agenda at country level.
- Develops a clear set of system-level indicators that will be used to support evidence-based policymaking, and hence guide AGRA's work in supporting policy implementation in countries.
- Provides a framework for assessing countries' performance relative to set goals and targets and assists in drawing meaningful comparisons and lessons across countries that can be used to incentivize appropriate action.
- Helps identify strategic partnerships and coalitions that can be forged to drive the inclusive agricultural transformation agenda, effectively helping countries achieve significant progress by aligning critical actors and stakeholders.

¹ The African Development Bank (2016). Feed Africa: Strategy for agricultural transformation in Africa 2016–2025. <https://www.afdb.org/en/news-and-events/afdb-launches-feed-africa-a-strategy-for-agricultural-transformation-in-africa-2016-2025-16122>

The IAT Benchmarking Framework

Literature is replete with several definitions of agricultural transformation. The analytical framework guiding this study is rooted in Timmer's (1988)² agricultural transformation framework. The Timmer framework is grounded in the conceptual underpinnings of agricultural development and clearly captures the experience of countries as they undergo agricultural transformation. The framework also provides the context for identifying key resource flows, intersectoral linkages, and the policy concerns that characterize each stage (World Bank, 2019)³. The conceptual framework is illustrated in Figure 1 below.

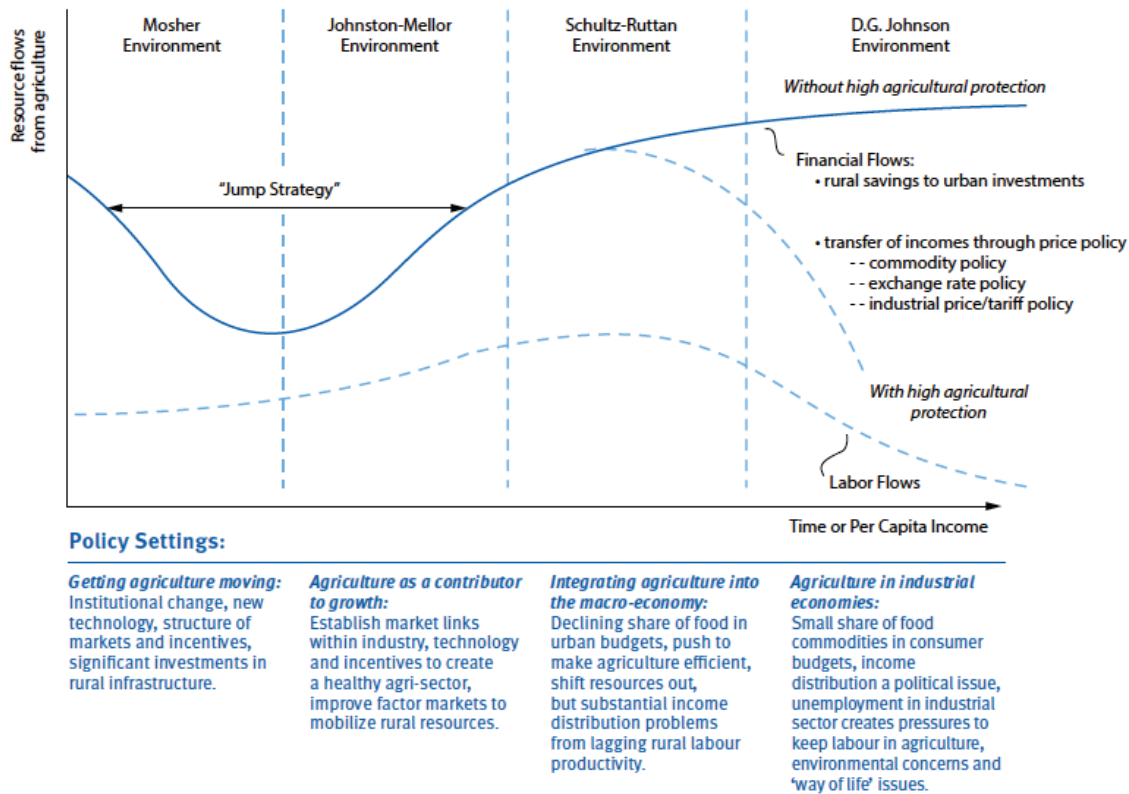


Figure 1: Changing environments for agriculture's contribution to economic growth

Source: Timmer (1988)

In terms of definition, agricultural transformation is widely considered a process through which agri-food systems transform over time, laying the foundation for productivity increases, diversification, enhanced value-addition and increased integration in the broader economy and industrialization. For IAT to occur, certain conditions must be in place. The AGRA/EIU framework thus examined IAT using a framework encompassing four pillars that underpin agricultural transformation:

- 1) Policy and institutions
- 2) Infrastructure
- 3) Factors of production
- 4) Market development

The IAT Benchmarking Tool also includes a domain that captures some of the desired outcomes of inclusive agricultural transformation, allowing for assessment of whether progress in IAT correlates with improved performance such as enhanced productivity, reduction in poverty, hunger, and inequalities as well as improvements in nutrition and other social outcomes. The analytical framework and its components are illustrated in Figure 2 below.

² Timmer, C. P. (1988). The agricultural transformation. Handbook of development economics, 1, 275-331.

³ The World Bank (2019). Agricultural Transformation and Inclusive Growth: The Malaysian Experience. <https://openknowledge.worldbank.org/handle/10986/32642>

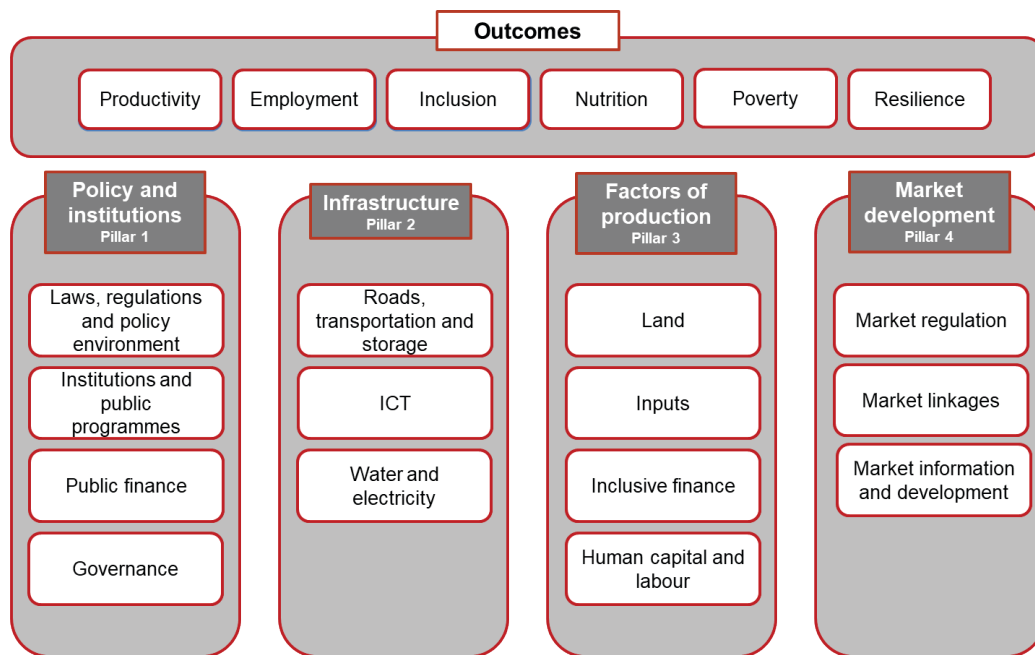


Figure 2: The IAT Benchmarking Framework

Source: Economist Impact (2022)

The framework was designed from an iterative and intensive consultative process, drawing insights from AGRA's internal systems experts, among them seeds, fertilizer and soil health, inclusive finance, climate change adaptation and resilience, inclusive markets and trade, nutrition, as well as youth and gender specialists. The candidate domains, focus areas and indicators were subjected to reviews and validation by leading African experts, including representatives from the International Food Policy Research Institute (IFPRI), United Nations Development Program (UNDP), Bill & Melinda Gates Foundation (BMGF), Comprehensive Africa Agriculture Development Program (CAADP), the Seed Systems Group, among other stakeholders in Africa's agricultural and food systems landscape. The final tool encompassed a total of 63 quantitative and qualitative indicators across the four pillars of IAT, and the outcomes domain. The tool was piloted in Malawi, Tanzania, and Ghana to test its adequacy and consistency, before it was rolled out in the 15 study countries (Figure 3). Country assessments were conducted using a checklist of questions developed around the indicators, and a scoring methodology was developed to capture and measure the indicators. Each indicator scoring was accompanied with a justification, providing the rationale for the score, as well as additional evidence to validate the scores.

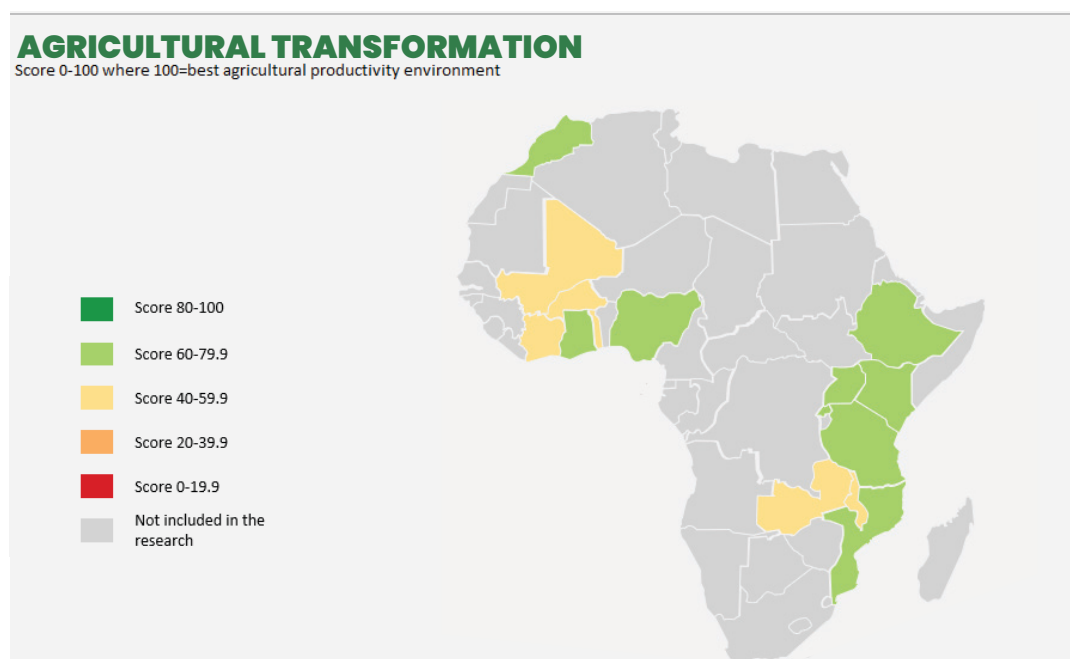


Figure 3: Country assessments

Source: Economist Impact (2022)

The overall IAT index was computed by aggregating indicators across the four pillars of agricultural transformation.

Due to the diversity of the indicators and heterogeneity in measurement scales, normalization was necessary before the aggregation was carried out. Additionally, and to get some insights on the pillars and dimensions for driving IAT performance at the country level, four sub-indices were created by aggregating respective indicators in each pillar. The fundamental question was why some countries perform relatively better in some pillars than others. Comparing the relative performance across different sub-indices helped tease questions around whether specific structural constraints existed in some of these critical domains of agricultural transformation. This disaggregated analysis helped inform discussions on where potential investments could be channeled to catalyze agricultural transformation in specific countries.

What Is emerging from the Analysis

Benchmarking assessments have been completed in the 15 target countries, alongside the validation of the preliminary scores by teams of in-country experts. Figure 4 below shows the country performances across the IAT index and sub-indices. Based on these preliminary results, countries were ranked, and individual performance assessed relative to their peers within the sample.

AGRICULTURAL TRANSFORMATION		1) POLICY AND INSTITUTIONS		2) INFRASTRUCTURE		3) FACTORS OF PRODUCTION		4) MARKET DEVELOPMENT			
Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score		
1	Morocco	72.0	1	Rwanda	69.8	1	Morocco	74.8	1	Kenya	83.7
2	Ghana	66.1	2	Morocco	65.5	2	Ghana	70.2	2	Uganda	77.2
3	Rwanda	64.7	3	Uganda	64.1	3	Mozambique	65.0	3	Ethiopia	74.4
4	Kenya	64.0	4	Malawi	63.9	4	Tanzania	63.2	4	Morocco	73.9
5	Ethiopia	62.4	=5	Ethiopia	61.7	5	Rwanda	61.2	5	Mozambique	73.2
6	Uganda	61.7	=5	Kenya	61.7	6	Nigeria	59.7	6	Ghana	70.9
7	Nigeria	60.7	7	Ghana	58.4	7	Zambia	59.2	7	Nigeria	68.6
8	Mozambique	60.6	8	Tanzania	56.3	8	Ethiopia	58.7	8	Burkina Faso	68.4
9	Tanzania	60.0	9	Nigeria	55.8	9	Kenya	57.4	9	Rwanda	67.3
10	Malawi	59.1	10	Togo	54.2	10	Malawi	54.8	10	Malawi	64.0
11	Zambia	53.9	11	Mali	53.1	11	Ivory Coast	53.7	11	Tanzania	62.2
12	Ivory Coast	52.9	12	Ivory Coast	51.4	12	Uganda	51.9	12	Ivory Coast	61.5
13	Burkina Faso	49.4	13	Zambia	48.5	13	Togo	43.6	13	Zambia	54.4
14	Togo	47.5	14	Mozambique	48.3	14	Burkina Faso	34.3	14	Togo	50.5
15	Mali	40.5	15	Burkina Faso	45.3	15	Mali	28.0	15	Mali	47.7

Figure 4: Overall country performance across IAT index and sub-indices

Source: Economist Impact (2022)

Among AGRA's target countries, Ghana is the best performer, followed by four from East Africa countries, namely: Rwanda, Kenya, Ethiopia, and Uganda. Eight of AGRA's target countries have individual IAT scores of at least 60%. The intriguing questions are: 1) What do these countries have in common that sets them apart from the rest? and 2) What are the critical drivers behind these relatively strong performances? A deeper analysis, complemented by some political economy analysis should help unpack the peculiarities of each of these country contexts. In the meantime, our preliminary results indicate that the top performing countries i.e., Ghana, Rwanda, Kenya and Ethiopia, tend to have stronger infrastructure networks, in particular better ICT services (which are more accessible to farmers), and better-developed market linkages—such as contract farming initiatives and warehouse receipt systems. Rwanda's strengths reside in the quality of its policies and institutions, particularly its rural governance and public finance. Kenya, on the other hand, has made progress in developing its market systems, establishing the vital regulatory bodies and procedures, and supporting the development of market information capacities. Meanwhile, Ethiopia has made solid progress in developing agricultural markets, and has particularly well-established institutions that have effectively implemented policies directed at IAT.

In contrast, countries such as Mali, Togo and Burkina Faso seem to be lagging behind for a number of reasons. Burkina Faso, does not have the appropriate land tenure policy in place and has challenges with infrastructural development, including limited access to electricity and its deleterious impacts on irrigation potential. The poor performance is also attributable to the ongoing political instability in the country. Similarly, political instability in Mali is disrupting the country's ability to govern and implement policies, ultimately slowing IAT. Within the context of this study, it must be noted, however, that even the countries that perform poorly in our benchmarking tool have still made progress, but from a considerably lower baseline, hence making them laggards in a comparative sense. Going forward, and with more countries and data, we are going to complement this with factor and cluster analysis, which should enable us to create typologies of countries across the IAT spectrum. Similar to Peter Timmer's seminal work on the four stages of agricultural transformation, the typology analytics should help us identify critical levers for transformation and tailored interventions. The beauty of the IAT benchmarking tool is that it can also allow us to zoom into specific indicators across individual countries. Figure 5 below illustrates this strength using Burkina Faso's performance across different indicators:

Score 0-19.9	Score 20-39.9	Score 40-59.9	Score 60-79.9	Score 80-100
1.4.2) Institutionalized and operational Joint Sector Review (JSR)	1.1.2) Land tenure rights	1.2.2) Administrative body to promote agribusiness PPP / private sector investment	1.1.3) Agricultural development policy addresses gender equality	1.1.1) Agricultural transformation strategy
2.2.3) Support for digital literacy	1.1.4) Enabling private sector development in agriculture	2.2.1) Access to agriculture-enhancing digital services	1.2.1) Region-specific programs/initiatives supporting agricultural operations	2.2.2) Mobile subscribers
2.3.2) Irrigated Agriculture Water Use Efficiency	1.3.1) Agriculture expenditure (share of total expenditure)	2.3.4) Improving electricity access for small-holder farmers	1.2.3) Formal recognition of farmers/producer organizations	3.2.1) Early generation seed production / new varieties
2.3.3) Access to electricity, rural	1.3.2) Development flows into agriculture per capita	3.1.4) Soil mapping data programs	1.4.3) Rural governance	3.2.2) Policy frameworks for seed inspection and certification
3.2.3) New seed varieties released each year among top four crops	1.4.1) Multi-stakeholder coordination body for agricultural development	3.3.1) Access to banking (including mobile money)	2.3.5) Share of renewables in primary energy supply	3.2.4) fertilizer regulatory framework
3.2.6) Fertilizer consumption	2.1.1) Quality of trade and transport-related infrastructure	3.3.2) Access to finance and financial products for farmers	3.1.1) Land degradation	3.2.5) Programs / policies for fertilizer access
3.2.7) Pesticide use per area of cropland	2.1.2) National road/infrastructure	4.1.2) Quality control mechanisms for agricultural produce	3.1.3) Soil conservation	3.4.2) Policy framework/implementation strategy for extension
3.2.8) Energy use in agriculture per Agricultural GDP	2.1.3) Recent investments in crop storage	4.2.3) Food production index	4.1.3) Trading food score	4.1.1) Market regulating authorities promote competition
	2.3.1) Improving water access for small-holder farmers	4.2.4) Agricultural exports value add	4.2.2) Warehouse receipt system	4.3.1) Agro-industrial development promotion
	3.1.2) Manure applied to soils per area of cropland		4.3.2) Farmers' access to market information	4.3.3) Food and agriculture share of total CO2 emissions
	3.3.3) Access to diversified agricultural financial services			
	3.3.4) Agricultural finance portfolio (% of total financial sector portfolio)			
	3.4.1) Productivity: Agriculture value added per worker			
	3.4.3) Support for extension systems by non-government actors			
	4.2.1) Contract farming			

Figure 5: Burkina Faso performances across individual indicators

Source: Economist Impact (2022)

Figure 5 above shows how indicators pertaining to rural infrastructure, particularly electricity and access to water by smallholder farmers are among the worst performing indicators for Burkina Faso. There are also gaps in roads and transportation-related infrastructure as well as the paucity of investments in crop storage facilities. A lack of investments in these areas have had a negative bearing on the general productivity, transportation, and transaction costs, as well as the magnitude of post-harvest losses. Earlier studies by the AfDB⁴ have shown a strong link between rural infrastructure (including road networks, irrigation, and post-harvest storage facilities), and agricultural productivity. Therefore, while investments from organizations such as AGRA are mostly targeted at supporting core agricultural systems (including seeds, fertilizers and soil health, and extension, among others), complementary development programs that are channeled through national development strategies, remain critical in catalyzing an inclusive and sustained agricultural transformation. The implementation of integrated rural development programs, including irrigation development, is widely credited for the success of the Green Revolution in countries such as Malaysia (World Bank, 2019). Identifying how systems-level interventions and broader development investments can complement each other to spur agricultural growth and transformation at country level is, therefore, one of the significant utilities of the IAT benchmarking tool.

The High-Level Messages and Nuggets

The IAT benchmarking work and assessments in the 15 countries revealed several interesting results that have important implications for current efforts in driving agricultural and food systems transformation across the continent. While granular results are also provided, with a set of analytics dissecting each of the four pillars of inclusive agricultural transformation, a few high-level results are worth highlighting here:

- Countries that demonstrate better progress in IAT tend to have dedicated institutions that prioritize and target progress towards inclusive development – This demonstrates that an enabling policy and institutional environment that supports public investments, provides the requisite incentive structures, fosters competitiveness, and provides appropriate legal and regulatory frameworks, does matter for inclusive agricultural transformation. Reviewing agricultural transformation experiences from Asia and Africa, Laborde et al. (2018)⁵ noted that combining institutional, legal and policy reforms with public investment leads to much greater success. This was the case with agricultural institutional reforms of China and Vietnam, the land reforms in Vietnam and South Korea, and the provision of public credit in Brazil and Colombia.
- Improving governance is critical for progress in IAT – Countries with stronger sector governance, in terms of proactive management within ministries of agriculture, the inclusion of a broad range of stakeholders, and ensuring that the strategies and processes are reviewed regularly and held accountable, show commendable progress

⁴ The African Development Bank (2011). Infrastructure and Agricultural Productivity in Africa. <https://www.afdb.org/en/documents/document/market-brief-infrastructure-and-agricultural-productivity-in-africa-25318>

⁵ Laborde Debucquet, David; Lallemand, Tess; McDougal, Kieran; Smaller, Carin; and Traore, Fousseini. 2018. Transforming agriculture in Africa & Asia: What are the policy priorities? International Institute for Sustainable Development (IISD). <https://www.iisd.org/library/transforming-agriculture-africa-asia-what-are-policy-priorities>

in key pillars such as: factors of production, infrastructure and to a lesser extent, market development. A good reference is Uganda, which puts significant effort towards including multiple stakeholders in the agricultural development process, through an Agricultural Sector Working Group (AgSWG) that meets once a quarter to implement, track and budget the Agriculture Sector Strategic Plan (ASSP). The AgSWG has a fair representation from the private sector, NGOs, civil society, and the Uganda Local Governments' association, among others. To underline the importance of governance and state capacity, AGRA has a dedicated business line that aims at bolstering the capacity of governments to coordinate the agricultural sector and foster mutual accountability. Progress in these aspects is being tracked through a Government Readiness for Transformation (GRT) framework⁶.

- Labor productivity is a critical driver of IAT – The analysis notes that extension services alone are not enough, and complementary investments in mechanization are key to boosting the marginal productivity of labor. The labor productivity indicator (agricultural value added per worker) was among the least performing indicators. In the 2022 report titled “Boosting Productivity in Sub-Saharan Africa: Policies and Institutions to Promote Efficiency”, the World Bank⁷ notes that productivity levels across the continent have been persistently low, owing to the slow accumulation of physical and human capital relative to the region’s growing population, as well as inefficient allocation of resources.
- Infrastructural development, particularly road networks and farmers’ access to electricity continue to be a challenge for most countries – Despite work by governments to improve electricity access for smallholder farmers, many of these efforts have not yet been translated into actual access. In 12 of the 15 study countries, only 42% or less of the rural population has access to electricity. In terms of road infrastructure, efforts to improve roads and transportation linkages have largely targeted major road infrastructure projects, with limited focus on connecting rural areas to the larger road networks.
- Although most governments have made considerable strides in promoting progress in ICT, there is a huge disparity in farmers’ access to agricultural enhancing services, which is a result of country-level factors such as hefty technology acquisition costs and low digital literacy, among others. Digital innovations have a huge potential for enhancing financial inclusion among smallholder farmers and significantly lowering the transaction costs associated with accessing market information. Harnessed properly, ICTs and digital solutions can drive agri-food systems transformation in Africa⁸. And while a few of these solutions are well provided by governments, there are still challenges when it comes to the adoption by farmers.

⁶ The GRT framework is a product of collaborative work between the Tony Blair Institute for Global Change (TBI) and AGRA, aimed at improving approaches to measuring government readiness for agricultural transformation. <https://institute.global/advisory/driving-agricultural-and-food-transformation-africa-toolkits-agra-and-tbi-strengthen-state>

⁷ The World Bank (2022). Boosting Productivity in Sub-Saharan Africa: Policies and Institutions to Promote Efficiency. <https://openknowledge.worldbank.org/handle/10986/36786?show=full>

⁸ Mabaya, E., & Porciello, J. (2022). Can digital solutions transform agri-food systems in Africa? *Agrekon*, 61(1), 67–79. <https://www.tandfonline.com/doi/full/10.1080/03031853.2022.2032223>

Implications for IAT Efforts

Recent years have seen an intensification of efforts in catalyzing inclusive and sustainable transformation of agri-food systems. Collaborative efforts spearheaded by AGRA and its development partners, including USAID, UKAID, Germany's Federal Ministry for Economic Cooperation and Development (BMZ), the Bill & Melinda Gates Foundation and The Rockefeller Foundation, under the banner "Partnership for Inclusive Agricultural Transformation in Africa (PIATA)", have sought to forge stronger coordination and synergize the efforts and objectives of various players. Recently, AGRA launched its new Strategy 2030 at the AGRF 2022 Summit, in Rwanda. Through the new strategy, AGRA seeks to catalyze inclusive and sustainable transformation of African agriculture through supporting policy and regulatory reforms and bolstering state capacity for effective delivery, with the goal of reaching 28 million farmers in 15 countries. Several levers crucial to agricultural transformation are deployed under the new strategy, including strengthening systems to enhance farmers' access to good quality and affordable inputs; fostering inclusive markets and trade; promoting sustainable farming that builds resilience and protect the environment; as well as promoting nutrition and ensuring inclusion of women, youths as well as increased funding for women-led agri-food SMEs.

The IAT benchmarking tool thus provides a framework for better understanding the context in which these efforts and investments are made, which will also help qualify some of the envisaged impacts. The IAT framework also demonstrates how agricultural transformation is a complex process, with a complex set of underlying structural challenges that might not be solely addressed by AGRA or any other individual actors. A broad range of actions and partners will be needed to effect change, and these must be coordinated in a complementary manner to offer the right technical and financial resources to catalyze transformation. Through this first iteration, the IAT benchmarking tool illustrates how country efforts and progress towards inclusive transformation can be assessed, allowing for a more systematic comparison of lessons and experiences across countries, with the view of encouraging and incentivizing appropriate policy responses. While there is room to improve the tool further through the refinement and expansion of indicators, the current results shed light on some gaps that will inform AGRA's country strategies and help the organization delineate where it will lead, leverage, and invest in its new strategy. This work also complements the ongoing efforts by the CAADP Biennial Review (BR) by broadening the scope of the indicators being tracked and infusing an in-depth systems perspective.

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