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Rwanda's food systems transformation

A diagnostic of the public policy landscape shaping the transformation process

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ABSTRACT

This paper provides a diagnostic of Rwanda's food systems and the policy landscape that shapes it. It aims to inform national and local conversations on Rwanda's food systems transformation—an idea that has attracted considerable attention in national consultations conducted in the run-up to the United Nations Food Systems Summit in September 2021, at the summit itself, and in the post-summit actions that Rwanda is now pursuing.

A food system comprises the full range of actors and activities originating from agriculture, livestock, forestry, or fisheries, as well as the broader economic, societal, and natural environments in which they operate. An inclusive and sustainable food systems transformation is a process of growth and development that is profitable for the full range of individual actors engaged in the system, beneficial for society including marginalized and vulnerable groups, and advantageous for the natural environment.

Rwanda's journey towards a food systems transformation is well captured in Vision 2050, the National Strategy for Transformation (NST 1), and strategic plans for sectors such as agriculture, health, nutrition, commerce, and the environment. Their priorities are echoed in ongoing programs and investments of the government, its development partners, the private sector, and civil society.

Nonetheless, there are still challenges facing Rwanda's efforts to sustain and accelerate progress along this journey. Efforts to overcome these challenges call for a deeper and more significant shift in thinking—informed by the food systems perspective—that is highlighted by stronger multi-sectoral approaches to problem-solving.

Overall findings suggest an opportunity for a tangible shift in how public policy in Rwanda approaches its food systems and how the systems contribute to the broader national transformation process. This means addressing how balances are struck—and tradeoffs are managed—between and among agriculture, nutrition, health, and the environment in the face of a climate crisis. It also means giving greater attention to the demand-side drivers in Rwanda's food system, recognizing that singularly focused supply-side strategies rarely succeed in isolation. Finally, it means deepening the integration of policies and policy actors in the design and implementation phases of interventions that shape the food system.

We offer several recommendations to translate abstract ideas into a coherent and focused set of actions in the policy space.

1. Strengthen existing entities and mechanisms rather than create new ones.
2. Develop a national food systems transformation strategy that is integrative, multi-sectoral, and action-oriented.
3. Innovate on existing programs.
4. Allow for learning through both success and failure.
5. Invest in rigorous impact evaluation.

These actions aim to strengthen the policy environment that enables a truly broad-based food systems transformation. This enabling environment is itself an outcome of broad-based national conversations, integration across sectors, domains, and levels; and the encouragement of policy and program innovation.

RWANDA'S FOOD SYSTEMS TRANSFORMATION

As Rwanda journeys towards its broad-based social and economic transformation, there are opportunities for the country's food systems to become a key driver on that journey. This idea has attracted considerable attention in the national consultations conducted in the run-up to the United Nations Food Systems Summit (UNFSS) in September 2021, at the summit itself, and in the post-summit actions that Rwanda is now pursuing.

This paper provides a diagnostic of Rwanda's food systems and the policy landscape that shapes this system. Emphasis is placed on six inter-related clusters: diet quality and nutrition security; livelihoods equity; environmental resilience; agricultural productivity; infrastructure capacity; and financing and investment.

The paper contributes to conversations on national and local efforts to accelerate and deepen the transformation process—conversations that are meant to inform the design of a multi-sectoral food systems transformation strategy for the country. By acknowledging the challenges that Rwanda still faces, identifying ways to build on impressive achievements to date, and encouraging greater policy innovation for the future, there is considerable opportunity for a more productive, inclusive, and sustainable transformation of Rwanda's food system.

The paper is organized as follows. Section 2 provides background on Rwanda's food system. Section 3 summarizes the methods used in this analysis. Section 4 describes the challenges to the country's food systems transformation. Section 5 summarizes findings from the analysis, followed by policy recommendations in Section 6.

BACKGROUND: A FOOD SYSTEMS TRANSFORMATION IN THE RWANDAN CONTEXT

For Rwanda, an inclusive and sustainable food systems transformation (Box 1) means tackling multiple challenges within a complex system involving not just agricultural production, aggregation, processing, and distribution, but also the consumption and nutritional choices made by its citizens, and the investment decisions made by its farmers, traders, entrepreneurs, and financiers. It means moving from traditional archetypes that govern the way food is produced, processed, exchanged, and consumed, to more diversified approaches that are simultaneously responsive to the health, nutrition, economic, and environmental challenges facing Rwanda. And it means heightening the emphasis on intricate, multi-sectoral approaches that are often difficult to manage but nonetheless critical to success.

A food systems approach is a framework that brings together under one umbrella the many and differing priorities, policies, and activities that affect the system and its actors. Key elements of this approach—and a broad set of actions to address these challenges—are already partly reflected in Rwanda's Vision 2050, the National Strategy for Transformation (NST 1), and the strategic plans for key sectors such as agriculture, health, nutrition, commerce, and the environment. These visions, strategies, and plans are echoed in ongoing programs and investments of the government, its development partners, the private sector, and civil society, which have put Rwanda on an encouraging, solutions-oriented trajectory. This progress is highlighted in several recent studies that give high marks to Rwanda for its vision, strategy, and performance (Adolph et al. 2021; Guijt et al. 2021; Malabo Montpellier Panel 2021).

Box 1: What is a “Food System” and a “Food System Perspective”?

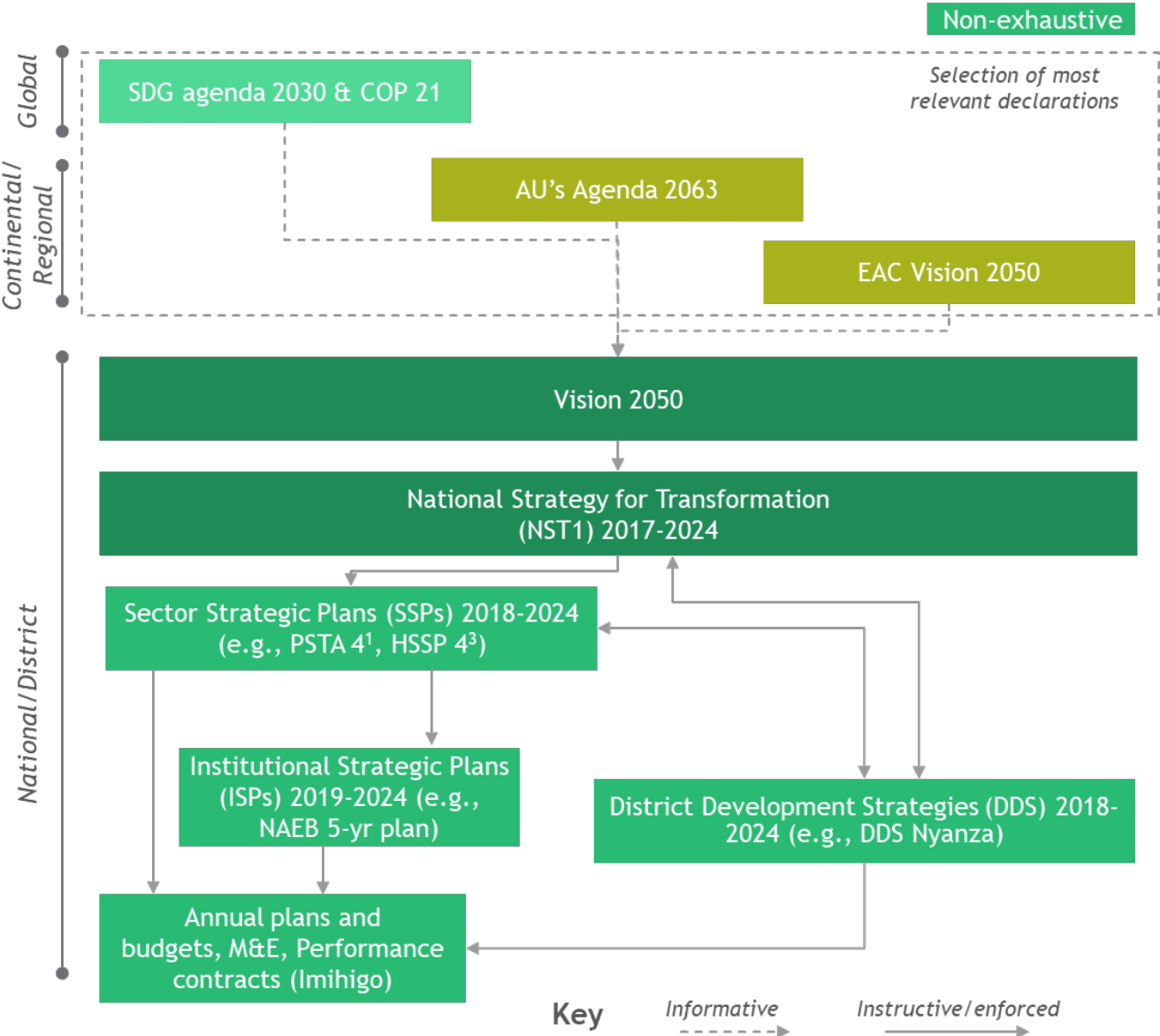
It is important to begin with an understanding of exactly what a “food system” is and what it implies for Rwanda. In the simplest terms, a food system is defined as the actors and their activities originating from agriculture, livestock, forestry, or fisheries, as well as the broader economic, societal, and natural environments in which they operate, including the production, aggregation, processing, distribution, consumption, and disposal of food products (FAO 2018). An inclusive and sustainable food systems transformation is a process of growth and development that is profitable for the full range of individual actors engaged in the system, beneficial for society including marginalized and vulnerable groups, and advantageous for the natural environment.

The food systems perspective contributes to the identification, analysis, and resolution of trade-offs between nutritional, social, economic, and environmental objectives. Policies designed with a food systems perspective in mind aim to address national food security goals, consumer food quality and safety demands, value chain growth opportunities, and ecosystem management and resilience. The three key attributes of a sustainable food system are: offering adequate nutrition and health; creating biodiversity and avoiding negative ecological and environmental impacts; and ensuring livelihoods for farmers through landscape diversification and equitable access to land, water, seeds, and other inputs (Willett et al. 2019; Dwivedi et al. 2017). Diversifying food systems and diets improves human health and contributes to other multiple benefits including healthy ecosystems.

Nonetheless, there are still challenges facing Rwanda’s efforts to sustain and accelerate measurable progress along Rwanda’s journey. Arguably, efforts to overcome these challenges call for a deeper and more significant shift in thinking—informed by the food systems perspective (Box 1). A food systems perspective can bring greater coherence to our understanding of the existing activities and environment without necessarily adding new programs, investments, and indicators to the mix.

Indeed, a food systems perspective hinges on understanding that a transformation process must build on existing policies and programs that tie directly to the country’s food systems (Figure 1). In Rwanda, these include the strategic plans introduced for the period 2018-24 such as the Fourth Strategic Plan for Agriculture Transformation (PSTA4), the Fourth Health Sector Strategic Plan (HSSP4); the social and behavior change communication (SBCC) strategy for integrated early childhood development, nutrition, and water, sanitation and hygiene; and the National Environment and Climate Change Policy (NECCP). They also include the programs and projects that follow from the strategic plans and the closely associated district, sector, and local development strategies, alongside Rwanda’s international engagements and obligations that intersect with its food systems transformation, for example, the African Union Agenda 2063, the Malabo Declaration and the Comprehensive Africa Agriculture Development Programme (CAADP), the United Nations Framework Convention on Climate Change (UNFCCC), and the Paris Agreement on Climate Change.

Figure 1: A hierarchy of food system-related policies in Rwanda



Source: Rockefeller Foundation et al. (2021)
 Note: This diagram is not meant to be an exhaustive representation of Rwanda’s current policy hierarchy concerning food systems.

DIAGNOSTIC METHODS

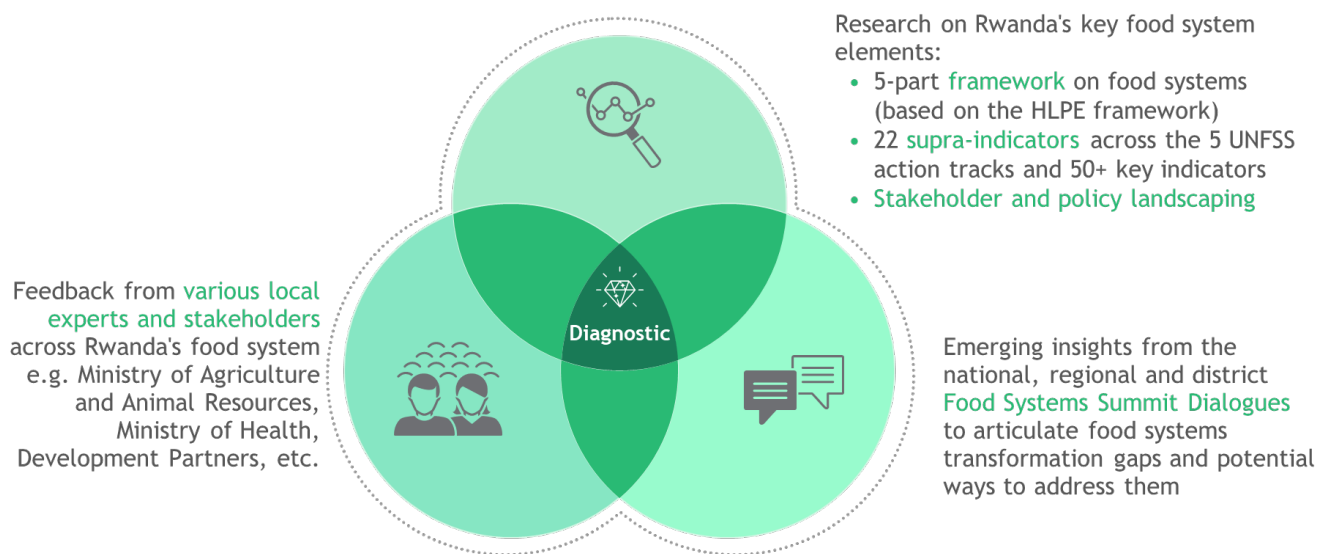
The main analysis contained in this paper is primarily informed by a diagnostic conducted during a six-month period between April and September 2021 under the auspices of the Food System Transformative Integrated Policy (FS-TIP) initiative, and as part of the run-up to the UNFSS. Extensive background research was conducted by a multidisciplinary team with expertise in multiple aspects of the food systems perspective and experience in Rwanda. See Rockefeller Foundation et al. (2021) for details.

The team followed a multi-pronged approach to its diagnostic. The research underlying the diagnostic drew on a five-part framework on food systems analysis to provide the conceptual basis for the inquiry. This was augmented by data from multiple secondary sources that were collected and collated to cap-

ture insights from 22 supra-indicators and 50 additional indicators arrayed across the five UNFSS action tracks. Additional stakeholder and policy landscaping was conducted through background reviews of government documents, scholarly publications, project reports, and other relevant sources, further supported by key informant interviews and focus group discussions that together refined the team’s understanding of Rwanda’s food system.

A series of further consultations with local experts and key stakeholders were conducted to validate initial findings and recommendations. The final set of findings and recommendations were reviewed by FS-TIP’s Global Expert Panel and a National Expert Panel to ensure credible and salient results. Additional analysis was subsequently provided by members of the National Expert Panel following the UNFSS.

Figure 2: Diagnostic analysis approach



Source: Rockefeller Foundation et al. (2021)

The diagnostic sought to cover the most relevant strategies, policies, programs, and actors related to Rwanda’s food system. It also aimed to identify the key challenges, gaps, trade-offs, and synergies in the strategies, policies, programs it covers. However, the diagnostic should not be viewed as an exhaustive analysis of all possible documents on Rwanda’s food system, nor does it capture all of the key stakeholders in that system. And ultimately, the diagnostic only provides an initial assessment of identified challenges, gaps, and trade-offs, leaving many topics open for further analysis and action.

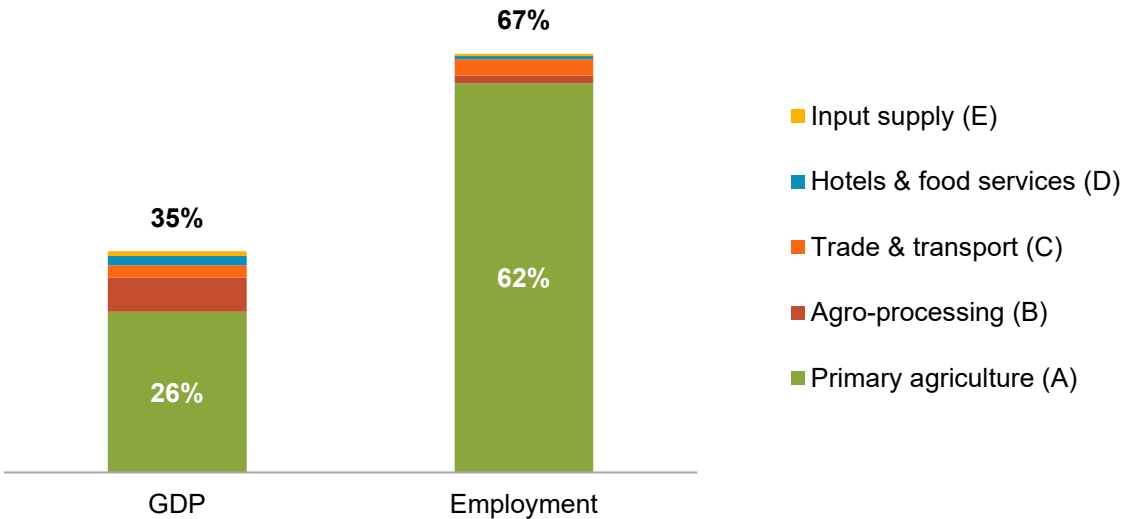
CHALLENGES: THE TRIPLE THREAT

Rwanda faces a triple threat to the realization of its long-term, transformational vision and goals for the nation. These threats are (1) low agricultural production, productivity, and productivity growth; (2) persistent malnutrition, including micronutrient deficiencies across the life cycle, even despite significant progress in poverty reduction; and (3) significant environmental challenges that are exacerbated by the country’s vulnerability to climate change and limited adaptation capacity.

But in the face of this triple threat, Rwanda has also demonstrated its capacity to pursue and sustain an impressive growth trajectory, with annual GDP growth averaging 7.2 percent between 2010 and 2019, rebounding to 10.9 percent in 2021 following the 2020 economic downturn caused by the global COVID-19 pandemic (NISR 2022). A combination of sound macroeconomic policies, an attractive investment environment, long-term political stability, and a strong commitment to sustainable development have all contributed to this encouraging trend, particularly in light of where Rwanda began during the darkest moments of history—the Genocide against the Tutsis—in 1994. This combination has led to the implementation of multiple strategies, policies, and programs to address poverty, food insecurity, and malnutrition.

Still, Rwanda itself recognizes that there is much to be done, especially to feed a population projected to grow from 12.6 million in 2019 to 22.1 million by 2050. Rwanda’s food system—comprising agricultural production, agro-processing, food trade and transport, and food services—accounts for approximately 35 percent of total GDP and 67 percent of total employment (Figure 3), making it a system of clear importance to the entire country (Aragie et al. 2022).

Figure 3: Rwanda’s food systems as a share of GDP and employment, 2019



Source: Aragie et al. 2021; Thurlow et al. 2022 (forthcoming).

Among the major challenges is the fact that food and agricultural production, a key component of the food systems accounting for approximately 26 percent of GDP (NISR 2021a), is primarily undertaken on small and fragmented landholdings that average just 0.4 ha per household (NISR 2021b). Cultivation on small plots and parcels is highly concentrated in food staples. Only small shares of farm production make their way to domestic markets, while traditional and non-traditional exports still make relatively minor contributions to the sector, accounting for just 6.4 percent of agricultural GDP between 2010 and 2019 (NISR 2021a). Yet two-thirds of the country’s working population rely either directly or indirectly on agriculture and the wider food systems for their livelihoods, often through diversified livelihood strategies that include non-farm rural enterprises and migration to urban areas to help cope with the risks inherent in Rwandan agriculture.

Risk is, in effect, a constant in Rwanda's agriculture sector and food system. Across all crops and commodities, production is highly vulnerable to weather volatility, natural disasters, trade shocks, and long-term climate change effects given that approximately 70 percent of arable land is situated on hillsides with extremely limited irrigation (MINAGRI 2017). Efforts to increase productivity and commercialization through interventions such as the Crop Intensification Program (CIP) have produced mixed results with respect to yields, value, market integration, and diet quality (Nsabimana et al. 2021; Weatherspoon et al. 2021; Muyombano and Espling 2020; Nilsson 2019; Isaacs et al. 2016). Meanwhile, despite Rwanda's impressive land tenure regularization initiatives in the 1990s, there are still concerns about whether titling has led to more open and vibrant land markets and greater efficiency in the use of Rwanda's scarce land resources (Bizoza and Opio-Omoding 2021; Ali and Deininger 2015; Ali et al. 2014). Labor market frictions may be a key constraint in this context (Jones et al. 2020; Ali and Deininger 2015). At the same time, in the off-farm economy, infrastructural limitations affecting transportation, storage, and distribution of food products lead to high quantitative and qualitative losses (Benimana et al. 2022; Troosters 2020; Katherisan 2011).

Still, Rwanda has made considerable progress, posting impressive reductions in poverty, food insecurity, and malnutrition rates since the mid-1990s. Only in the last decade has progress shown signs of slowing. Between 2010/11 and 2013/14, while the headcount poverty rate fell from 44.9 percent to 39.1 percent, reductions between 2013/14 and 2016/17 were insignificant—less than a one percentage point decrease to 38.2 percent (NISR 2018). Between 2015 and 2018, overall reductions in food insecurity were similarly insignificant, though gains were made in reducing the share of households that were severely food insecure (from 3 to 2 percent) (WFP et al. 2018). Meanwhile, stunting rates among children under five years of age decreased by just 5 percentage points from 38 percent in 2014/15 to 33 percent in 2019/20 (NISR et al. 2015, 2020).¹ A diet that could partly address this problem by meeting the nutrient needs in Rwanda would cost about twice as much as a diet that meets energy needs only (WFP et al. 2019).

The country thus recognizes the need to do much more, and has placed a unique policy and budgetary focus on targeting the reduction of stunting rates as a vehicle to address the wider welfare and quality-of-life issues facing its population (UNICEF 2022).² Persistently high stunting rates—though by no means the only indicator of importance (Leroy and Frongillo 2019)—suggest the need to accelerate progress on the quantity, quality, and diversity of food that children consume and the reduction in recurrent infections or chronic diseases that cause poor nutrient intake, absorption, and utilization (Weatherspoon et al. 2019; Arsenault and Olney 2021). Importantly, these rates suggest that a more nuanced, nutrition-sensitive understanding of food and agriculture is an essential element in Rwanda's food systems transformation, and emerging strategies and policies on agriculture, nutrition, and dietary diversity need greater recognition and internalization.

Against this backdrop, Rwanda is also working to confront urgent threats to its natural resource base and environment caused by climate change, focusing on a range of environmental and ecological conservation efforts that simultaneously affect the food system. This includes programs to control hillside

¹ For the purposes of comparison, stunting rates in Uganda and Tanzania are, respectively, 28 percent and 34 percent respectively, while the average for the entire Africa region is 29 percent (UNICEF et al. 2021).

² In addition to UNICEF's (2022) national budget analysis for Rwanda, see individual budget analyses on nutrition, health, education, social protection, and water, sanitation and hygiene (WASH) at <https://www.unicef.org/rwanda/research-and-reports>

erosion, increase afforestation, encourage the use of alternative energy sources (FAO 2021),³ and protect vulnerable ecosystems from the pressures of human settlement, intensive agricultural production, and livestock grazing.

In summary, Rwanda's triple threat is a fundamental test for the country's growth, development, and transformation strategy. The country's strong commitment to its transformational journey reflects a clear recognition of this threat and a proactive approach to creating immediate and long-term solutions. But when viewed from a food systems perspective, there are additional options—additional policy levers to push—that could accelerate the transformational journey towards more sustainable and inclusive outcomes. We discuss these policy options in detail below.

POLICY OPTIONS TO STRIKE A NEW BALANCE IN THE FOOD SYSTEM

While these challenges may seem daunting, overall findings from this diagnostic suggest an opportunity for a tangible shift in how public policy in Rwanda approaches its food systems and the contribution that its food systems make to the broader national transformation process. This means deeper contemplation on how balances are struck—and tradeoffs are managed—between and among agriculture, nutrition, health, and the environment in the face of a climate crisis. It also means giving greater attention to the demand-side drivers in Rwanda's food system, recognizing that singularly focused supply-side strategies rarely succeed in isolation. Finally, it means deepening the integration of policies and policy actors in the design and implementation phases of interventions that shape the food system.

Many of these findings are already well articulated in Rwanda's own development discourse and policy practice. Still, additional gains can be realized through a deeper and more nuanced conversation—and tangible policy shifts—on three key issues: striking a new balance in the food system; focusing on demand-side drivers; and integrating policy actors and actions in the food system.

Findings from the diagnostic indicate that Rwanda has maintained a strong policy focus on productivity growth for staple food crops during the past two decades. As a result, yield and production figures have grown at a relatively healthy pace, albeit with significant variations across seasons, years, and regions owing to adverse weather events or other factors. There is still a long way to go to bring the profitability and productivity of food staple production to their highest potential, and continued public expenditures and private investments on several fronts remain critical.

But a food systems perspective means interrogating this policy focus more closely. Findings suggest the need to improve the balance between and among efforts to (1) increase returns to staple crops, (2) emphasize the production of nutrient-dense food that better address the population's (micro)nutritional needs that remain unmet by the current priority staples, (3) diversify the agricultural sector with more marketable surpluses for both domestic and export markets, and (4) reduce the pressure on already degraded and fragile land and natural resources. Moving away from “food staple fundamentalism” is itself a major paradigm shift (Pingali 2015).

³ Rwanda's energy balance shows that about 8 percent of its overall primary energy consumption is based on biomass (with 99 percent of all households using biomass for cooking), while just 4 percent comes from hydroelectric sources and 11 percent from petroleum products. While the expansion of the national electrical grid has increased coverage from approximately 14 percent of the total population in 2011 to 66 percent in 2021, there is a clear need for improvements in the sustainability of power generation and use going forward (FAO 2021).

This balancing act requires increased policy emphasis on diversification of production into nutrient-rich crop- and animal-source foods. But the road to diversification requires careful consideration of multiple challenges, tradeoffs, and opportunities. For example, at what level should diversification occur? Is it at the farm-household level where highly diversified production systems are already commonplace but do not supply marketable surpluses required to meet national food security needs? Or is it at a sector or district level through strategies that create commodity-specific commercial clusters that supply the wider population? Or is it at some other level and through some other innovative approach?

Policies for commercialization

Innovative approaches are also needed to move along the path to commercialization and food systems integration—a move that relies on vibrant market activity to supply nutrient-dense crops and animal-source foods to both wealthy and poor consumers throughout the country. This signals the need for new types of complementary investments, especially in supply chains for foods that are often bulky, perishable, sensitive to post-harvest management practices, and requiring safety and quality standards. While diagnostic findings indicate that Rwanda has a highly developed road transport network and extensive mobile coverage that can facilitate such market activity, they also highlight the fact that additional infrastructure is sorely needed to facilitate the transport, storage, distribution, processing, and safety of nutritious foods.

All of this takes money—money that investors, entrepreneurs, traders, and farmers often need to secure from financial markets. Unfortunately, findings suggest that few investment projects, whether at the level of the individual smallholder farm or at some larger scale, are profitable at current lending rates and market conditions. Production and price risks inherent to agriculture exacerbate the problem. This indicates the need for considerable innovation in the product offerings from the financial sector: government-backed loan guarantee schemes and tailored insurance products to transfer risk; cost reductions and expansion in coverage of mobile money services to reduce transaction delays and costs; and financial service providers more accustomed to working with farmers and food system actors, to name but a few. Innovative policies and regulations that encourage the entry and expansion of innovative products and actors into financial markets are essential to the food systems transformation.

The success of improvements in Rwanda's financial markets and policies will, in turn, depend acutely on the availability and utilization of the country's scarce natural resources: land, water, forests, and energy sources. Here, findings indicate that Rwanda has made considerable strides with its proactive approach to utilizing, conserving, and regenerating its natural resource base for both current and future generations to benefit from. Nonetheless, pressure on Rwanda's fragile ecosystems and natural resources will continue to grow, necessitating visionary policies for watershed management, energy generation and distribution, forestry, and other areas that are critical elements of the broader food system.

Findings suggest that land policies, in particular, will be central to the food systems transformation and the balance struck between food production and environmental sustainability. This is a sensitive topic given the small and fragmented nature of landholding in Rwanda, the poverty and vulnerability of those who toil on these landholdings, and the need for larger-scale opportunities for investors. But evidence to date suggests that a singular strategy focusing on smallholder land consolidation or large-scale commercial land development is unlikely to achieve the desired results. A broader, context-specific portfolio of programs and projects may be necessary.

Commercialization goes hand in hand with Rwanda's efforts to expand regional and international trade, according to our findings. A strong trade-oriented food system requires policies that leverage existing comparative advantages, build new comparative advantages, and realize the gains from trade. An important corollary to this is the question of how Rwanda should approach the trade in food and agriculture products with its regional neighbors. The current approach is highlighted by a clear commitment to regional trade openness, several strategic import substitution strategies, high safety and quality standards, and a certain allegiance to food self-sufficiency. The multiple—and sometimes conflicting—elements of this approach are reasonable given the costs of food trade in the region, the volatile nature of Rwanda's trading partners and, in 2020, the global trade shock resulting from the COVID-19 pandemic. But there are still gains to be realized in Rwanda's food systems through regional and international trade (UNECA 2021; UNECA and TMEA 2020).

Ultimately, a food systems transformation requires all of the above plus tremendous investment in individual and institutional capacity: investments in science, technology, and innovation capacity; education at all levels, from primary to tertiary to technical/vocational; agricultural extension and rural advisory services; health, nutrition, and early childhood development counseling; inspection and enforcement of food safety and quality regulations; and enterprise and business development capacity. These “softer” and less visible investments sometimes go unnoticed in public policy agendas, though they are no less important than the high-visibility investments in feeder roads, irrigation schemes, agribusiness hubs, and other hard infrastructure. Taken together, these interventions require continued expenditures and investments by the government, coupled with policies and regulations that continue to create an enabling environment for private enterprise development. This is what is meant by striking a new and bold balance between agriculture, nutrition, health, and the environment.

Policies to address demand-side drivers

Findings from the diagnostic clearly suggest that greater attention needs to be given to the demand-side drivers of Rwanda's food systems transformation in light of expectations that few supply-side strategies will succeed in isolation. In effect, this means that even with additional investments in diversifying production into more nutrient-dense foods and building additional infrastructure for production, post-harvest management, and energy generation, there is no immediate guarantee that consumers will respond with greater demand for such foods.

Policy efforts to address the demand side of the equation require recognition of the needs, preferences, and expectations of food consumers. This goes hand-in-hand with the provision of information and advisory services on recommended consumption, nutrition, sanitation, and hygiene practices, especially for pregnant and lactating women and young children. Indeed, findings suggest that while many consumers are well-informed about recommended practices, the gap between knowledge and practice remains significant (see, e.g., Roopnaraine et al. 2021). This gap may result less from access to training and information, and more from issues such as household budget constraints, time-use constraints facing women, or social and community norms, though further analysis is required.

Necessarily, there are many explanations for why this knowledge-practice gap exists, but a common explanation is likely found in the fact that limited purchasing power prevents individuals from adequately addressing the multiple and competing demands on their budget. The daily challenge of purchasing food for basic sustenance and energy—never mind nutritional adequacy—coupled with the costs of health services, schooling, transportation, farm inputs, and other requirements are insurmountable for many. A less credible explanation is the common belief that culture, food culture, and cultural taboos

related to food are the key drivers of sub-optimal consumption, feeding, and hygiene practices among pregnant and lactating women and young children. Rather, there are impressive levels of formal, institutional knowledge that have normalized and acculturated the concept of ideal or healthy diets and hygiene behavior (Roopnaraine et al. 2021).

Not surprisingly, findings suggest that few policies or programs in Rwanda are sufficiently cognizant of the demand-side dimensions of the country's consumers. Too few approaches to agriculture, nutrition, or health are fully cognizant of consumers' behaviors or preferences, nor are they cognizant of essential elements in a functioning food system, for example, what and how people produce or purchase food, what and how they prepare and consume food, or why they choose certain foods over others. These issues represent the intersection between food and agriculture; health and nutrition; water, hygiene, and sanitation; and gender and culture.

All require greater attention in the policy design and implementation process. In particular, the gender dimensions of the demand side of the food systems require greater attention, e.g., understanding the role of women not just in food preparation, but also in management and control over incomes, food purchases, household hygiene and sanitation, household water management, and other areas. Rwanda's social protection programs and social service providers are critical to addressing these issues. But programs in the spheres of agriculture and commerce are no less important.

Relatedly, the organic or grassroots aspects of Rwanda's food systems transformation require greater attention. While a meaningful vision set at the national leadership level is critically important in chalking out the transformation journey, iterative engagement and feedback from bottom-up approaches are equally important. This means building on Rwanda's home-grown solutions to engage communities and mobilize their participation in decision-making about their own development priorities and strategies to jointly address agriculture, food, nutrition, and the environment.

In short, policies designed from a food systems perspective require a deeper, more inclusive, and more multi-sectoral approach to improving diet, nutrition, and environmental outcomes.

Integration of policy and policy actors

This leads directly into the diagnostic's third main finding: the urgent need to further integrate policies and policy actors in both the policy design and implementation phases of a food systems transformation.

Rwanda's various coordination mechanisms are an important demonstration of multi-sectoral strategic integration, as are the extensive stakeholder consultations conducted with civil society and private sector actors in the formulation of policy. These include inter-ministerial clusters on economic, social, and governance issues; joint institutional performance contracts (joint *imihigos*) that engage multiple government organizations; sector and sub-sector working groups that provide for regular consultations between the government and its development partners on agriculture, food, nutrition, and health; joint action development forums at the district level that coordinate activities across public, private, and civil society organizations; and other coordination mechanisms.

Continued efforts to strengthen these mechanisms are critical, and must be deepened to ensure substantive collaboration at all levels (district, sector, community) and across domains (public, private, civil society) and sectors (agriculture, nutrition, health, and environment). But substantive collaboration may entail changes to how coordination is carried out. For example, there may be scope to de-emphasize

strategies that prioritize projects that yield observable progress and immediate impacts, and strike a better balance with longer-term but less visible projects with similar or greater potential. There may also be scope to develop a broad inter-ministerial, inter-agency, and inter-sectoral technical entity to support coordination, monitor progress, and provide accountability.

Similarly, there may be scope to refine the design of *imihigos* to better align incentives and reduce tendencies for individuals and organizations to prioritize only visible outputs, to select easy-to-achieve targets, or to over-report performance. Relatedly, there may be scope to increase the focus on developing individual and organizational capacity to implement, coordinate, monitor, and evaluate, and to integrate cross-cutting elements such as gender mainstreaming and youth inclusion. Such changes require recognition that a food systems transformation is not a linear process, but rather one of trial and error that requires decisions to be made in the face of difficult tradeoffs, limited resources, and incomplete information.

POLICY RECOMMENDATIONS AND CONCLUSIONS

The challenge now is to translate abstract ideas about its food systems transformation into a coherent and focused set of actions. We offer several policy recommendations to support the design of a coherent country strategy and policy framework.

1. Strengthen existing entities and mechanisms, and innovate on them. It is clear that proper policy coordination and sequencing are critical to advancing Rwanda's food systems transformation. There may be limited interest in the government for new agencies, committees, task forces, or secretariats to convene, coordinate, and manage the food systems transformation process. As such, the food systems approach provides an opportunity to strengthen existing entities by focusing on integration across sectors (agriculture, nutrition, health, and environment), domains (public, private, and civil society), and levels (national, district, sector, and community). This implies greater investment in mechanisms that go beyond the improvement of just government coordination, and substantively engage the private sector and communities through, for example, home-grown solutions. Ultimately, this may suggest the need for a small but agile entity for coordination, monitoring, and accountability purposes. It may also suggest the need for greater recognition of the possibility that some actors may have solutions that require less, not more, intervention by the government on occasion.

2. Develop a national food systems transformation strategy that is integrative, multi-sectoral, and action-oriented. It is critically important to develop a national food systems transformation strategy that integrates and builds on existing sectoral plans, leverages existing inter-sectoral coordination mechanisms, and provides for monitoring of progress in a non-duplicative manner. This food systems strategy would have to delineate a very practical set of actions for the government and its partners to pursue, and would require broad consultation and backing. Ideally, the implementation of a widely accepted strategy would be monitored by using existing performance indicators, tracking public expenditure and economic performance tracking on a multi-sectoral or systems-level basis (as in Figure 3), and by leveraging other well-established monitoring mechanisms. This approach has the potential effect of extracting government ministries and agencies from siloed, sector-based planning and budgeting to consider a more multi-sectoral approach to the food systems transformation.

3. Innovate on existing programs. Third, there is scope to innovate within existing programs to introduce greater nutrition sensitivity and environmental sustainability. For example, there is scope for the introduction of healthier foods and greater dietary diversity in school feeding programs, building on past

programs and experiences in other countries. This could be augmented by procurement of nutrient-dense and animal-sourced foods from farmers and other value chain actors for schools and other public institutions. There are also possibilities to experiment with the distribution of “healthy food” vouchers under national social protection programs in lieu of or alongside cash transfers or staple food distributions. There is also scope for strengthening the coherence of content and messaging from frontline workers providing health advice, nutrition counseling, and agricultural extension to individuals and communities to improve a range of food systems outcomes. These are just a few of the opportunities for programs in the spirit of a food systems transformation.

4. Allow for learning through both success and failure. The success of an integrated, multi-sectoral approach to Rwanda’s food systems transformation will hinge on open spaces for learning. Food systems are a relatively new concept, as are policy and program designs from a food systems perspective. This means that some approaches will succeed while others will fail. Opportunities to learn from both failures and successes are essential.

5. Invest in rigorous impact evaluation. Finally, Rwanda’s food systems transformation will require greater investment in the evaluation of program impacts. Currently, the country’s monitoring systems are primarily focused on ensuring transparency and accountability, and on monitoring program outputs. While this focus is extremely important, it is not a substitute for the rigorous quantitative and qualitative evaluation of program impacts. This includes the measurement and analysis of impacts related to agriculture, household income and welfare, individual health and nutritional status, and environmental sustainability, as well as the cost-effectiveness of programs designed to generate these impacts.

In summary, there are significant opportunities to advance an inclusive and sustainable food systems transformation in Rwanda even despite the many challenges. While the 2021 UNFSS drew attention to these opportunities, the task now is to translate abstract ideas into real actions. But such actions cannot be undertaken in a vacuum: an enabling policy environment is critical to success. And this enabling policy environment is itself an outcome of broad-based national conversations, integration across sectors, domains, and levels; and the encouragement of policy and program innovation.

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