

INNOVATION FOR SUSTAINABLE AGRICULTURAL GROWTH IN AFRICA

Insights from Research Dossiers on 12 PARI Partner Countries

Agriculture is the backbone of many African economies, employing the vast majority of the population and providing a means of subsistence and source of revenue for the more than 60 percent of the population living in rural areas. Strengthening the sector through investment and targeted policy is therefore critical to overall growth and development on the continent. To further this goal, several African countries and the German government have collaborated in setting up Green Innovation Centers (GICs) under the “One World, No Hunger” Initiative (SEWOH). This initiative seeks to promote agricultural innovation, improve food and nutrition security and increase the financial and environmental sustainability of each country’s agri-food sector. The approach taken by the GICs is to help each country identify high-potential crops and build or strengthen sustainable value chains around them. The value chains selected by GICs range from cereal crops, fruits, vegetables, tubers to livestock.

This brief summarizes the findings from the independent research conducted by the Program of Accompanying Research for Agricultural Innovation (PARI) which inform SEWOH investments. It compiles analyses of the current state of the agri-food sector, related policies and existing agricultural innovations in twelve African countries, namely **Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Malawi, Mali, Nigeria, Togo, Tunisia and Zambia**.

National and Regional Agricultural Policies and Strategies

National agricultural policies present many common strategies across countries to boost agricultural growth and development through medium and long term planning. These are summarized as follows:

- Promotion of research through increased investments
- Technology and information dissemination

- Capacity building of stakeholders through training and stronger cooperation
- Better access to inputs (fertilizer, improved seeds etc.) and to financial and technical services
- Mechanization and modernization of their respective agricultural sectors
- Water control, management and sustainable use of natural resources
- Improved infrastructure (storage, conservation, rural-market linkages)
- Promoting agro-processing activities and commercial agriculture to increase revenues and added value along agricultural value chains
- Broadening markets, increasing competitiveness and ensuring quality of agricultural products.

There are also many pan-African initiatives to harmonize policy and scale up best practices across regional blocks. The most notable among these is the *Comprehensive Africa Agriculture Development Program (CAADP)*. Established in 2003 at the African Union Summit in Maputo and outlined in the **Maputo Declaration**, it represents an integrated, agriculture-driven framework program for development and focuses on reducing poverty and increasing food security through agriculture. By signing CAADP compacts, African governments agree to invest 10 percent of their annual public expenditures in agriculture in order to achieve an average annual growth rate of 6 percent in the sector. While most countries have increased investments into the agricultural sector, most struggle to consistently meet the investment targets specified in the compacts (see PARI Policy Brief No. 1).

Other continent-wide initiatives include the *Science Agenda for Agriculture in Africa*, the *Malabo Declaration on accelerated agricultural growth and transformation for shared prosperity and improved livelihoods*, the *Abuja Declaration on Fertilizer for an African Green Revolution*, and the *Scaling Up Nutrition Movement*.



In addition, the countries studied are also part of **regional blocs** and adhere to policies and strategies developed and initiated by the overarching institutions of their respective blocs. West African nations subscribe to the Economic Community of West African States Agricultural Policy (ECOWAP). The Central African nation of Cameroon is part of the Economic Community of Central African States (ECCAS) that approved a Common Agricultural Policy for its member states. Eastern and Southern countries are also part of agricultural strategies and frameworks from the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA). Tunisia provides an important North African example and has developed partnerships with countries in Europe and the Mediterranean, the Mahgreb and the Middle-East at large.

National Research and Extension Systems

Each country's **research infrastructure** is generally dominated by one national research institute which manages partnerships with the public sector institutions, the private sector, academia, non-governmental organizations and other international bodies. These institutions often suffer from limited funds for research, limited access to update scientific information, and a low number of professionals.

Agricultural extension services are primarily provided by government agencies, although some non-governmental organizations fill in the staff and quality extension gaps that exist. Common challenge across countries include limited collaboration between extension services, research institutions and the private sector. Many countries also suffer from an under-provision of extension services, low quality services or shortages of qualified staff. Even in countries where the agricultural extension system is considered strong, there are improvements to be made in quality training of extension agents, increasing number of qualified extension agents, improving collaboration between research-extension-private sector systems, and establishing a relevant mechanism to commit extension agents to quality extension. These challenges are being addressed through policy, and steps are being taken to update and modernize these services. For instance, some countries are experimenting with new ways of providing extension services, taking advantage of emerging information and communication technologies, as with the development of e-extension services for instance in Kenya, Ghana, Mali and Nigeria.

The Forum for Agricultural Research in Africa (FARA) engages in collaborative efforts with a number of national and international bodies to implement

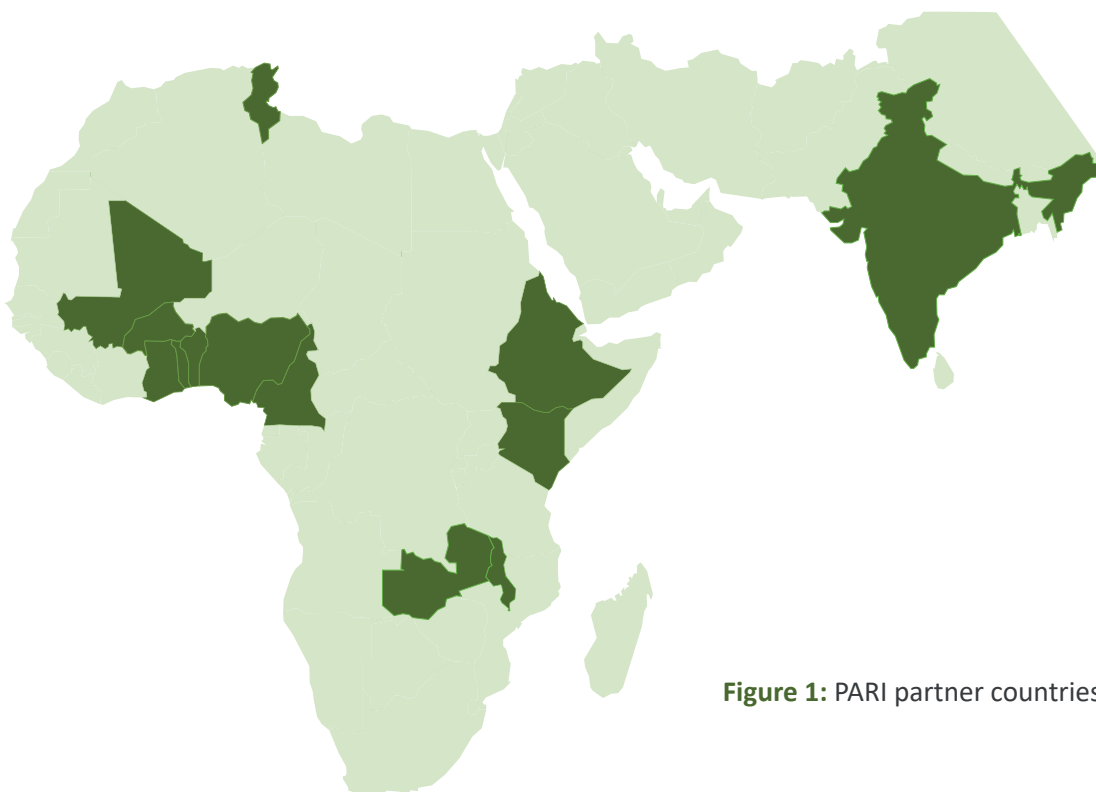


Figure 1: PARI partner countries



integrated agricultural research for development approach (IAR4D) through **innovation platforms** (IPs) in most of the study countries. IPs bring together different types of agricultural stakeholders to jointly develop, apply and disseminate innovations in agricultural and food value chains. The platforms address issues related to productivity, access to inputs and technologies, processing, marketing, training, innovation, and best practices in value chains such as rice, dairy and livestock, fisheries, fruits, vegetables, tubers and cereal crops, etc.

Key Opportunities Related to African Agriculture

African agriculture systems contend with two overarching issues: food insecurity and low productivity. Despite the steps taken by national governments to spur growth in their agricultural sectors, total factor productivity remains low across Africa. In some countries, it is even lower today than it was in the 1960s.

Meanwhile, efforts to fight hunger and malnutrition have achieved varying degrees of success. Under-five child stunting and wasting has decreased on the whole, while obesity and food over-acquisition is on the rise (see Table 1). **While combating hunger remains an important concern in Africa, policy attention is also increasingly focusing on ensuring a proper, balanced nutrition.** Generally speaking, most of the dietary energy supply in Africa comes from starches and cereal crops. This results in widespread micronutrient deficiencies, which affects women and children in particular. Urban centers fare the better in terms of dietary diversity and micronutrient deficiency, but also present the highest rates of overweight. The effectiveness of any food and nutrition policy is therefore highly context-dependent and each country requires carefully targeted policy action to improve its overall health outcomes.

Table 1: Nutritional Outcomes in the PARI partner countries

Country	% of population undernourished	dietary diversity	child wasting	child stunting	adult overweight
Benin	8	32	5	34	29
Burkina Faso	21	6	11	33	24
Cameroon	10	34	5	32	34
Ethiopia	32	5	9	40	19
Ghana	2	28	5	19	34
Kenya	21	41	4	26	26
Malawi	21	29	4	42	22
Mali	4	22	13	38	25
Nigeria	7	19	8	33	33
Togo	11	20	7	28	26
Tunisia	0	no data	3	10	27
Zambia	48	22	6	40	29

Notes:

Year of data collection varies between countries. Details can be found in the respective country dossier.

Dietary diversity refers to the percentage of children aged 6-23 months fed four or more food groups in the 24 hours preceding the survey. **Child wasting** is the percentage of children under 5 years of age who are too thin for their height. **Child stunting** is the percentage of children under 5 who are too short for their age. **Adult overweight** is the percentage of adults above 18 years of age with a BMI equal or greater than 25 kg/m².



The challenges that the agricultural research systems in most countries face mirror the objectives set by national governments in their plans and programs to boost their respective agriculture sector include:

- A lack of funding for research,
- Centralization of research activities
- low number of professionals and qualified extension staff
- Limited access to inputs, technologies, financial and technical services
- Poor infrastructure and weak linkages along value chains
- Low productivity due to inefficient practices and vulnerability to climatic conditions
- Deforestation and land degradation
- Insecurity in land tenure and fragmented smallholder farming
- Lack of training, business acumen, and organization of farmers
- Lack of downstream activities such as processing that create added-value products.

Promising Agricultural Innovations

A number of innovations have been developed to address the issues of food insecurity and low agricultural productivity, as well as to fix some of the challenges listed above. One type of initiatives, for instance, the Innovation Platforms for Technology Adoption (IPTAs), aim at improving the agricultural sector's productivity by facilitating the large-scale diffusion of agricultural technologies that have

been proven to be effective. Another example are the innovation platforms set up under the IAR4D approach in the *Sub-Saharan Africa Challenge Program (SSACP)* and the *Humid tropics* research programme of the Consultative Group on International Agricultural Research. The System of Rice Intensification and the New Rice for Africa (NERICA) represent further attempts to tackle both issues through improved seeds, best practices and integrated resource management, thus increasing farmer revenues and reducing countries' dependence on rice imports. Other noteworthy initiatives across Africa that have potential to be further scaled up include the dissemination of improved seeds, the empowerment of farmers through Farmer Business Schools and community-based organizations, the introduction of warranty schemes for micro-credit, weather-index insurance, electronic wallets for buying fertilizers and input, regional radio programs, and farmer innovation contests to harness and promote local farmers' innovations.

The most promising approaches to develop and disseminate innovations for farmers and small businesses specifically are those that **strengthen value chain structures, help farmers to organize, and increase the competitiveness and access to markets of farmers and small businesses**. Some examples include setting up buyer and producer counters, extending innovation platforms to new value chains, supporting value chain incubators, funding small-scale irrigation projects to mitigate the effect of climate change, promoting gender and social equity, and facilitating the establishment of local enterprises.

This Policy Brief is based on the *Country Dossiers on Innovation for Sustainable Agricultural Growth* in the twelve PARI partner countries in Africa as well as thematic studies on agricultural innovations, innovation investments and innovation platforms conducted by the national partners and published by FARA, ZEF and the national partners.

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