CHAPTER 9

Skills Development for Value Chain Actors in African Agriculture

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This chapter highlights policies and interventions related to skills development and training for agricultural and food value chain development in Africa. The opening section provides the background and context for the study. The section that follows is dedicated to describing skills gaps and the training needs of various agrifood value chain actors in Africa. The next section describes skills development and training provision for agrifood value chain actors. It provides an overview of continental policies and interventions that characterize skills development for agricultural value chain actors, discusses some examples of significant agricultural technical and vocational education and training (ATVET) initiatives in selected countries in Africa, mulls participation of the private sector in skills development and training, and discusses the prospects of a "dual system" of skills development in African agriculture. The final section concludes the chapter with a summary of main findings and some policy implications.

Background and Context

Formal vocational training is needed to transform farmers and other actors in the agriculture and food system into skilled entrepreneurs who run their farms or businesses as productive and sustainable economic enterprises (Kahan 2012; Kahan and Worth 2015; Carson 2018; Reardon et al. 2019). Training is essential for farms and companies in the agro-processing sector to sustainably increase their level of productivity and income as well as their competitiveness in domestic and international markets. Though the agricultural sector employs a vast proportion of the labor force in many African countries, it is not yet sufficiently professionalized to realize its potential for poverty alleviation, food security, and economic growth (GIZ 2017).

Recent estimates from the International Labour Organization (ILO) show that about 44 percent and 16 percent of the youth (ages 15–24) in northern Africa and Africa south of the Sahara, respectively, are not in employment, education, or training (NEET)—that is, are classified as "idle" youth (ILO 2020). Idle young people are unable to develop skills needed in the labor market, which reduces their future employment possibilities and limits their countries from achieving sustained economic growth (O'Higgins 2017; World Economic Forum 2017; ILO 2019). Further, statistics show that an overwhelming majority of the youth in employment (95 percent in Africa south of Sahara and 88 percent in northern Africa) in 2016 were in the informal sector because of lack of opportunities in the formal economy (ILO 2020). Informal jobs (such as own-account work and contributing to family work) are associated with vulnerability characterized by income instability and limited social security coverage (Elder and Kring 2016). To keep pace with the growing working-age population, Africa requires some 18–22 million new jobs annually (IMF 2016; ILO 2019; Coulibaly 2019).

Unfortunately, there are still far too few training opportunities for young people. Moreover, the available training often does not match the needs of the private sector (Kirui and Kozicka 2018; Ragasa et al. 2019; Kosec and Ragasa 2019). The low social status of crafts and trades poses another challenge in promoting technical and vocational education and training, or TVET (Ute 2014; Chong 2014). Furthermore, vocational training institutes in many African countries have suffered from many years of neglect, having been poorly equipped with physical, human, and financial resources (Eicker, Haseloff, and Lennartz 2017). The curriculum in many these of institutions is also outdated (Janoski, Luke, and Oliver 2014; Eicker, Haseloff, and Lennartz 2017). There is, therefore, an urgent need to expand technical and vocational training opportunities and revamp the existing training institutions in Africa. ATVET should also be made readily available to farming communities in order to improve their productivity and make the agricultural sector more attractive. For far too long, African smallholder agriculture has been characterized by lack of modern production methods and low productivity, making it an unattractive sector to work in. There is also the need to train people in new and innovative ways and strategies for developing accompanying small and medium enterprises (Davis and Babu 2020).

One of the focuses of the erstwhile United Nations Millennium Development Goals (MDGs) was on basic education, and especially on universal primary education, leaving out post-basic education and training, including ATVET (Fluitman 2005). This structure was in large part because vocational education and training was absent in most government and donor poverty-reduction strategies in most developing countries (King and Palmer 2006, 2007; Kirui and Kozicka 2018; Ziderman 2018). Indeed, vocational education and training has been receiving even less political attention (Oketch 2007, 2014), due, in part, to a lack of donor investment and lack of action by many governments, despite ATVET's place among the key pillars of training for sustainable development (Pavlova 2014). The Sustainable Development Goals (SDGs), however, have

specifically placed importance on ATVET. Goal 8 of the SDGs (to promote sustained, inclusive, and sustainable economic growth; full and productive employment; and decent work for all) seeks to substantially reduce the proportion of NEET youth by 2020 (UN General Assembly 2015).

The linkages between poverty reduction, training and skills acquisition, increased growth and productivity, and innovation are particularly strong in the informal sector (Fluitman 2002; Fu, Mohnen, and Zanello 2018; Acemoglu et al. 2018; Bardak and Rosso 2019; Chavas and Nauges 2020; Gutowski et al. 2020). For instance, ATVET plays a vital role in developing the skills needed to improve output, quality, variety, and occupational safety, all of which in turn increase the incomes and livelihoods of the poor. ATVET can also strengthen trainees' knowledge about the informal sector, rural organizations, and good governance. Access to training and relevant skills in the agrifood value chain may also link the poor rural population to profitable income-generating activities. Effective ATVET systems that build linkages between education, technical training, labor market entry, and lifelong learning are also necessary for generating better-paying jobs in rural areas and beyond (White 2012; Poole et al. 2013; Walker and Hofstetter 2016; Som et al. 2018; Yami et al. 2019; Christiaensen 2020).

The African Union has identified agriculture and rural development as key priority areas in which technical and vocational training and skills development are crucial for economic and social development to be realized (African Union 2007; ILO and UNESCO 2019; McGrath et al. 2019). Without these new skills, the indigenous (cottage) industries and the traditional and informal skills acquisition systems would not adequately spur development. The African Union, therefore, recommended that the "member States develop and implement policies and strategies that would provide (re)training opportunities so as to ensure that half of Africa's workforce will obtain new or improved skills" (AUC 2014, 6). ATVET is increasingly being supported through vocational colleges and university-based certification programs, and through private sector institutions and job-based training programs (Jacobs and Hawley 2008; Rivera and Alex 2008; Jones 2013; Adendorff and Van Wyk 2016; Mwaura 2017; Somers et al. 2019; Bankole, Nouatin, and Gandonou 2019; Ramboarison-Lalao and Rabeson 2020).

Skills Gaps and Training Needs of Agrifood Value Chain Actors

In general, the actors involved in the ATVET system can be grouped into four categories:

1. Training providers, such as public and private institutions, teachers/trainers, nongovernmental organizations (NGOs)
2. Training recipients, such as students/apprentices, farmers (commercial and smallholders), entrepreneurs along the value chains (aggregators, processors, retailers, wholesalers, transporters, agrifood sector companies), producer organizations and cooperatives
3. Regulators: the state, line ministries, policymakers
4. Other interested parties, such as sponsors, universities, agricultural extension agents, NGOs

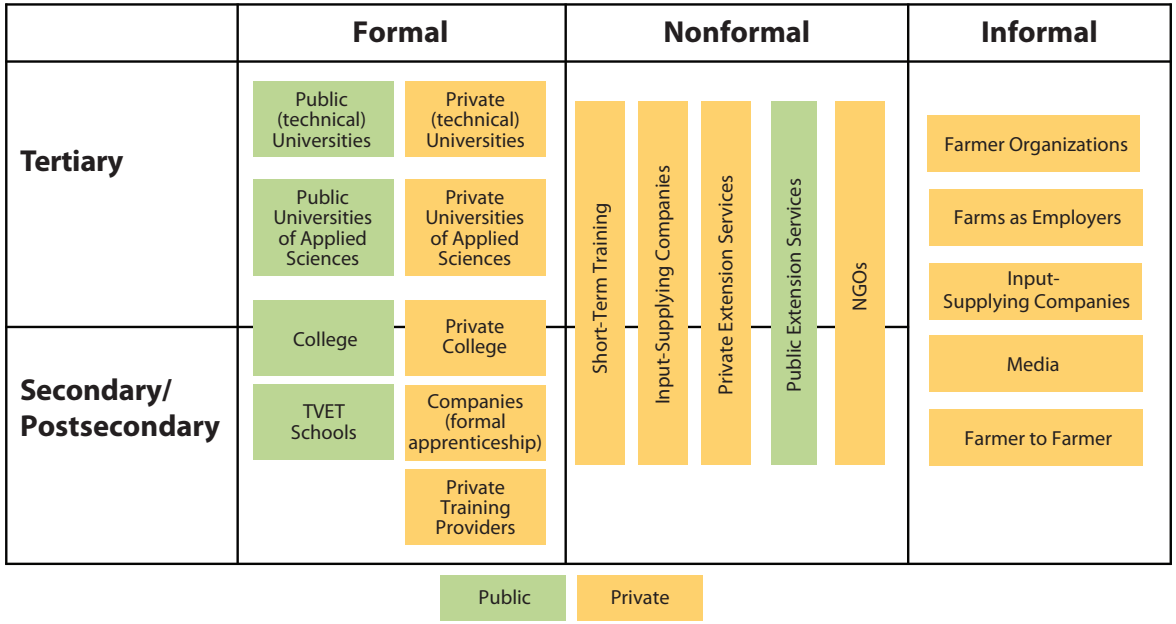
Overall, the public sector does not provide adequate ATVET or TVET across Africa. The TVET sector is grossly inadequate, and ATVET is even worse in countries where it is most needed (Eicker, Haseloff, and Lennartz 2017). In countries where some training is available, it lacks practical relevance to labor market needs (Eicker, Haseloff, and Lennartz 2017). Furthermore, the infrastructure and equipment are extremely insufficient (Li et al. 2016). The low quality of teaching in these institutions is also of major concern—most of the teaching and instructing staff do not have the requisite combination of academic competencies alongside technical qualifications and industry experience (Eicker, Haseloff, and Lennartz 2017; Ismail et al. 2018; Koobonye 2020). In the absence of ATVET, agricultural extension service providers have been filling the void, albeit with disappointing results.

In many countries, the provision of TVET by NGOs is on the increase, in terms of both the number of institutions and the number of students, albeit still negligible on both accounts. This trend is partially explained by the fact that the private sector provides training for the informal sector (which is an expanding job market all over Africa), whereas public institutions mainly provide training for the relatively stagnant agricultural and industrial sectors. Private providers

also target "soft" business and service-sector skills that do not require huge capital outlays to deliver, such as secretarial practice, cookery, and garment making. A limited amount of in-company or enterprise-based training also takes place in some countries, but this type of training aims to hone some specific skills of company employees (African Union 2007; Onderi, Ajowi, and Malala 2014; Akoojee 2016; Malambe 2016; Adejuwon 2016; Walker and Hofstetter 2016; Egeru et al. 2016; Melaku 2017; Mungai et al. 2018; McGrath et al. 2019).

Figure 9.1 classifies the actors involved in TVET into formal, nonformal, and informal training categories and by level of education, and distinguishes between private and public agents. TVET providers generally fall into one of the following categories: public school–based vocational education and training programs, vocational training centers, private for-profit institutions, or NGOs.

FIGURE 9.1—ACTORS IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING IN AFRICA



Source: Kirui and Kozicka (2018).
Note: NGO = nongovernmental organization; TVET = technical and vocational education and training.

The anticipated recipients of ATVET are a wide-ranging group, including students/apprentices, farmers (smallholders and commercial), entrepreneurs within the agrifood value chain (aggregators, processors, and agribusiness managers). The human capacity needs of these recipients are diverse and encompass both "hard" and "soft" skills—technical, managerial, business, and entrepreneurial (Davis et al. 2007; Timmer 2011). ATVET and skills development systems should transform training into an entrepreneurial and professional system that will improve the skills of value chain actors and attract more youth into agrifood value chains. It should provide adequate skills to various value chain actors. This system is needed to transform the traditional agricultural sector and to effectively build the necessary capacities that correspond to the needs of the agrifood sector (Timmer 2011; Babu, Manvatkar, and Kolavalli 2016).

At the production level of the value chain, technical skills such as land preparation methods, proper use of inputs (seeds, fertilizers) and machinery, crop management, and postharvest handling and storage are essential for all producers (Mabaya and Cramer 2014). Management skills help value chain actors to efficiently manage their physical, financial, and human capital resources. With proper management skills, the value chain actors have the capacity to identify and exploit opportunities, improve their operations, and respond quickly to market shifts (Babu 2015). However, most farmers and other value chain actors across Africa exhibit extensive capacity gaps because they are poorly educated and ill-trained, lacking the individual capacity to expand their small-scale operations (Babu 2015). Entrepreneurial and business skills are needed to increase the profitability of enterprises (Yumkella et al. 2011). These skills are often important for input and output market participation, and for engaging with other value chain actors (for example, through contract farming) (Rao and Sudarshan 2012).

The expansion of a smallholder production system into an agro-enterprise hinges on increasing both technical and entrepreneurial capacity (Babu, Manvatkar, and Kolavalli 2016). Consequently, successful agribusiness requires improved managerial skills and agribusiness practices (Babu, Manvatkar, and Kolavalli 2016).

Whereas most ATVET systems focus primarily on the farm level and basic processing, this chapter proposes that a much broader set of skills is required to transform the agriculture sector in Africa. The relevant professions can be grouped into three categories:

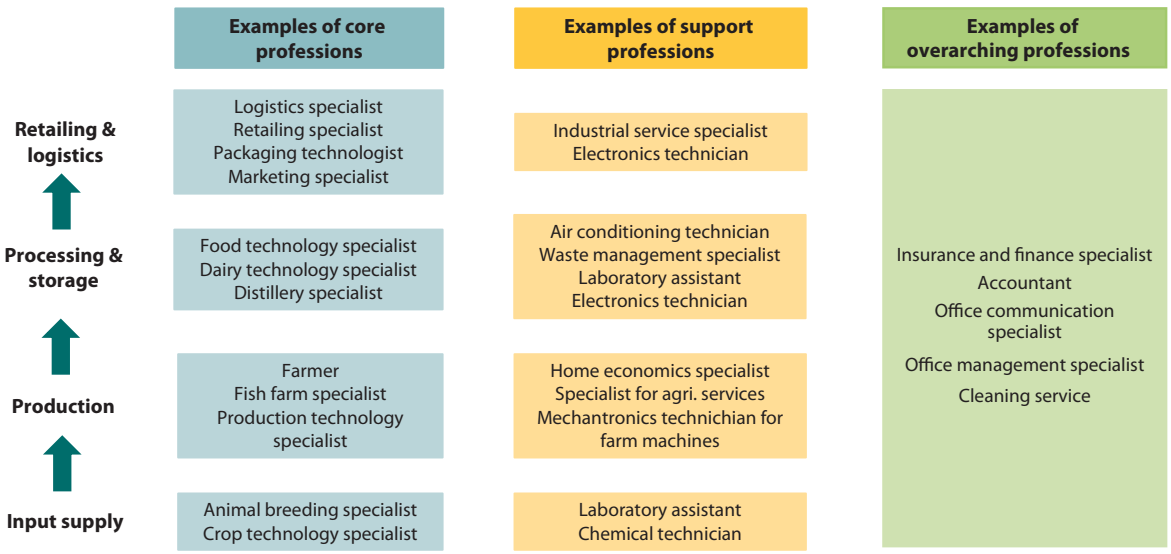
1. **Core professions** include those directly related to the agricultural value chain. These may vary in degree of specialization because innovations and the introduction of new technologies may require highly specialized and skilled labor beyond the production level—for example, production of inputs (seeds, fingerlings, fertilizer mixing), processing and storage technology, logistics, retailing.

2. **Support professions** are required to ensure the functioning of the core professions at different stages of the agricultural value chain—for example, machine technicians for repair and servicing of farm machines at the production, processing, and storage stages of the value chain, and electricians to ensure proper processing, storage, and logistics.

3. **Cross-sectoral professions** are not directly related to the agricultural sector but are required to ensure the functioning of the value chain as a whole—for example, finance, accounting, insurance, and communication specialists.

Some examples of professions along the value chain are shown in Figure 9.2.

FIGURE 9.2—TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING PROFESSIONS ALONG THE AGRICULTURAL VALUE CHAIN



Source: Kirui and Kozicka (2018).

The approach to providing ATVET pursued by countries in Africa may be considered inadequate in the context of increasingly technical 21st-century agricultural systems (Johanson 2007; Brooks et al. 2013). In the majority of the countries, vocational training has not been considered a means for long-term capacity development in agriculture (African Union 2007; Walker and Hofstetter 2016; Mulugeta and Mekonen 2016; ILO and UNESCO 2019). In its place, short-term and topic-specific training was the main instrument to improve farmers' knowledge and agricultural practices, and young farmers learned farming techniques from their parents (Šūmane et al. 2018; Afere et al. 2019; ILO and UNESCO 2019). However, evidence shows that short-term training (lasting a few days or weeks) alone does not sufficiently qualify young farmers and other professionals in the agrifood sector, nor in the rural sector as a whole (Haggblade et al. 2015; Minde et al. 2015; Eissler and Brennan 2015; Brewer and Comyn 2015; O'Donoghue and Heanue 2018; Jjuuko, Tukundane, and Zeelen

2019; Simões and do Rio 2020). There is a need to combine all the different capacity-building approaches (such as training and learning visits, formal education, capacity-building projects, and training workshops and networking) into a flexible, overarching concept of capacity development and to embed this system into the agricultural and food sector. Such a system would include colleges and universities, as well as the interaction between dual and tertiary educational systems. Capacity building is a lengthy process, especially where initial capacity is very weak (Pamuk et al. 2018; Kalimba and Culas 2020).

ATVET increases the employability and entrepreneurship potential of youth (FAO and IFAD 2014). ATVET that focuses on various segments of the value chain is essential in preparing youth for entrepreneurship opportunities. Furthermore, measures should also be put in place to ensure enrollment and retention of female youth in ATVET (for example, providing scholarships for female applicants). This is important because presently women constitute about 50 percent of all workers in the agrifood sector in Africa south of Sahara (Palacios-Lopez, Christiaensen, and Kilic 2017; Christiaensen and Demery 2018). The revitalization of TVET, and ATVET in particular, would require bold initiatives, such as improving the quality of TVET instruction by growing the capabilities of staff (for example, through capacity building or creating new appointments); modernizing infrastructure, equipment, and technologies; improving the relevance of TVET programs by strengthening links with the private sector and conducting regular curriculum review; and improving the curricula and training materials (for example, by developing competency-based modules or demand-based skills training) in consultation with the private sector (potential employers) (BMZ 2017; FAO and IFAD 2014; Nájera 2017; Li et al. 2016).

The new systems could adapt or use appropriate elements of other models, such as the German dual system (Aenis and Lixia 2016; BLE 2016; BMEL 2015; Kirui and Kozicka 2018). The success of the German dual system is attributed to its broad qualification structure, which offers high-quality education and viable employment prospects, coupled with a high degree of engagement of all stakeholders, a well-financed and balanced structure via the private and public sectors, and well-developed and institutionalized capacities (Bauer and Gessler 2017; Wolf 2017; Grollmann 2018; Oviawe 2018; Kirui and Kozicka 2018; Pilz and Fürstenau 2019; Bonoli and Wilson 2019; Young 2019; Gessler and Peters 2020).

Skills Development and Training for Agrifood Value Chain Actors

This section presents the current state of skills development and TVET provision at the postsecondary (tertiary) level in selected countries in Africa for agrifood value chain actors. The analysis highlights the commonalities and differences in provision of ATVET across some African countries, and points out the challenges that need to be addressed for a more effective ATVET system in Africa. Emphasis is placed on two areas: (1) the Africa-wide ATVET as envisioned in the Comprehensive Africa Agricultural Development Program (CAADP)—which was piloted in six countries (Benin, Burkina Faso, Ghana, Kenya, Malawi, and Togo) (NEPAD 2013), and (2) two other significant skills development systems—one public (Alage ATVET College in Ethiopia) and one private (Songhaï Training Center in Benin). These two cases were selected because they present the most interesting (that is, successful) cases and have received considerable investments and publicity, as described below.

Africa-wide CAADP ATVET

The NEPAD (New Partnership for Africa's Development) Planning and Coordination Agency (NPCA)—the technical arm of the African Union coordinating the implementation of the CAADP—has stressed the importance of ATVET (NEPAD 2013; GIZ 2015). With the support of the German Agency for International Cooperation (GIZ), on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), a project called Promotion of Technical Vocational Education and Training for the Agricultural Sector in Africa, better known as CAADP ATVET, was launched by NPCA and the CAADP secretariat in 2012. The aim of CAADP ATVET is to develop and implement market-oriented qualification measures as well as coherent plans to incorporate agricultural technical vocational training components into national education systems. Ultimately, CAADP ATVET seeks to offer a solution to Africa's lack of trained and qualified smallholder farmers.

The first phase of CAADP ATVET (2012–2016) involved six partner countries, each with two or three value chains of priority focus (GIZ 2015; Walker and Hofstetter 2016):

1. Benin: rice and meat

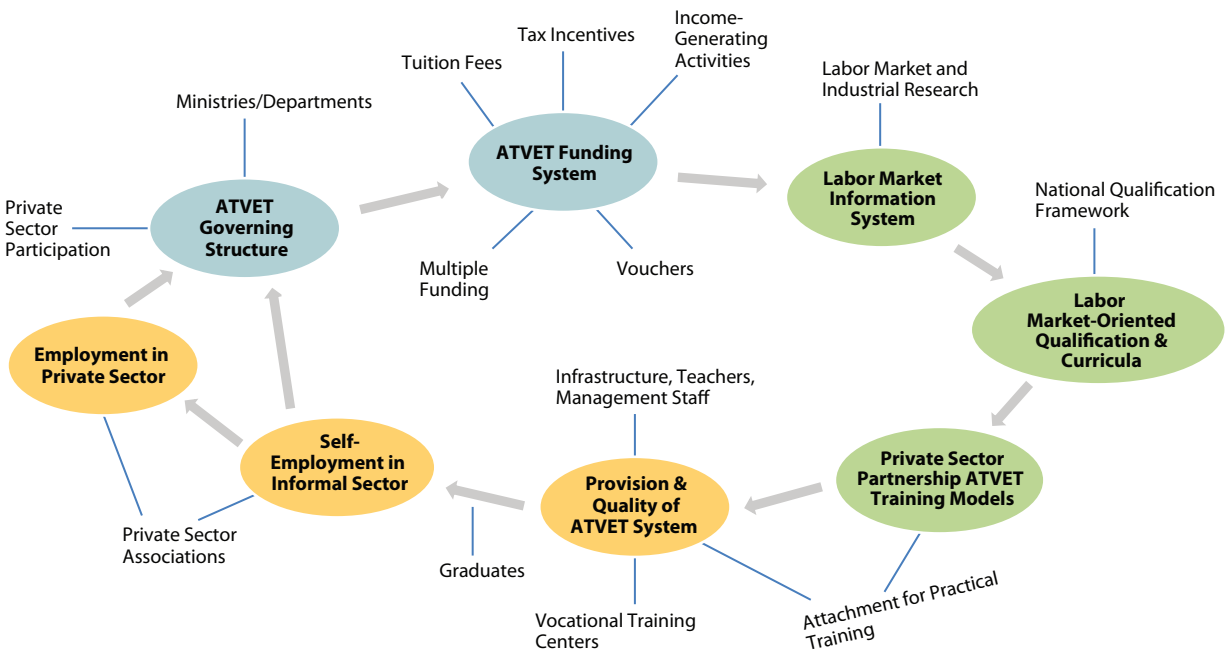
2. Burkina Faso: rice, sesame, and cashew nuts
3. Ghana: pineapple and citrus fruits
4. Kenya: dairy, horticulture, and aquaculture
5. Malawi: mango, pineapple, and aquaculture
6. Togo: rice and aquaculture

Through the CAADP ATVET initiative, these countries are undertaking ATVET system assessments to determine needs, demands, and the most effective ways to boost human capacity development. In the six countries, the common challenges bedeviling ATVET include the lack of a systematic approach to ATVET, the fragmentation of responsibility for ATVET over several ministries, the lack of capacity by the responsible institutions to pursue meaningful reform measures (for example, revision of curricula to reflect labor market needs), and the inadequacy of existing training programs to equip graduates with the skills that are actually needed (Maïga and Kazianga 2016; Walker and Hofstetter 2016; GIZ 2017).

Teaching and study materials relevant to the labor market were developed for these value chains in collaboration with selected ATVET institutions. The training opportunities are preserved primarily for smallholder farmers and young people in rural areas. The first phase saw 250 training modules developed for 10 agricultural value chains and more than 6,200 trainees receive training in these diverse value chains (Walker and Hofstetter 2016). The modules cover various skills (such as rice processing, dairy production, aquaculture production) and are aimed at particular occupations (for example, farmer/producer, farm manager). The program is also aimed at training teachers and tutors (Walker and Hofstetter 2016). The number of those completing training is expected to double over the next three years (Walker and Hofstetter 2016).

The different actors in and components of ATVET systems such as CAADP ATVET are presented in Figure 9.3.

FIGURE 9.3—SYSTEMIC COMPONENTS OF ATVET SYSTEMS



Source: Adapted from Sarfo (2013).

CAADP ATVET provides support to partner countries in three areas:

- Knowledge management and survey of approaches, information, and best practices for ATVET in Africa
- Anchoring of ATVET in CAADP and African Union structures and promotion programs
- Development and implementation of pilot qualification measures for farmers, youth, women, and service providers at the national level that can

be disseminated as best practices to other countries through CAADP peer-learning mechanisms

A summary of the various activities undertaken in each of the countries and the outcomes of the first phase is presented in Table 9.1.

Following successful implementation of the first phase, CAADP ATVET was expanded to six additional countries (Namibia, Rwanda, Sierra Leone, South Africa, Tunisia, and Uganda) in 2017. However, more rigorous empirical assessments on the effectiveness and impacts of this African Union flagship initiative are needed.

TABLE 9.1—REVIEW OF ACTIVITIES AND OUTCOMES OF CAADP ATVET IN SIX PARTNER COUNTRIES

Country	CAADP ATVET activities	Outcomes
Benin	• Institutional analysis of ATVET institutions and selection of training centers for the implementation of pilot measures • Overview study of the agricultural training centers in Benin	• An economic analysis indicated valuable opportunities for employment within the two value chains. • Trainers have been trained on mechanization and value chain principles.
Burkina Faso	• Setting up a database at the agricultural training centers • Integrating ATVET into Burkina Faso's national agricultural investment plan, the National and Rural Sector Plan	• The ATVET strategy, action plan, and logical framework have been finalized. • Curricula and monitoring guide books have been developed for three occupations in the rice value chain, three in the sesame value chain, and five in the cashew value chain.
Ghana	• Supporting relevant government bodies in the inclusion of ATVET in the national agricultural investment plans and national qualification frameworks. • Training "pilot" individuals and institutions (for example, on value chain–specific training and development of occupational standards)	• ATVET has started to gain national attention—it has been included in the Ghana National Medium-Term Agriculture Sector Investment Plan. • Six ATVET institutions were selected for their human capacity development potential and are currently being upgraded to accommodate quality management systems; highly trained and motivated staff; and the two demand-driven curricula, on pineapple and citrus value chains. • A training needs assessment identified important skills required in pineapple and citrus value chains, and these have been incorporated into the new curricula.
Kenya	• Currently developing a national strategy for agricultural education • Developing reform measures for TVET in the agricultural sector in close cooperation with major stakeholders, such as farmer associations, training providers, development partners, government institutions, and representatives of the private sector	• A training needs analysis has been carried out for agriculture-related industries. • Occupational standards as well as curriculum scaling measures focusing on all value chain stages and players in the horticulture, dairy, and aquaculture subsectors have been developed and are currently being piloted and tested in a number of public and private institutions—including Dairy Training Institute, Bukura Agricultural College, Kenya School of Agriculture, Baraka Agricultural College, Faraja Latia Resource Centre, and many county-level polytechnic institutes.
Malawi	• Mapping of skills needs in agricultural value chains and the organizational capacity of ATVET institutions in Malawi	• Three priority value chains (mango, pineapple, and fisheries) have been identified for training interventions. • The Malawi College of Fisheries was identified to be equipped to provide ATVET in aquaculture, and private institutions will provide training on mango and pineapple value chains. • The development of specific curricula and occupational standards for these value chains has yet to commence.
Togo	• Analysis of needs covered by the agricultural training centers • Development of new training measures in line with emerging needs and new agricultural models • Identification of priority value chains for ATVET development	• Women's groups foster collective action in a time of scarcity • Reduced mobility, greater isolation, security concerns, and displacement decrease social capital of both bonding and bridging types • Shifts in gender-based violence can occur as men's and women's livelihoods change

Source: Author's compilation from GIZ (2015, 2016a, 2016b, 2016c, 2016d, 2016e, 2016f, 2017); Walker and Hofstetter (2016).

Country-Level ATVET Initiatives

Alage ATVET College in Ethiopia[1]

Ethiopia's ATVET sector is rather advanced compared with those of other developing countries. Ethiopia developed an ambitious plan, the Agricultural Sector Policy and Investment Framework 2010–2020, led by the Ministry of Agriculture and Rural Development, and invested considerable resources to build up an ATVET system, which is primarily a public agricultural extension system (FAO 2014). A successful example of the ATVET college in Africa is the Ethiopian Alage ATVET College. Alage College was established in 2002 following the government's decision to promote national TVET. The knowledge and skills attained by the trainees, specifically in agricultural disciplines, are intended fit into the country's transformation strategy. Alage ATVET College comprises 4,200 ha of land and possesses the infrastructure and facilities necessary for practical agricultural training. The college has four departments: plant science, animal science, natural resources, and animal health. The objectives of the institution are threefold: to train development (extension) agents (DAs) in the fields of animal science, animal health, plant science, and natural resources; to organize practical and demonstration sites; and to increase the income of the college. The college is considered a success because it has managed to train more than 60,000 local teachers, agricultural technicians (DAs), and students, unlike any other ATVET institution in the region. The college offers a number of short-term trainings—such as improved animal feed and fodder production, cooperative development and accounting, alternative energy sources and small-scale irrigation, meat hygiene and control, basic computer applications—to DAs, who in turn train farmers. It also offers several outreach programs.

Songhaï Training Center in Benin[2]

Songhaï Training Center is the most renowned private ATVET institution in Benin. It was founded in 1985 to provide training to farmers, skilled farm workers, and rural development practitioners. It has a dense collaboration with more than 40 public and private organizations and universities. Songhaï trains young entrepreneurs who can then contribute to the sustainable development of their communities by creating jobs and thus preventing rural exodus; by ensuring food self-sufficiency for the region and contributing to the well-being of the people, who will become more aware of the components of the products they consume; by training other young people willing to work in the field, who will thus contribute to the education of the youth of their villages; and by providing services such as electricity and gas for all. The training is open to anyone who wishes to receive or deepen knowledge in the field of agricultural entrepreneurship. The duration and the cost vary depending on the program. A framework has also been created to monitor and support some trainees after program completion, particularly young women, who can benefit from microcredit to culture and set up their farms.

Songhaï Center not only has expanded its activities in Benin but has been replicated in 14 other African countries. It encompasses practical and entrepreneurial curricula. A success factor is the cascading information transfer and teaching system that creates a large number of farmer resource persons; each trained graduate is encouraged to train another five farmers (Vodouhe and Zoundji 2015).

Conclusions and Recommendations

ATVET in Africa is increasingly becoming relevant and important as a means to address present and future challenges for human capacity development. ATVET should be tailored to meet the needs and demands in the agrifood sector and to contribute to growth and sustainable development. Although the analysis of the current state of ATVET in Africa shows that pan-African initiative through the CAADP, and regional strategies and plans, are already established, ATVET in Africa is limited by the marginal attention given to it, making for weak integration into the general TVET system; the lack of a strong network involving all stakeholders; the lack of resources dedicated to ATVET; and the negative perception of ATVET professions and employment prospects upon completion of training. ATVET curricula and skills development should be not only linked to key priority areas and aimed at providing gainful employment to both youth and adults, but also committed to developing rural areas in ways such as diversifying agricultural production or markets, increasing manufacturing or services sectors, and promoting private sector development. This calls for expanded focus on

1 Adapted from Kirui and Kozicka (2018).

2 Adapted from Kirui and Kozicka (2018).

technical training and skill development in both agricultural and nonagricultural sectors in rural areas so as to benefit both women and men.

The priority should be to identify significant value chains (that employ many people and generate incomes) and to develop curricula for the various actors in these chains. This should also be done based on present and future national labor market priorities and in partnership with the multiple stakeholders. The CAADP ATVET made these activities a priority in all six pilot countries. The curriculum not only should target the core professions at different stages of the value chain (such as farmers, fishers, agro-processors) but should also include support and overarching professions (such as electricians, and warehouse and storage managers). The latter would particularly benefit young people from rural areas because these professions are relevant not only for agriculture but for rural development as a whole.

There exists an opportunity to develop an ATVET system that considers the present and future demands of society; that merges education, training, knowledge acquisition, and skill/technique development; and that takes into consideration the input of both public and private players. Such a system must leverage new and innovative techniques to bolster agriculture in the TVET systems or create completely new ones. These innovative techniques involve systematic transformation of ATVET toward new practices and solutions relevant to local social and economic problems. As an example, the Songhaï Training Center's more practical and entrepreneurial curriculum and its cascading information transfer and teaching approach creates a large number of farmer resource persons—each trained graduate is encouraged to train another five farmers.

The system should also provide incentives to encourage private sector participation in ATVET skills development, and it must also adapt to emerging innovative training delivery (such as the use of information and communications technologies, implementation of entrepreneurial education, or administering more practical and outdoor learning that links theory and everyday examples—approaches that have been used in the Alage and Songhaï ATVET centers). The ATVET system should transform training into an entrepreneurial and professional system that will improve the skills of farmers and attract more youth into agriculture. More important, the new systems should borrow from and adapt models that have proved to be successful in other regions or countries. One such model is the German dual system. The success of the German dual system shows how a broad qualification structure that offers high-quality education and viable employment prospects for youth, coupled with a high degree of engagement of all stakeholders, a well-financed and balanced structure via the private and public sectors, and well-developed and institutionalized capacities, can contribute to a strengthened and effective ATVET system. Hence, policy reforms and national strategies that aim to incorporate these aspects in national ATVET systems can prove beneficial for African nations.