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Study on Agricultural Technical and Vocational Education and Training (ATVET) in Developing Countries



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With family farmers towards a world without hunger

Summary

This study took place in the scope of the Capitalisation of Experiences (CAPEX) on Rural Advisory Services (RAS) mandated to HELVETAS Swiss Intercooperation by the Swiss Agency for Development and Cooperation (SDC) and aims to link the two areas of Agricultural Technical and Vocational Education and Training (ATVET) and RAS. The study aims at offering a birds-eye overview of current trends and discussions in ATVET, especially in the context of Sub-Saharan Africa, and thereby provides short case studies on the ATVET systems of Benin and Ethiopia.

Even though migration and urbanisation have increased, the majority of the world's poor still live in rural areas. For the 70 percent of the world's poor, agriculture is the main source of income and employment (The World Bank, 2015). ATVET was neglected by governments as well as by donors in the 1980/90ies, and only re-gained momentum and a more innovative character in the past decade. The new development agenda of the Sustainable Development Goals and the Federal Council's Message on Switzerland's International Cooperation 2013-2016 emphasise the importance of agricultural skills to enhance productivity and sustainability along value chains to ensure the food security of millions of people in developing countries. A shift is taking place in the required agricultural skills and competencies along the food value chain from traditional courses to those relating to marketing, distribution, processing, packaging and regulation.

Globally, agriculture is a greying sector: Farmers are getting older – even in countries with a very young population. In Africa, the average age of farmers is also about 60, despite the fact that 60 per cent of Africa's population is under 24 years of age (FAO, 2014). This is mainly due to the out-migration of many young people in search of better opportunities for work and education in cities or abroad. This trend however also harbours opportunities: migrants have better access to skills and information, and return to their villages seasonally or after a few years with new knowledge and ideas, and often also with savings. Self-employment is a viable alternative to the “traditional” farming work, and ATVET can support this target group with entrepreneurship training and facilitation of access to financial services.

Women and/or youth, who are often the ones staying back to take care of the land and livestock, take on the roles of men. This offers a chance for empowerment, and again, ATVET can contribute to support this target group to gain additional skills, which can be used for (off-season) income generation.

Formal ATVET in many sub-Saharan African countries is often based on colonial systems, which emphasised formal education through a small number of elite universities and colleges. In many francophone African countries, colonial approaches have not changed significantly, whereas postcolonial anglophone Africa tend to have changes: more extensive research at tertiary level was introduced and university research programmes in agriculture were linked to agricultural research and extension organisations in many countries.

The study further examines the ATVET systems of Benin and Ethiopia, and finds that they differ considerably. The Ethiopian system is characterised by public investment in agriculture and primarily trains RAS agents, while in Benin, the ATVET system is more diverse despite a strong government push.

There is consensus that ATVET needs to be provided through different educational approaches, i.e. formal, non-formal and informal, to reach the diverse target groups and to make the skills provision more innovative and up-to-date. The types of skills required has changed: ATVET programmes must impart a wide skillset encompassing technical, soft, entrepreneurial, and analytical skills.

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List of abbreviations

AIS	Agricultural Innovation System
ATVET	Agricultural Technical and Vocational Education and Training
CAADP	Comprehensive Africa Agriculture Development Programme
CAPEX	Capitalisation of Experiences
CETA	Collèges d'Enseignement Technique Agricole (Benin)
DA	Development Agents (Ethiopia)
ECOSOC	Economic and Social Council of the United Nations
EFA	Education for All
FPT	Farm Practical Training (Nigeria)
FTC	Farmer Training Centres (Ethiopia)
GIZ	Gesellschaft für Internationale Zusammenarbeit (Germany)
IFAD	International Fund for Agricultural Development
MOARD	Ministry of Agriculture and Rural Development (Ethiopia)
MOE	Ministry of Education
RAS	Rural Advisory Services
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
VET	Vocational Education and Training
TVET	Technical Vocational Education and Training
UNDP	United Nations Development Programme

1. Introduction

1.1. Background

This study took place in the scope of the Capitalisation of Experiences (CAPEX) on Rural Advisory Services (RAS) mandated by SDC and aims to link the two areas of agricultural technical vocational education and training (ATVET) and RAS, e.g. because many ATVET graduates are working as extension agents.

The Swiss Agency for Development Cooperation (SDC) mandated HELVETAS Swiss Intercooperation to explore fundamental questions related to the value and scope of ATVET: What role does ATVET have in the 21st century? Where are ATVET-related jobs going to be created? For which jobs do people need ATVET? And: what are the required skills for these jobs, how to acquire them and at what level to impart them? What sort of institutions can impart these skills? How is ATVET organised in two exemplifying African countries, Benin and Ethiopia?

“A new and broader approach to, and a new emphasis on agricultural education and training are required [...] to provide the next generation with the skills, understanding and innovative capacity that they require“ (IFAD, 2010).

The issue of improved ATVET is also reflected in the new 2030 development agenda. The Sustainable Development Goals (SDG) call, among other objectives, to end hunger, achieve food security and improved nutrition and promote sustainable agriculture (goal 2), to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (goal 4), to achieve gender equality and empower all women and girls (goal 5), and to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all for global sustainable development (goal 8) by 2030.

The Message on Switzerland's International Cooperation 2013–2016 submitted to the Swiss parliament also emphasises the significance of Switzerland's engagement in the field of educational and vocational skills training in its target countries, and the continued support of populations in poor and fragile states in Africa. It stresses the importance of vocational training in order to support agricultural productivity and sustainable agriculture in developing countries.

Against this background, the objective of the study is to provide input to SDC's reflection on ATVET. The study is organised as follows. Chapter 1 elaborates the rationale and limitations of the study. Chapter 2 provides an overview on current trends and debates around ATVET. Chapter 3 describes the various actors in the ATVET system on a general level, and more specifically in the two case studies of Benin and Ethiopia. In the last chapter, the paper lists selected best practices on ATVET in Africa as a source of inspiration to SDC to plan their future engagement in ATVET.

1.2. Rationale – why is ATVET important?

The majority of the poor worldwide live in rural areas, predominantly in low and some middle-income countries. For the 70 percent of the world's poor who live in rural areas, agriculture is the main source of income and employment (The World Bank, 2015). Furthermore, over 80 percent of food consumed in the developing world comes from the smallholder sector (Leavy, 2014). However, agriculture in its present state appears to be unattractive to many young people, and they seem to be turning away from agricultural and rural futures. While this trend falls within the dominant discourse around youth considering agricultural work dirty and degrading, underlying serious issues around land ownership and access to training, capital and technology play a role, too (White, 2012).

Relevant skills to increase productivity in agriculture-related sectors can however play a crucial role in linking the poor rural population, and specifically the most vulnerable and disadvantaged, to profitable income generating activities. Rural populations are increasingly affected by out-migration of the fittest (often young and able-bodied men, in some societies also women) and the impacts of climate change (changing rain patterns, droughts, etc.).

Migration, often perceived as a challenge, also harbours opportunities for ATVET. Women are often the ones to stay back to take care of the land and livestock. At the same time, women tend to have less education and skills than men and are confronted with additional tasks that are traditionally the ones of their husbands and sons. ATVET can make a difference for this target group by providing adequate and marketable skills.

Analysing labour market requirements in peri-urban and urban settings can lead to training programmes that specifically target the unemployment that many migrants moving from rural to urban areas face. These can be innovative combinations of agricultural and non-agricultural skills sets in order to address the phenomenon of circular migration (migration to the cities due to lack of off-season income). Further, there are also very interesting opportunities in ATVET for returnee migrants. Labour migrants returning to their homes often come back with skills, business ideas and even some savings to invest. ATVET can take a more entrepreneurial approach by combining technical skills with business skills and supporting returnee migrants in establishing businesses and creating jobs for others. The ones left behind are also often the recipients of remittances. Similar entrepreneurship-oriented models can be applied for an investment-oriented use of remittances (instead of a consumption-oriented approach).

In many developing countries, the private sector¹ faces challenges in finding adequately skilled employees. This also holds true for sectors linked to agriculture, e.g. processing, distribution, marketing, etc. The development of ATVET from a purely productivity-oriented approach to provide broader and more specialised skills sets along agricultural value chains is likely to raise the interest of private sector actors. This incentive can result in a stronger and more sustainable financial and conceptual engagement of employers in ATVET.

Overall, literature research and interaction with relevant experts in the field of ATVET revealed that ATVET is chronically underfinanced overall, and the information available points towards an underestimated potential ATVET can have on poverty alleviation and economic development if sufficient resources and expertise are at hand. There are indications that ATVET might gain more attention from donors in the years to come. For example, Germany's Federal Ministry for Economic Cooperation and Development (BMZ) in 2014 announced to increase its engagement in Africa by 100 million Euro. The funding will lead to the establishment of ten centres for sustainable added value in agriculture, to be established in conjunction with the German agricultural sector, and ten vocational training centres for rural development, among other outcomes.

1.3. Research framework

The findings of this study are based on a desk research and selected expert interviews carried out between September and December 2015. Given the high share of rural population in Africa and the importance of this continent in the Message on Switzerland's International Cooperation, the study focuses on Africa. Benin and Ethiopia were selected as case studies as they differ in terms of geography (East and West Africa) as well as their educational system. Their ATVET systems also differ considerably. SDC is implementing programmes in both countries.

¹ The private sector is not perceived as a homogenous mass even though the terminology might suggest this to be the case. In this study, the term "private sector" is used to circumscribe the various actors such as small and medium sized companies, large companies, sectorial associations, business associations, chambers of commerce, etc.

1.4. Limitations of the study

The terms of reference of this study foresee an analysis of the global demand and supply for ATVET. However, it proved to be very challenging to find information on this subject as the literature does not provide the necessary data. Especially in less developed countries, data scarcity is often a hurdle for in-depth analysis of demand and supply in specific sectors and across the whole labour market. Many times, there is virtually no reliable data available on labour market entrants, demand of workers per education level and sector, and vacancies across sectors and level. Hence, it is recommended that further country- and even sector-specific research should be conducted before deciding on a specific ATVET intervention.

1.5. Definition of ATVET

The study uses a broad understanding of ATVET following SDC's concept of vocational skills development², on the one hand, and understanding agriculture as the management of natural resources including crops, livestock, fishery and forestry and linking it to the value chains concept, on the other hand. We define ATVET as the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in agriculture (Jones, 2013).

The desk study and expert interviews showed that authors and institutions often use different terms for describing the same concept, like ATVET, agricultural education and training, or vocational training in agriculture.

² SDC "pursues a broad-based, flexible approach to promote the development of vocational skills and competences which can be acquired through different pathways: through school-based and workplace-based education and training, within and outside the formal education system. VSD encompasses all levels of training, from very low-level informal settings up to high-level and demanding offers in formal education" (SDC, 2010).

2. Global debates and trends on ATVET

ATVET has been hard hit over the past few decades, as many developing country governments cut their related public spending throughout the 1980s and 90s. In addition, many countries experienced rapid urbanisation that took people and resources away from rural areas (Jones, 2013). Historically, ATVET provided static skills training for agricultural systems that were mostly disconnected from more dynamic or growing sectors of national economies and the labour demands of those sectors. Over the past ten years, however, there has been growing emphasis on agricultural value chains to stimulate economic growth (Maguire in Jones, 2013).

2.1. Employment Areas

Small-scale agriculture is the biggest source of employment in most of the developing countries. In Africa for instance, agriculture employs 65 percent of the labour force and accounts for 32 percent of the gross domestic product (NEPAD CAADP Unit, 2013).

Without aiming to offer an exhaustive list, employment areas related to ATVET are vast, and point to the diversity of skills needed:

- Production: self-employed or on contract
- Processing
- Seed and fertiliser salespeople / agro dealers
- Buyers: bulk buyers, wholesalers
- Marketing
- Transportation
- Logistical services
- Extension agents
- Research scientists
- Lab technicians
- Loan offers at agricultural banks
- Agricultural occupations related to certification
- Occupations related to the mechanisation of agriculture: Maintenance of agricultural machinery

Figure 1 points towards a shift in the required agricultural skills and competencies along the food value chain from traditional courses to those relating to marketing, distribution, processing, packaging and regulation (Annor-Frempong & Jones, 2014). It also shows that many functions along the food value chain are performed by private sector actors. This offers an opportunity for more engagement of the private sector in ATVET, since the employers are the stakeholders with a need for a skilled work force. According to the figure, the demand for more skilled workers along the food value chain is estimated to grow on a global scale.

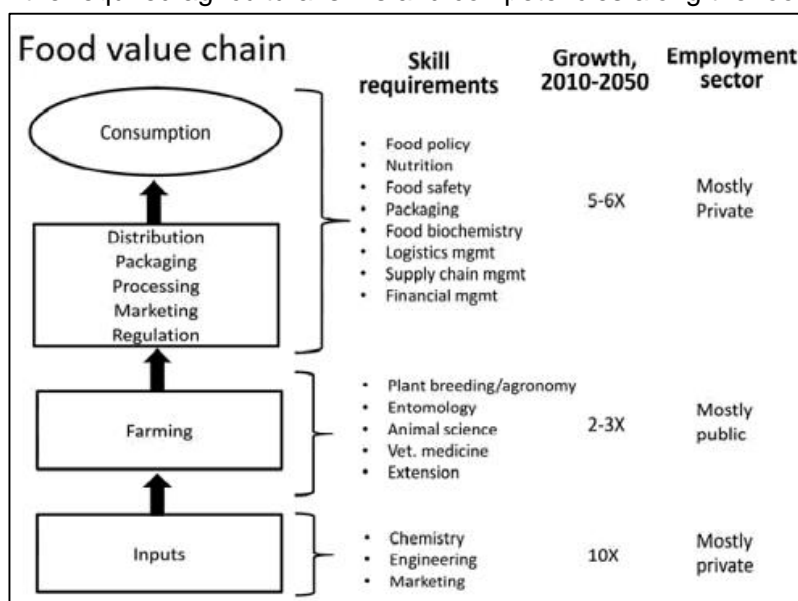


Figure 1: Labour demand along the food value chain (Annor-Frempong & Jones, 2014).

What is work force development?

Definitions on workforce development, an American economic development approach, vary. It is about a relatively wide range of activities, policies and programmes employed by geographies to create, sustain and retain a viable workforce that can support current and future business and industry (Haralson, 2010). Jacobs and Hawley (2008), who composed a disquisition on the concept, define workforce development as follows: “Workforce development is the coordination of public and private sector policies and programs that provides individuals with the opportunity for a sustainable livelihood and helps organizations achieve exemplary goals, consistent with the societal context.” (Jacobs & Hawley, 2008)

Workforce development is distinguished from training or education by its explicit focus on economic development.

Different occupations require different types of skills. In addition to technical skills, analytical and entrepreneurial skills are increasingly required because of the knowledge-intensive approach to farming (Heinemann, 2011). The mechanisation and digitalisation of agriculture creates new types of occupations, too, thereby requiring computer-based skills. Another trend is that ecological understanding of ecosystems and interdependence are gaining importance.

Linked to employment areas and a demand-driven approach to ATVET is the understanding on **work force development in agriculture**. In this regard, the question arises whether the national ATVET systems are currently able to develop individuals and organisations with capabilities needed to stimulate the growth of a more dynamic agricultural sector. This requires to assess the labour market demands, evaluate which occupations will be required in the agricultural sector, which self-employment options may come up in the sector in a given country, keep up with changing technologies, and to derive the necessary skills to meet these demands. This approach makes evident that no single approach to ATVET will be able to address the needs of all employers and potential employees, that it depends on the national and regional context and that it requires constant analysis due to continuous changes in the labour market (Jones, 2013).

continuous changes in the labour market (Jones, 2013).

There is a great potential for self-employment in agriculture. ATVET can contribute to enable farmers to move beyond subsistence by providing skills in entrepreneurship and business management (financial literacy, business planning, etc.), as well as technical skills training to improve the productivity and sustainability of agricultural production, and to teach additional skills, e.g. off-season production technology, processing and post-harvest conservation methods, marketing, etc. Ideally, skills training for self-employment is complementary to the farming work, i.e. can be carried out during off season periods or contributes directly to enhanced incomes gained through farming. Some examples for complementary income-generating activities are given here (but are of course highly dependent on context): off-season vegetable growing through construction of green houses, cultivation of products that are not dependent on seasons (e.g. mushrooms, herbs, etc.), the use of by-products for fabrication of goods that can be sold (e.g. oils, soaps), agro-tourism, cottage industries for the processing of agricultural products, etc.

2.2. Educational level, quality and practice orientation of ATVET

2.2.1. Educational level

Access to education remains a central challenge, especially in rural areas. Compared to urban settings, basic education enrolment rates are lower in rural areas than in urban areas and rural girls' rates lower still (even though women play the dominant role in smallholder production in many countries), and rural children typically spend less years in education than their urban counterparts (Heinemann, 2011). This translates into rural youth lacking foundation/basic skills.

In the past, ATVET focused primarily on production skills and producers themselves. Therefore, many programmes were based either at secondary schools (requiring only primary education) or

offered as an alternative to traditional primary and secondary education in a non-formal setting. Post-secondary ATVET, conditional upon completion of lower grade levels, has constantly had a smaller impact than other types of ATVET programmes (Jones, 2013). This has been changing in the last years and is reflected in the debate on whether education should be more academic or rather more occupation-oriented. The trend is that the average educational level is increasing and necessary for workers to compete in all sectors, including in agriculture (UNESCO, 2012). However, the reality of many jobless university graduates raises doubts. Furthermore, the trend of many ATVET programmes taking place at post-secondary institutions such as vocational colleges or universities holds a potential exclusionary effect, particularly for women and minority groups, because they face especially high difficulties accessing secondary education (Hartl, 2009).

The Education for All Report of 2012 (UNESCO, 2012) concluded that the higher the educational level, the more likely it is that the young person is involved in non-agricultural employment. This applies for both, women and men. Earnings are generally better in non-agricultural work. In Ghana and Rwanda, for example, average earnings in the informal sector double those in agriculture (Adams et al. in UNESCO, 2012).

2.2.2. Quality and practice orientation

Quality in teaching and learning as well as practice orientation are subject of ongoing debates in VET as well as in ATVET. Literature (Unit, 2013; Jones, 2013) and interviewed experts identify the following core problems of ATVET systems:

- **Missing education basis:** a solid basis for ATVET is often missing since basic education is insufficient and many children cannot stay in school long enough to acquire basic skills.
- **Disconnected from other types of Technical and Vocational Education and Training (TVET):** ATVET is often disconnected from other types of TVET, it is fragmented and scattered. For instance, ATVET is often not included in national-level reporting of TVET programmes or it is housed in a different ministry than other TVET programmes.
- **Limited practical training:** many ATVET programmes do not provide sufficient practical training, e.g. internships, training in well-equipped labs, plots and livestock for practice, etc.
- **Focus:** ATVET programmes are often either too narrow in focus or too generalised. A mix of different skills is needed to address multiple livelihood options and to bridge off-season periods.
- **Insufficient infrastructure, inadequate and outdated training materials and equipment as well as lack of skilled and qualified teachers and trainers.**
- **Limited range of skills:** ATVET curricula often neglect soft and entrepreneurial skills.
- **Linkages:** only few linkages exist between private and public efforts and between TVET and agricultural universities and research.
- **Missing link between informal and formal ATVET system:** absence of recognition and certification of prior learning/informally acquired skills

2.3. The greying farm sector

The United Nations' Economic and Social Council (ECOSOC) names three demographic challenges related to agriculture: ongoing population growth, accelerated urbanisation and ageing. Depending on the source, studies estimate the average age of farmers around 55 to 60 years (Olariu, 2014). In Africa, the average age of farmers is also about 60, despite the fact that 60 per cent of Africa's population is under 24 years of age (FAO, 2014). As young people move out of agriculture, the ageing of the farming population gets further pronounced. Young and able-bodied men are generally the first ones to move out. This manifests itself in two ways: one, more women dominate the operations on farms; two, the farming population starts to age (Sharma, 2007). In contrast to

this, many children become farm labourers at an early age, working as many as 45 hours a week in the harvest season (FAO, 2015).

In some parts of Africa, 60 percent of households are headed by women due to migration (FAO, 2015). This reality offers a few opportunities: women and youth are often the ones left behind to look after the land. They have to take on non-traditional roles, and their empowerment can be supported through adequate and practice-based skills training. Through circular migration young people working in urban and peri-urban areas during off-season periods return to the rural areas with the ability to make small investments or with ideas for agribusinesses. They also have better linkages to markets and interventions can support them by providing business skills and financial literacy trainings as well as support in accessing capital for investment. In general, self-employment opportunities related to agriculture might be a way of making this field more appealing to young people.

Studies (Leavy, 2014, White, 2012) however also reveal several reasons why young people are less interested in farming or rural futures:

- Youths' desire for formal education associated with high status of white-collar occupations (see 2.4).
- The physical and mental challenges of farming: farming and rural life is generally downgraded, parents find agriculture tiring work and want their children to have good jobs in the cities, and for small farmers farming is financially unrewarding.
- Skills needed for agricultural jobs (and often practical skills altogether) are neglected in formal schooling. Without additional training, many graduates are often not qualified enough for locally available employment in the agriculture sector.
- Rural youths face difficulties to get access to land, pointing to the issue of intergenerational tensions of land rights.
- Further reasons, such as new opportunities for education and employment linked to the global phenomena of mass education, improved information via the internet, migration, and changing norms provide rural youth with more freedom and knowledge about alternatives to their present lifestyle.

However, there are means to make agriculture more attractive. Leavy (2014) shows that agriculture can be more appealing to youth if it is turned into modernised, market-oriented farming instead of subsistence-based agriculture: young people want to use new technologies, modern machinery, hybrid seeds, and cash crops. In Nigeria, the curriculum of agriculture at undergraduate level was re-structured by introducing farm practical training (FPT) for students. A study examined students' orientation, skill acquisition, level of satisfaction and change in attitude towards farming, constraints and ways of improving FPT. Results of a study revealed, among others, that the students' farming skills were tremendously improved and that students developed a positive attitude towards agriculture as a means of livelihood (Ayanda, Yusuf, & Salawu, 2013). It seems that ATVET interventions need to build on market analysis, focus on attractive and prosperous sectors and make use of appealing didactics. They need to include modern technologies, and find the right "language" to speak to the youth.

2.4. Status and stigmatisation

ATVET's status-related challenge is two-fold: both agriculture and VET suffer from inferior status.

“Why would they not consider it as an unrespectable and small job? In our country, no educated person works in the field, rather people who work in the field are called chasha [literally, farmer, but also meaning person of low status]. Young people, in their future, will also take up business, driving motorcycles etc. as their profession.”

President of the school management committee in Khulna community, Bangladesh (Leavy, 2014)

Farming is not a favoured option for the younger generation in rural areas, even those in which agriculture remains the mainstay of livelihoods and the rural economy. Agriculture is often presented as the occupation of last choice, practised only when all other opportunities have been exhausted. Young people want to gain formal education in respected professional occupations (Leavy, 2014). VET in both developed and developing countries remains a less-desirable educational option than other post-secondary programmes. “At the upper secondary level many students and parents choose agricultural schools as a second choice when access is denied to academic secondary education” (Johanson, 2007). Non-traditional certification and unclear educational attainment play another important role.

Migration is seen as an alternative to working in agriculture. Urbanisation and out-migration is on the rise in many developing countries. On the one hand, young people moving off the land face deep social structural shifts: generational break in aspirations and investment in the family farm or enterprise (Leavy, 2014). On the other hand, in many societies, one child is responsible to take care of the parents and therefore needs to remain on the parental land.

2.5. Gender

The roles of men and women in food production, processing and marketing vary, but women usually play a pivotal role. In sub-Saharan Africa, they produce and market up to 90 percent of all food grown locally (FAO, 2015).

Across developing countries, women comprise 43 percent of the agricultural work force (Filmer, 2014). India presents an interesting case, because even 75 percent of all women work force are engaged in agriculture. The level of lower skills and education level is highlighted by the fact that, in India, up to 75 percent of women engaged in agriculture are illiterate. This also implies that they are less able to shift easily to other higher skilled jobs, e.g. in the services sector. Therefore, their low skill and education level makes them highly dependent on agriculture (Sengupta, 2009). While young men are generally the first ones to move out of agriculture, women and elderly people mostly remain in the sector. This also holds the potential for new roles for women and men. As mentioned earlier, many traditional ATVET programmes are inaccessible to women lacking primary education, and to minorities or other adults who do not speak either a European or primary local language (Jones, 2013). There is great potential in targeting women with specific ATVET interventions to upgrade their skills for wage or self-employment (see 2.1 and 2.3). There are many examples of such projects from various countries/continents.

3. ATVET Actors

3.1. Actors landscape in general

ATVET operates at the interface of different sectors: education, labour market, private sector, farmer and trade associations, farmers, public and private training providers. The Agricultural Innovation System (AIS) approach is a good starting point to contextualise the actor landscape (Figure 2).

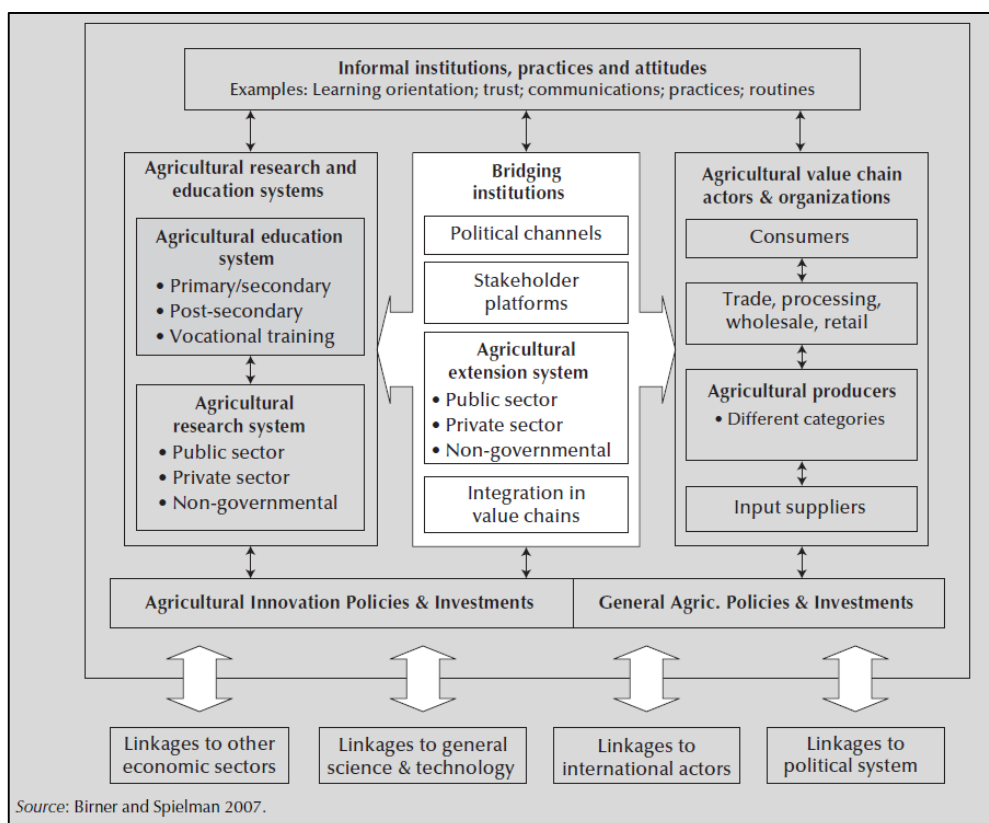


Figure 2: National Agricultural Innovation System (Johanson, 2007)

3.2. Formal, non-formal and informal VET

The definitions of formal, non-formal and informal TVET vary across countries and institutions. This study uses the following definitions (GIZ, 2015)

Formal VET: Provided by the state education system and leading to a recognized qualification. Learning processes in formal VET are intentional and systematic.

Non-formal VET: not part of the state initial education and training system. Delivered by education and training providers, companies, social partnership organisations and public-benefit bodies. Learning processes in non-formal VET are intentional and systematic. Can lead to a recognized qualification.

Informal learning: non-structured, non-intentional learning processes that take place at work or in other everyday life contexts. Typically, it does not lead to certification and recognition.

3.3. Actors landscape in Africa

ATVET systems in Sub-Saharan Africa are commonly structured around the following components: universities, colleges, technical/vocational schools, non-formal educational organizations and informal apprenticeships. Figure 3 below provides a generalized overview of these actors according to the levels of the education and training system. However, actors and the levels at which they operate may vary greatly between countries. **Formal ATVET** in many African countries can be traced back to colonial systems that emphasised formal education through a small number of elite universities and colleges. Different colonial regimes left behind different educational approaches, especially with respect to agricultural education and research. In many **francophone African countries**, colonial approaches did not change significantly with the coming of independence; education in the region has continued to focus on teaching through elite “Grandes Ecoles” (Michelson and Hartwich in Davis, Ekboir, & Spilman, 2008). However, postcolonial **anglophone Africa** has witnessed several significant changes. Firstly, many of these countries have introduced a more extensive research mandate into tertiary education (Michelson and Hartwich in Davis, Ekboir, & Spilman, 2008). Secondly, many countries have linked their university research programmes in agriculture to agricultural research and extension organisations, a structure reflecting the influence of the United States’ model of land-grant universities and colleges (Davis, Ekboir, & Spilman, 2008).

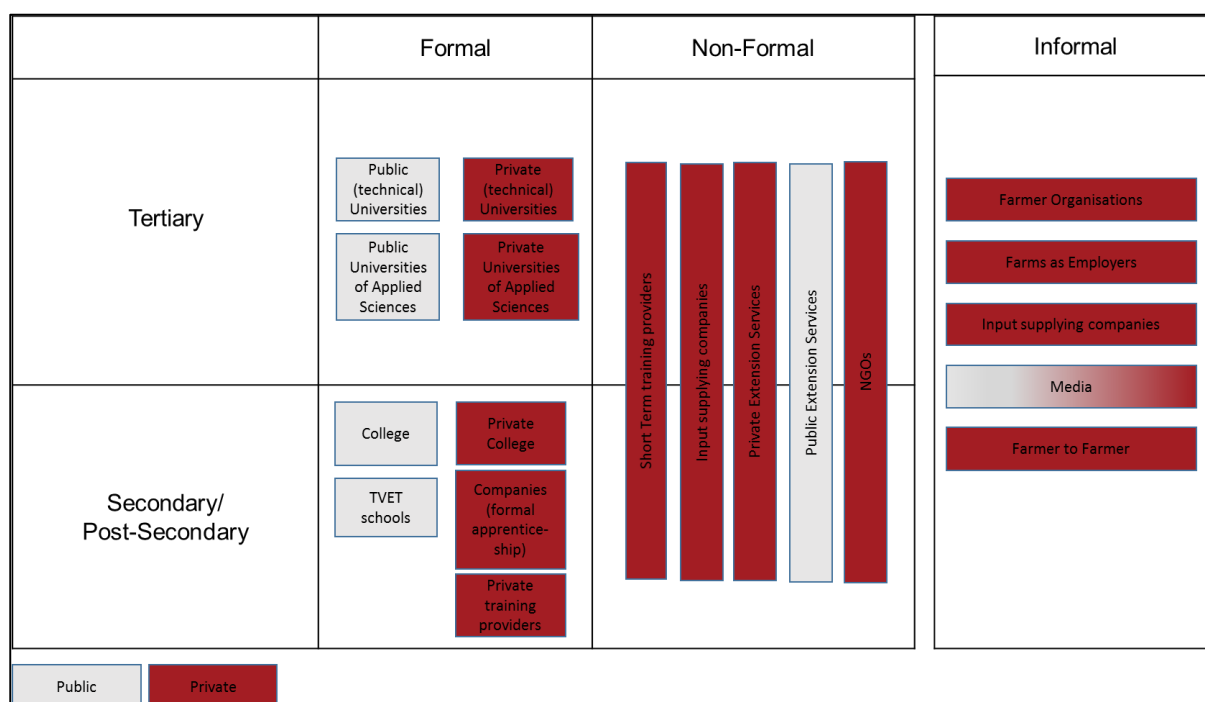


Figure 3: Public and private providers of ATVET at different levels of the system (HELVETAS Swiss Intercooperation)

Informal apprenticeships in agriculture are very common, and cannot be allocated to a specific level in the education system due to their unregulated nature. Apprentices typically learn from an experienced craftsperson of a specific trade. However, their learning is not formalized through curricula, and mostly does not lead to a recognized certification. Employers often do not offer formalized employment conditions such as a contract and guaranteed salary, etc. While being a very practical way of learning, informal apprenticeships are a very haphazard type of ATVET.

Secondary-level ATVET is highly diverse across the countries of Sub-Saharan Africa. It tends to be a minuscule part of TVET, which itself represents a small share (perhaps 3–5 percent) of total secondary enrolment (Johanson, 2007). In some countries in sub-Saharan Africa, agriculture has

been introduced in general school curricula at secondary education level as a compulsory subject or as an optional subject (Vandenbosch, 2006).

Postsecondary and tertiary ATVET is traditionally offered at universities (agricultural universities and faculties of agriculture and related subjects in multipurpose universities) as well as at agricultural colleges, polytechnics and agricultural institutes. About 75 percent of African countries offer some tertiary-level training in agricultural sciences. In 2007, Africa housed around 300 public and private universities, out of which at least 96 public universities taught agriculture and natural resources management. One-third of them alone are in Nigeria and South Africa (The World Bank, 2007). Public as well as private investments tend to favour university graduates at the expense of secondary or post-secondary technical and vocational programmes. Postgraduate ATVET is a rather new and not very well-established aspect of African higher education (The World Bank, 2007).

3.4. Benin

The agricultural sector in Benin accounts for 32 percent of the GDP and provides about 70 percent of total employment (CIA Factbook, 2015). A ten-year plan (2013-2023) formulates a vision and strategic guidelines for ATVET at national level, but remains weak in terms of vocational training. Nevertheless, ATVET has expanded rapidly in the last years because of a strong involvement of the government, amongst others (NEPAD CAADP Unit, 2013). The number of institutions offering ATVET and the student intake increased considerably after 2008. TVET accounts for around three percent of the State's education budget and less than five percent of staff deployed at the secondary level.

An important initiative was the creation of the Department of Conversion and Integration for young people, which facilitates the involvement of youth in agriculture by improving their knowledge through short-term trainings. While the Department primarily focuses on crafts, the agriculture sector has become more important. ATVET trainers of the public centres are trained at the teacher training colleges of technical education (NEPAD CAADP Unit, 2013). The "Fédération des unions de producteurs du Bénin" presents a framework for dialogue and strategic thinking to sustainable smallholders farming. It is a well organised structure in Benin. Annex 8.1 lists the public actors and names their roles and tasks.

At secondary level, there are three Colleges of Technical Agricultural Education (*Collèges d'Enseignement Technique Agricole, CETA*) and public and private Agricultural Technical Highschools (*Lycées techniques agricoles*). The post-secondary level encompasses the University Centres of Agronomy and different training centres (Centres de formation intégrée à l'entreprise). Teaching at the CETA is 25 percent theoretical and 75 percent practical. The colleges primarily train future farmers, other employments are skilled workers on a farm and technicians of rural development. The Agricultural Technical High Schools are said to cooperate closely with research institution centres.

The most famous private initiative regarding AVET in Benin is the Songhaï Training Centre, founded in 1985. The centre carries out training, production and research. It provides technical training and material support to farmers and community dwellers. The centre collaborates with 40 private and public partners, associations, universities and national and international groups (NEPAD CAADP Unit, 2013).

Djègui (2012) argues that whereas Benin's potential in terms of agricultural development is huge, the framework conditions are missing and the country faces the following challenges:

- i. the various training structures are not coordinated in terms of content and quality
- ii. despite numerous qualification and diploma schemes, the informal sector still provides the largest share of apprentices
- iii. lack of adequate infrastructure for practical training
- iv. teachers lack professional experience and professional associations are hardly involved

v. TVET is a shared task between several departments (Djègui, 2012).

The subsequent chart (Figure 4) maps the ATVET system of Benin.

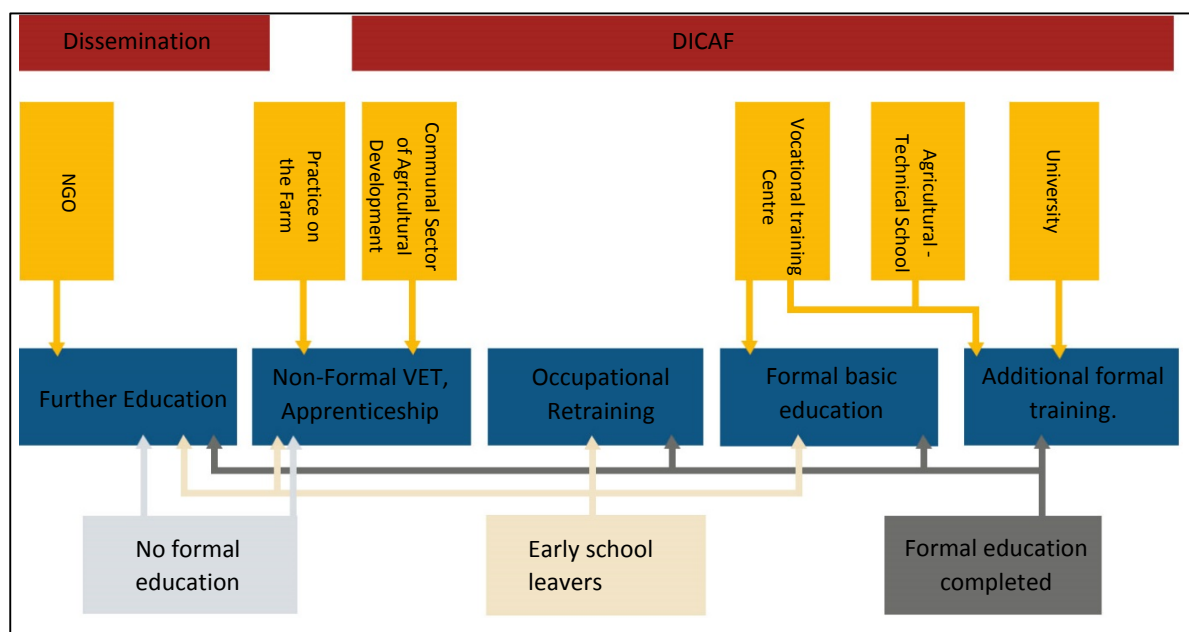


Figure 4: Benin's ATVET system (Zbinden Gysin & Stähli, 2015)

3.5. Ethiopia

Ethiopia's agricultural sector accounts to 47.7 percent of the GDP, 85 percent of the country's employment and more than 80 percent of the exports (CIA Factbook, 2015). 90 percent of the poor live in rural areas, most of them exclusively engaged in agriculture (Edukans Foundation, 2009).

The national TVET and ATVET system is organised as follows: students leaving at the end of grade 10 can access TVET institutions or colleges of teacher training. TVET institutions provide an alternative route to university. Adult and non-formal education provide primary education to adults over the age of 14 years and is run by both, government and non-government organisations. Between 1996/7 and 2006/7, the number of TVET institutions providing formal and non-agriculture TVET increased from 17 to 388, and enrolment from 3,000 to 191,151 (Edukans Foundation, 2009). However, this seems to be an urban/peri-urban "phenomenon", since 51 percent of all TVET centres were located in the capital city and its surroundings (in 2009). Over 200 districts did not have any TVET centres (Edukans Foundation, 2009).

The Federal TVET agency delegates regional TVET agencies or regional education bureaus to implement their decisions, procedures and guidelines, including accrediting providers and issuing Certificates of Competence. The national qualifications framework has five Certificates of Competence levels, which industries accept as effective for performance at work. The certificates can be awarded to anyone passing the occupational assessment for each level, regardless of the way the skills were obtained. This includes both formal and informal training at work or in the family.

Compared to other (developing) countries, Ethiopia's ATVET sector is rather advanced. Ethiopia developed an ambitious plan, the Agricultural Sector Policy and Investment Framework 2010-2020, led by the Ministry of Agriculture and Rural Development (MOARD), and invested considerable resources to build up an ATVET system, which is a public agricultural extension system in the first place (FAO, 2014).

Before the ATVET system was introduced, the universities were the only institutions offering training at degree and diploma level in general agriculture. In 2000, the Ministry of Agriculture introduced the ATVET curriculum in 27 colleges. At present, there are five federal colleges and 20

regional colleges. They provide a three-year training programme to produce middle level work force – so-called Development Agents (DAs) – by admitting people who completed general education (grade 10) in the Ethiopian education system or who have been working as frontline extension agents. The three-year training includes two years in school and one year of an apprenticeship training. It is composed of 30 percent theory and 70 percent practice. Upon completion of the training, the DAs are based at Farmer Training Centres (FTC) to enhance the knowledge and skills of farmers who do traditionally not participate in the formal learning system (Vandenbosch, 2006). Regional ATVET colleges design their training programmes after assessing training needs of the labour market. They also provide training not only to farmers, but also to micro- and small enterprises in the rural areas. In an attempt to ensure that ATVET institutions' graduates possess the required competences, they have to undertake a competence assessment at established Centres of Competence. Such practice helps in improving the competences level of the graduates to qualify as DAs (NEPAD CAADP Unit, 2013). Currently, the majority of DAs and district level staff have strong technical skills and theoretical knowledge, yet are lacking practical skills to assist farmers (FAO, 2014).

The data on the number of FTCs and DAs varies from source to source and from year to year. According to data from 2010, 8,489 FTCs have been created, 62,764 DAs have been trained in total (Davis, 2010). In 2012, 25,000 DAs trained 400,000 farmers and reached more than 2 million farmers in 2013 (FAO, 2014).

There is a strong linkage between ATVET colleges and the Ministry of Education. The Ministry of Education has the responsibility of designing Occupational Standards and qualification frameworks. The Ministry of Agriculture is responsible for the curriculum, teacher training and learning materials, and the overall implementation of the ATVET programme. Federal ATVET Colleges are governed by MOARD and the Regional ATVET Colleges are governed by the Regional Bureau of Agriculture. Other Polytechnic and TVET colleges in the regions are governed by the Regional TVET Bureau/Agency (Figure 5).

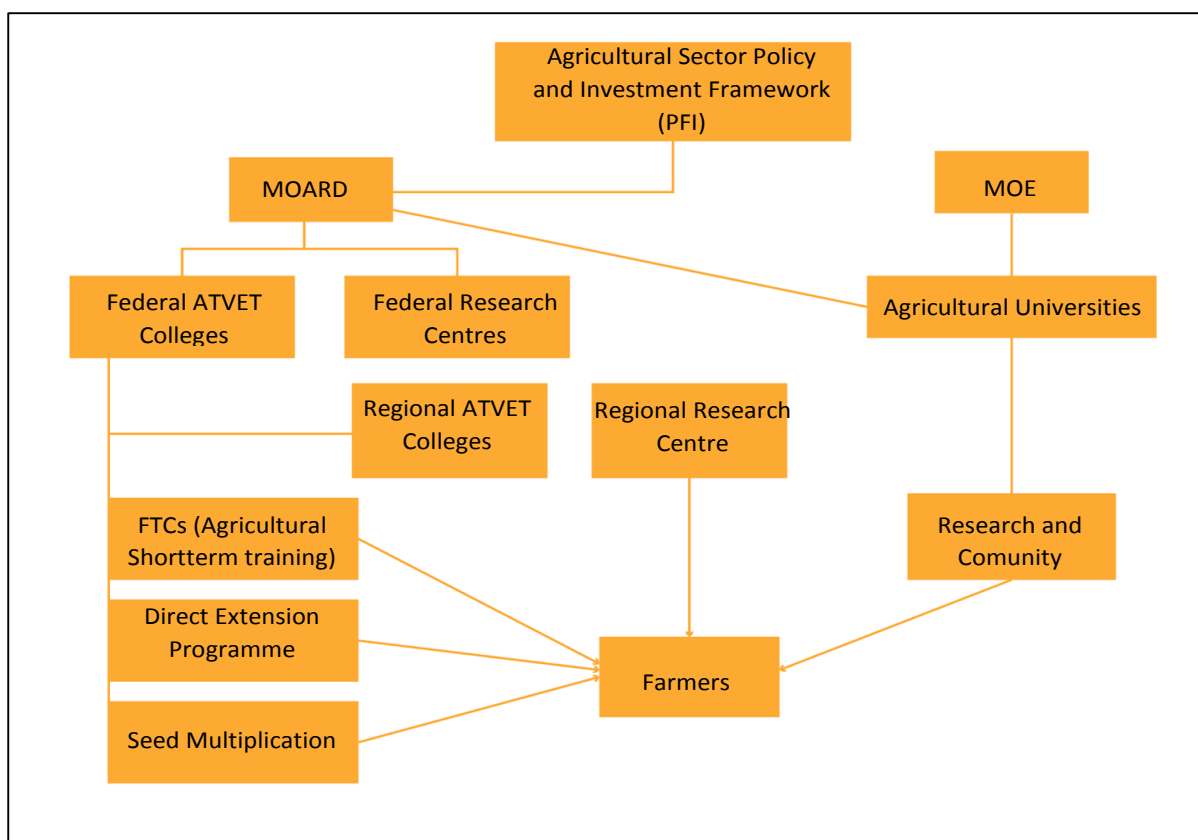


Figure 5: Ethiopia's ATVET system (HELVETAS Swiss Intercooperation Ethiopia)

4. Part 4: Best practices

On a general level, UNESCO (2012) recommends rural skills development to focus on three key areas. Firstly, improve access to primary and post-primary education – this is especially essential for girls. Secondly, expand training for basic and vocational skills to make up for skills deficiencies. Thirdly, provide business and entrepreneurial skills training to improve young people's understanding of market opportunities (UNESCO, 2012).

With respect to ATVET and the African context, a selection of best practices, highlighted by the literature and interview partners, is described in chapter 4.1. To begin with, a note of precaution needs to be taken: all interview partners stated that there are hardly any best practices available in Africa. As good African examples are limited, it might also be worthwhile to learn from promising projects beyond Africa, for example "Skills for Agriculture" in Georgia funded by UNDP and SDC, the support to agricultural vocational colleges in Laos (SDC, implemented by HELVETAS) or HELVETAS' longstanding experience in the agricultural vocational education sector in Kyrgyzstan.

4.1. Innovations

4.1.1. Agribusiness Apprenticeship in Kenya

The Faraja Latia Resource Center Ltd. is a social enterprise in agriculture in Kenya, providing different types of services, amongst them:

Agribusiness apprenticeship: The six months practical training programme targets youth who have graduated from high school as well as post-secondary training institutions. The practical training is offered at Latia Model Farm and in a diverse mix of collaborating farms and agribusinesses in Kenya. The course is delivered in a modular system. 70 percent of the time is spent working in the model agribusiness enterprises and 30 percent in classrooms studying theoretical concepts. The students can choose different specialisations. Upon completion, apprentices receive a nationally recognised Certificate of Competence.

Short courses: Courses offered at Latia Model Farm or onsite at clients' farms and agribusinesses. The courses cover topics in production, marketing, value addition, labour management, farm financial management, agribusiness investments planning and analysis, certification etc. To reach more youth Latia is currently developing an online training portal, which will have both web and mobile phone capabilities. The Center partners with different institutions such as the GIZ (Latia Resource Center, 2015).

4.2. Scaling up

4.2.1. Songhaï Centre in Benin

The privately-run Songhaï Centre in Benin has expanded its activities not only 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). The implementation of the Songhaï model was a success also because its application is combined with the entrepreneurial capacity focused on personal leadership of its Director. The latter provides training to "change the mind-sets" towards entrepreneurship, and encourages the use of local resources, the combination of traditional and modern agricultural practices, technology adaptation and diversification of activities. The trainers are paid through a performance-based management model (Vodouhe & Zoundji, 2015).

In addition, the Songhai integrated model was a success because the Songhai Centre, upon its creation, focused on key systematic relationships to link the activities that are traditionally separated.

4.2.2. Agricultural transformation through stronger vocational education (ATTSVE)

The primary goal of ATTSVE is to increase the supply of male and female graduates from the selected ATVET colleges who have the necessary skills and knowledge required by the labour market, to develop the commercial agriculture sector in Ethiopia. The Faculty of Agriculture of the Dalhousie University and other implementing partners use their expertise in applied learning models to support Ethiopian instructors in delivering education programs aligned with the country's national priorities.

The expected results are increased capacity at the ATVET colleges in a variety of areas, including strategic planning, gender mainstreaming, environmental management, business development and income generation. There is also increased instructor development and training, new curriculum, more opportunities for institutional networking and partnerships, and improved infrastructure, ICT, library and laboratory facilities. There will also be increased relationships between Ethiopia and Canada research collaboration opportunities, a special topics course and student internship opportunities in Ethiopia.

The project is funded by the Government of Canada through the Department of Foreign Affairs, Trade and Development (DFATD) and its contribution to the project is approximately \$18 million CAD for the period of 2014 to 2019 (Dalhousie University, 2016).

4.3. Systemic change

4.3.1. Comprehensive Africa Agriculture Development Programme (CAADP)

The Comprehensive Africa Agriculture Development Programme (CAADP), a continent-wide initiative of the African Union and the New Partnership for Africa's Development (NEPAD), brings together various measures intended to increase agricultural production. CAADP offers political, technical and financial support to countries and regions that engage in this process. In 2012, CAADP launched a new project "Promotion of Technical Vocational Education and Training for the Agricultural Sector in Africa (CAADP ATVET)" with the support of the German Government through GIZ. The project's goal is to develop and implement market-oriented qualification measures, as well as coherent concepts to incorporate agricultural technical vocational training components into the national education systems.

The project focuses on three support areas, namely:

- Knowledge management and survey of approaches, sharing of information and best practices of ATVET in Africa;
- Anchoring of ATVET in the African Union (AU) structures and in the CAADP country processes;
- Developing and implementing of pilot qualification measures for farmers, the youth, employed persons and service providers at a national level.

In the pilot countries of Kenya, Ghana, Malawi; Benin, Burkina Faso, and Togo³ the project has contributed to placing vocational training for the agricultural sector on the national agendas.

³ The mentioned countries were assessed countries during an ATVET-stock-taking study which was undertaken in preparation and as part of the project (referenced in this study: GIZ, 2015. NEPAD/CAADP: Supporting vocational training in agriculture).

CAADP collaborates closely with the bilateral TVET programmes of GIZ in these countries (CAADP, 2015). GIZ is creating a webinar-based community of practice⁴ to foster exchange among ATVET experts.

4.3.2. Ethiopian ATVET system

The Ethiopian ATVET system (3.5) is praised as a best practice in many studies. Given the fact that the system is strongly linked to the Government of Ethiopia, to classify it as a best practice and to attach it to one of the three categories is difficult. The ATVET system exhibits the following strengths:

- Outreach: high number of people trained
- Broad ATVET service offering: in addition to offering DA training, some colleges provide in-service training, refresher courses, direct extension, and several short technical courses.
- Qualified instructors: the qualification level of the instructors is increasing.
- Linkage creation: ATVETs create collaboration among DAs, NGOs, and farmer communities (Davis, 2010).

While the design of the Ethiopian system seems thorough and meaningful, an analysis by Tefera, Sehail and Hoekstra (2011) found that the process of establishing and organising functional and effective farmer training centres (FTC) has not yet completed in many rural kebeles⁵. Several FTCs lack adequate basic infrastructure, demonstration facilities and plots, funding, skills, appropriate approaches and tools, and linkages for accessing knowledge and information (Lemma, Sehail, & Hoekstra, 2011).

4.3.3. Examples of policy interventions

As shown in the figure displaying the full picture of VET systems (Figure 6), policy interventions could take place around areas such as:

- Accreditation
- Teacher education and training for ATVET
- Curricula development
- Quality management
- Financing and steering ATVET system
- Legislative framework

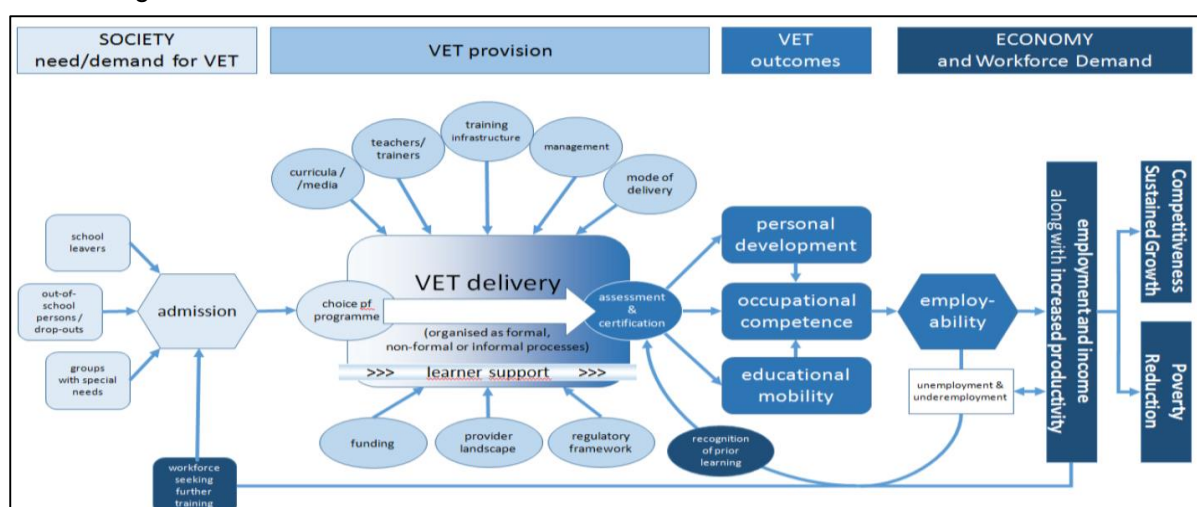


Figure 6: Overview of VET systems (Kehl, Kohlheyer, & Schlegel, 2013)

⁴ This Community of Practice is open to anyone interested in the topic. Contact: hille.henebry@giz.de

⁵ "Kebele" is the smallest administrative unit in Ethiopia.

Furthermore, CAADP ATVET elaborated a helpful overview to understand the different systemic components of the ATVET system (Figure 7).

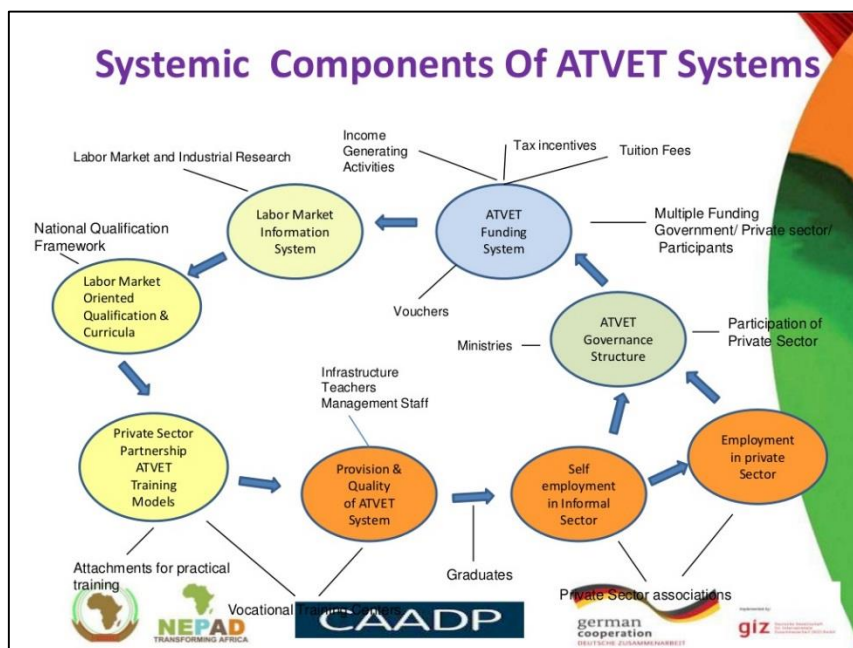


Figure 7: Systemic Components of ATVET Systems (Sarfo, 2013)

5. Conclusions

Productivity in rural areas depends on various factors such as availability of land, labour, capital, technology and skills (UNESCO, 2012). Therefore, agricultural development as a way for economic growth to reach the rural poor requires increased investment in a variety of areas. Evidence shows that, in general, young people are turning away from agriculture. To promote agriculture as a promising job field it must be economically interesting, and that in turn depends on the prices people get for their production or services. There is a great potential to attract youth by teaching them modern, relevant skills in lucrative sectors and professions. To make it more appealing, public policies must improve the fit between young people's aspirations and opportunities in agriculture. ATVET is one means to this effect.

Changing role patterns due to migration open up spaces to enhance the skills of rural women and youth for wage employment for on-field and off-field work. There is great potential to prepare rural dwellers for self-employment and entrepreneurship, and for returning migrants to tap into their skills and savings to create businesses in agricultural market niches along the food value chain. An analytical approach related to specific sectors will shed more light on the labour market's supply and demand as well as the market needs before planning interventions in this field.

There is consensus amongst scholars that developing new and different skills requires different educational approaches, formal, non-formal and informal. The types of skills required have also changed: ATVET programmes must impart a wide skillset encompassing technical, soft, entrepreneurial, and analytical skills. ATVET systems shall train for RAS agents, farmer entrepreneurs as well as the preceding and subsequent occupations of the agricultural value chain. In the past ten years, a trend to conceptualise ATVET as modular training units and to develop multidisciplinary approaches to teaching to offer relevant courses emerged.

The study showed that the ATVET systems of Benin and Ethiopia differ considerably. The Ethiopian system is characterised by public investment in agriculture and primarily trains RAS agents, while in Benin, the ATVET system is more diverse despite a strong government push.

Recommendations:

Many potential ATVET beneficiaries come from a vulnerable and disadvantaged background, and therefore often lack basic education and skills. Against this backdrop, a potential approach could be to design "accelerated" ATVET learning modules that cover not only skills relevant to agricultural work and/or entrepreneurship, but also offer an opportunity for the trainees to catch-up with the missed basic education (i.e. literacy, numeracy, general knowledge, etc.) – so-called "second chance" education. They could be delivered in a modular way so that people with different skills levels can participate according to their needs.

With regard to estimates related to the supply of and demand for ATVET graduates, literature hardly provides reliable data, an observation that was confirmed by all interviewed experts. First best practice examples are emerging, but given the recent trend to re-consider ATVET in Africa, they are still limited. It seems that there are many actors and good ideas in the area of ATVET. Accordingly it is recommendable to further invest in applied research and to harvest existing experiences more systematically and beyond Africa on what worked well in the past.

Proposed next steps:

Stocktaking: An inventory of ATVET projects (co-)financed by SDC is recommended in order to get an overview of the geographical and thematic ATVET interventions of SDC in the past, and to learn about the successes and challenges in various contexts.

Further research is needed with an expanded focus on good ATVET practice beyond Africa. This study disclosed the scarcity of good practice examples from Africa. We assume that the reason for this is that ATVET was not a donor priority in the past years. Another reason may be the unavailability of documentation on ATVET projects; on-site research might yield more and better results.

To launch research on the topic could be a possible investment of SDC in collaboration with the Swiss National Science Foundation.

Networking: To join the GIZ community of practice on ATVET certainly presents a first advisable activity to get to know more projects and working approaches in the area.

Exploration of future engagement: In order to shape and plan possible future ATVET interventions of SDC, a “learning journey”, or another explorative knowledge management method, could be applied. Both, the above mentioned stocktaking and further research would feed into such a venture. A next step could be to launch a facilitated e-discussion on the topic of ATVET, or a further narrowed-down sub-topic of interest. This would allow to obtain opinions and experiences from practitioners, implementing partners and SDC cooperation offices.

6. List of institutions

Switzerland and Europe

- HAFL
- EHB
- University of Kassel, ISOS
- Humboldt University Berlin
- Österreichisches Agrarpädagogisches Institut in Wien
- Réseau international Formation Agricole et Rurale in Montpellier, France, www.reseau-far.com

Benin

- Songhaï Centre, <http://www.songhai.org/>

Ethiopia:

- Dalhousie University
- Edukans Foundation

Projects:

- CAADP: <http://www.caadp.net/> [03.11.2015]
- ECOSOC (2014): Food and Agriculture Organization of The United Nations. Contribution to the 2014 United Nations Economic and Social Council – Integration Segment: <http://www.un.org/en/ecosoc/integration/pdf/foodandagricultureorganization.pdf> [03.11.2015]
- Latia Resource Center: <http://www.latiaresourcecenter.org/> [03.11.2015]

Donors engaged in ATVET:

- USAID
- IFAD
- FAO
- African Development Bank

7. Bibliography

- Annor-Frempong, I., & Jones, M. (2014). Agricultural Education and Training for Development: Lessons from Sub-saharan Africa. In F. Swanepoel, Z. Ofir, & A. Stroebel, *Towards Impact and Resilience Transformative change through agricultural education and training in sub-saharan Africa* (pp. 63-89). Newcastle upon Tyne: Cambridge Scholars Publishing.
- Ayanda, I. F., Yusuf, O. J., & Salawu, O. L. (2013). Farm practical training programme for agricultural students: case study of pioneer students, Kwara state university, Malete, Nigeria. *Journal of Sustainable Development in Africa, Volume 15, No.8*, 25-41.
- Byerlee, D., Garcia, A. F., Giertz, A., Palmade, V., & Palmade, V. (2013). *Growing Africa - Unlocking the potential of agribusiness : Main report*. Washington, D.C.: World Bank.
- CAADP. (2015, September 16). CAADP. Retrieved from CAADP: <http://caadp.net/>
- CIA Factbook. (2015, September 16). *CIA Factbook*. Retrieved from The World Factbook Ethiopia: <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>
- Dalhousie University. (2016, January 5). *Faculty of Agriculture - International* . Retrieved from Ethiopia ATTSVE: <http://www.dal.ca/faculty/agriculture/international-office/projects/ethiopia-attsve.html>
- Davis, K. (2010). *In-Depth Assessment of the Public Agricultural Extension System of Ethiopia and Recommendations for Improvement*. Addis Ababa: International Food Policy Research Institute.
- Davis, K. E., Ekboir, J., & Spilman, D. J. (2008). Strengthening Agricultural Education and Training in sub-Saharan Africa from an Innovation Systems Perspective: A Case Study of Mozambique. *The Journal of Agricultural Education and Extension*, 35-51.
- Djègui, J.-M. (2012). *Dispositions et systèmes de financement de la formation agricole et rurale. Enquête sur neuf centres de formation au Bénin*. Montpellier: Réseau FAR.
- ECOSOC. (2014, May 27-29). <http://www.un.org/en/ecosoc>. Retrieved from <http://www.un.org/en/ecosoc/integration/pdf/foodandagricultureorganization.pdf>: <http://www.un.org/en/ecosoc/integration/pdf/foodandagricultureorganization.pdf>
- Edukans Foundation. (2009). *Technical Vocational Education and Training in Ethiopia Mapping - Learn4Work Schokland Programme for TVET*. Adis Abeba: Edukans Foundation.
- FAO. (2014, October). www.fao.org/economic/fapda. Retrieved from <http://www.fao.org/3/a-i4181e.pdf>: <http://www.fao.org/3/a-i4181e.pdf>
- FAO. (2015, November 3). *FAO Corporate Document Repository*. Retrieved from Who are the food producers?: <http://www.fao.org/docrep/u8480e/u8480e08.htm>
- Filmer, D. a. (2014). *Youth Employment in Sub-Saharan Africa*. Washington, D.C.: World Bank.
- GIZ. (2015, September 16). *NEPAD/CAADP: Supporting vocational training in agriculture*. Retrieved from NEPAD/CAADP: Supporting vocational training in agriculture: <http://www.giz.de/en/worldwide/15974.html>
- GIZ. (2015, October 14). *Toolkit Learning and Working in the informal economy*. Retrieved from <https://www.giz.de/expertise/html/11954.html>
- Haralson, L. E. (2010). *Federal Reserve Bank of St. Louis*. Retrieved from What is Workforce Development?: <https://www.stlouisfed.org/publications/bridges/spring-2010/what-is-workforce-development>

- Hartl, M. (2009). *Technical and vocational education and training (TVET) and skills development for poverty reduction - do rural women benefit?* Rome: IFAD.
- Heinemann, E. (2011). TVET, Agricultural Development and Rural Poverty Reduction. *NORRAG NEWS*, 61-64.
- IFAD. (2010). *Rural Poverty Report 2011*. Rome: IFAD.
- Jacobs, R., & Hawley, J. (2008). Emergence of Workforce Development: Definition, Conceptual Boundaries, and Implications. In R. MacLean, & D. Wilson (eds.), *International Handbook of Technical and Vocational Education and Training*. Amsterdam: Kluwer.
- Johanson, R. a. (2007). *Cultivating knowledge and skills to grow African agriculture: A synthesis of an institutional, regional, and international review*. Washington, D.C.: World Bank.
- Jones, K. (2013). *The Role of Agricultural Technical and Vocational Education and Training in Developing Countries: A Review of Literature, Issues and Recommendations for Action*. Harrisburg: The Pennsylvania State University/USAID.
- Kehl, F., Kohlheyer, G., & Schlegel, W. (2013). *Understanding and analysing vocational education and training systems - An introduction*. Bern: SDC.
- Latia Resource Center. (2015, September 29). *Latia Resource Center*. Retrieved from <http://www.latiaresourcecenter.org/>
- Leavy, H. (2014). Who Wants to Farm? Youth Aspirations, Opportunities and Rising Food Prices. *IDS Working Paper*, 30.
- Lemma, T., Sehai, E., & Hoekstra, D. (2011, January 5). *GCIAR Global Agricultural Research Partnership*. Retrieved from Status and Capacity of Farmer Training Centres (FTCs) in the Improving Productivity and Market Success Pilot Learning Woredas: https://cgspace.cgiar.org/bitstream/handle/10568/16899/Status_and_Capacity_of_FTCs.pdf?sequence=1
- NEPAD CAADP Unit. (2013). *Review of Agricultural Technical Vocational Education and Training (ATVET) in Africa - Best Practices from Benin, Ethiopia, Namibia and Sierra Leone*. Midrand: NEPAD.
- Olariu, C. P. (2014, March 21). *Why agriculture needs young people*. Retrieved from Food Tank: <http://foodtank.com/news/2014/03/gfar-why-agriculture-needs-young-people>
- Sarfo, A. (2013, July 17). *Initiative on Technical, Vocational Education and Training (TVET) in Support CAADP Implementation*. Retrieved from SlideShare: <http://de.slideshare.net/FARA-AFRICA/atvet-fara-science-week-accra-16072013>
- SDC, S. A. (2010). *SDC Guidelines for Basic Education and Vocational Skills Development*. Bern: SDC.
- Sengupta, R. S. (2009). *The EU India FTA in Agriculture and Likely Impact on Indian Women*. Delhi: Centre for Trade and Development and Heinrich Boell Foundation.
- Sharma, A. (2007). The changing agricultural demography of India: Evidence from a rural youth perception survey. *International Journal of Rural Management*, pp. 27-41.
- The World Bank. (2007). *Cultivating Knowledge and Skills to Grow African Agriculture*. Washington: The World Bank.
- The World Bank. (2015, September 17). *World Bank Data*. Retrieved from Agriculture & Rural Development: <http://data.worldbank.org/topic/agriculture-and-rural-development>
- UNESCO. (2012). *Youth and skills: Putting education to work*. Paris: UNESCO.
- Vandenbosch, T. (2006). *Post-Primary Agricultural Education and Training in Sub-Saharan Africa: Adapting Supply to Changing Demand*. Nairobi: World Agroforestry Centre.

Vodouhe, S. D., & Zoundji, G. C. (2015, December 15). *Modernizing Extension and Advisory Services (MEAS)*. Retrieved from Songhai Center Benin: <http://www.meas-extension.org/meas-offers/case-studies/songhai-center-benin>

White, B. (2012, November 9). Agriculture and the Generation Problem: Rural Youth, Employment and the Future of Farming. *IDS Bulletin*, pp. 9-19.

Zbinden Gysin, K., & Stähli, R. (2015). *Mission de la HES-BE / HAFL pour le projet PAFPAA au Bénin*. Bern: Berner Fachhochschule, Hochschule für Agrar-, Forst- und Lebensmittelwissenschaften HAFL.

Interviews:

BLOCH Marc (2015). Interview with Marc Bloch, Programme Manager Food Security, SDC, on 28 September 2015

Dr DAVIS Kristin (2015). Interview with Dr Kristin Davis, Executive Secretary, global forum for rural advisory (GFRAS), on 25 September 2015

HENEBRY Hille (2015). Interview with Hille Henebry, Team leader of ATVET - Agricultural Technical Vocational Education and Training - Support to Africa's Agriculture Development Programme (CAADP), GIZ, on 28 October 2015

Dr STÄHLI Roland (2015). Interview with Roland Stähli, Head of the Teaching Department (Leiter Ressort Lehre), School of Agricultural, Food and Forest Sciences (HAFL), on 13 October 2013

8. Annexes

8.1. Public actors of ATVET system in Benin (in French)

STRUCTURES	RÔLES
Ministère de l'Enseignement Secondaire et Technique, de la Formation Professionnelle, de la Reconversion et de l'Insertion des Jeunes	<ul style="list-style-type: none"> - Déterminer les objectifs d'éducation, de formation, de reconversion et d'insertion des jeunes - Planifier l'offre éducative et de formation en fonction des besoins de l'économie - Concevoir, élaborer, mettre en œuvre, suivre et évaluer les programmes d'enseignement, de formation et de reconversion - Concevoir, élaborer, mettre en œuvre et suivre les politiques et stratégies nationales de développement de la culture entrepreneuriale et de l'insertion des jeunes, - Déterminer les modalités d'évaluation des apprentissages et d'orientation scolaire, des acquis et des compétences des apprenants, - Déterminer les conditions de progression dans les études et les formations ainsi que de leur certification - Développer la recherche pédagogique - Promouvoir la scolarisation notamment celle des filles et des personnes défavorisées - Agréer, normaliser et promouvoir les matériels didactiques
Ministère de l'Agriculture, de l'Élevage et de la Pêche (MAEP)	<ul style="list-style-type: none"> - Planifier l'offre de formation en fonction des besoins de l'économie - Concevoir, élaborer, mettre en œuvre, suivre et évaluer les programmes de formation et de reconversion en matière d'agriculture, d'élevage et de pêche - Concevoir, élaborer, mettre en œuvre et suivre les politiques et stratégies nationales de développement dans le secteur - Déterminer les modalités d'évaluation des apprentissages et d'orientation scolaire, des acquis et des compétences des apprenants dans les secteurs de l'agriculture, de l'élevage et de la pêche
Direction de l'Apprentissage et de la Formation Professionnelle (DAFoP)	<ul style="list-style-type: none"> - Elaborer et de gérer la mise en œuvre de la politique de l'Etat en matière de l'apprentissage, de formation et de la qualification professionnelle - Concevoir et élaborer les textes législatifs et réglementaires en matière de FPCA - Promouvoir l'initiation professionnelle en milieu scolaire - Assurer la qualification professionnelle des apprenants et le renforcement des capacités professionnelles des maîtres-artisans et des formateurs - Promouvoir des formations adaptées au marché de travail - en concertation avec la Confédération Nationale des Artisans du Bénin (CNAB), l'Union des Chambres Interdépartementales des Métiers (UCIM) et les autres organisations professionnelles, (v) assurer le perfectionnement des artisans en cours d'emploi, - Assurer la tutelle des CFP habilités - Participer à l'organisation du CQM et du CQP

STRUCTURES	RÔLES
	<ul style="list-style-type: none"> - Contrôler l'apprentissage dans les différents corps de métiers
<p>Fonds de Développement de la Formation Professionnelle Continue et de l'Apprentissage (FODEFCA)</p>	<ul style="list-style-type: none"> - Valorisation des ressources humaines par le financement d'actions de formation au profit des travailleurs du secteur privé moderne et informel (artisanat, agriculture) et des jeunes - Concevoir et gérer les ressources destinées au financement et à la promotion de la FPCA - Financer les actions de formation continue et d'apprentissage - Appuyer les entreprises des différents secteurs d'activités dans la définition de leurs besoins de formation et l'élaboration des plans et programmes de formation correspondants - Soutenir le développement de la qualité de l'offre de formation - Assurer la régulation du marché de la formation professionnelle continue
<p>Direction Départementale de l'Enseignement Secondaire et Technique, de la Formation Professionnelle, de la Reconversion et de l'Insertion des Jeunes (DDEST-FPRIJ)</p>	<ul style="list-style-type: none"> - Mise en œuvre au niveau départemental, de la politique de l'ETFP - Assistance technique et appui-conseil aux communes - Mise en œuvre des plans sectoriels de formation continue et d'animation pédagogique - Mise en œuvre de la reconversion et de l'insertion des jeunes de leur département - Veiller à l'orientation judicieuse et efficace des élèves et apprenants de leur département - Produire les statistiques des élèves, des personnels administratif et enseignant, des infrastructures et équipements - Exercer toutes compétences qui leur sont déléguées par le Ministre dans le cadre de la déconcentration et de la décentralisation.
<p>Direction du Conseil Agricole et de la Formation Opérationnelle (DICAF)</p>	<ul style="list-style-type: none"> - Conception, définition et supervision de la mise en œuvre des stratégies nationales - Animation et coordination entre les structures de mise en œuvre des conseils agricoles et formations opérationnelles - Inventaire et diffusion des connaissances acquises - Evaluation des activités de vulgarisation et de conseil - Formation opérationnelle des acteurs - Formulation de propositions de mesures et d'outils méthodologiques favorisant la gestion graduelle par les Organisation professionnelles agricoles (OPA)
<p>Centre Régional de Promotion Agricole (CeRPA) et Centres Communaux de Promotion Agricole (CeCPA)</p>	<ul style="list-style-type: none"> - En charge de l'encadrement des producteurs dans les départements et du suivi des jeunes agriculteurs - Gestion des Centres de Promotion Rurales et des Centres Féminin de Promotion Rurale
<p>Chambre Interdépartementale des Métiers (CIM)</p>	<ul style="list-style-type: none"> - Régler les questions administratives des Artisans et assurer la valorisation du secteur - Concourir au renforcement des capacités en formation des artisans et à la reconnaissance des qualifications - Veiller à l'amélioration des qualités des produits et des services

STRUCTURES	RÔLES
	<ul style="list-style-type: none"> - Promouvoir une véritable politique publique de l'action sociale.
<p>Plateforme nationale des organisations professionnelles de producteurs agricoles (PNOPPA) et organisation professionnelles d'agriculteurs (OPA) au niveau départemental</p>	<ul style="list-style-type: none"> - Représente les intérêts de la profession agricole aux niveaux national et départemental ; - PNOPPA participe aux négociations sur les politiques agricoles ; - Renforcement des systèmes d'information, de communication et de formation des structures membres
<p>Réseau des Chambres d'Agriculture</p>	<ul style="list-style-type: none"> - institution consulaire de représentation de la profession agricole et de force de proposition en matière de politique de développement de l'agriculture au Bénin
<p>Mairies – et établissement public de coopération inter-communal (EPCI)</p>	<ul style="list-style-type: none"> - Administrer le conseil municipal élu - Construction, réparations, équipement l'entretien des établissements publics d'enseignement secondaire et des centres publics de formation professionnelle de niveau communal - Mobilisation des artisans et organisation des EFAT
<p>La Direction de l'Inspection Pédagogique (DIP) du MESFTPRIJ</p>	<ul style="list-style-type: none"> - Veiller à la qualité des épreuves du CQM à travers le contrôle, le suivi et l'appréciation des épreuves administrées
<p>La Direction Départementale du MESFTPRIJ</p>	<ul style="list-style-type: none"> - Représenter les directions techniques, et participer aux travaux de la commission professionnelle
<p>La Direction des Examens et Concours (DEC)/ du MESFTPRIJ</p>	<ul style="list-style-type: none"> - Superviser le déroulement de l'examen du CQM - Choisir les sujets d'examen - Participer aux travaux de la commission professionnelle et du comité d'organisation - Garantir la validation des compétences développées - Appliquer les différents arrêtés du CQM - Initier, en collaboration avec la DAFOP, les différentes note de services, mettant en place les commissions nationale et départementale d'organisation du CQM.

8.2. Additional sources on ATVET system in Benin

8.2.1. Websites

<http://accessagriculture.org/> **Access Agriculture** is an international NGO which showcases agricultural training videos in local languages. Here you can see examples of videos, download them or order a DVD copy. The audio tracks can also be downloaded by radio stations.

<http://agriprofocus.com> **AgriProFocus** is an international network with Dutch roots that promotes and drives farmer entrepreneurship among farmers and their organizations. We believe that primary producers worldwide are the key to local economic growth and sustainable agri-food systems. See more: <http://agriprofocus.com/post/544f9ffdd58d831122c04ce4>

<http://www.dedras.org> **DEDRAS** is a NGO with confessional identity of a social and non-profit, it is the instrument of intervention of the **Union of Evangelical Churches of Benin** (UEEB) in the field of rural development and social assistance (community development).

<http://www.eurydice.org> The **Eurydice** network supports and facilitates European cooperation in the field of lifelong learning by providing information on education systems and policies in 37 countries and by producing studies on issues common to European education systems.

<http://www.icra-edu.org> **ICRA**'s vision is to be a centre of excellence that supports the building of effective inclusive innovation partnerships, jointly owned and governed by agricultural research and development stakeholder communities in Europe and the South. The mission is to strengthen the capacities of people and organisations involved in development, research and education, to jointly realise knowledge-based rural and agricultural innovation in support of the Millennium Development Goals.

<http://www.ifad.org> **IFAD** is The International Fund for Agricultural Development (IFAD), a specialized agency of the United Nations, was established as an international financial institution in 1977 as one of the major outcomes of the 1974 World Food Conference. The conference was organized in response to the food crises of the early 1970s that primarily affected the Sahelian countries of Africa. It resolved that "an International Fund for Agricultural Development should be established immediately to finance agricultural development projects primarily for food production in the developing countries."

<http://www.inter-reseaux.org> **Inter-réseaux Développement rural** est une association dont l'objectif est de contribuer à créer les conditions pour que les acteurs engagés dans le développement agricole et rural puissent agir dans leurs environnements en faveur des populations rurales et d'une agriculture durable basée sur l'exploitation familiale.

<http://www.reseau-far.com> **Le Réseau international Formation Agricole et rurale FAR** cherche à rassembler tous ceux impliqués dans les dispositifs de formation professionnelle visant le processus de développement rural.

<http://www.uakbenin.org> **Université d'agriculture de Kétou** a pour mission d'assurer dans le secteur de l'agriculture la formation de cadres professionnels, de contribuer à la recherche scientifique, aux innovations technologiques et au développement de l'économie nationale.

<http://www.ypard.net> **YPARD** is an international movement by Young Professionals for Young Professionals for Agricultural Development. It operates as a network; it is not a formalized institution. This global on-line and off-line communication and discussion platform is meant to enable YPs all over the world to realize their full potential and contribute towards innovative agricultural development.