

## BURKINA FASO

# Potentials and Possibilities for German Collaboration in Agriculture



## CONTRIBUTORS TO THE COUNTRY DOSSIER BURKINA FASO

INERA: Souleymane Ouédraogo, Samuel Neya

FARA: Yemi Akinbamijo, Fatunbi Oluwole Abiodun

ZEF: Heike Baumüller, Joachim von Braun, Annapia Debarry, Katharina Gallant, Tigabu Degu Getahun, Christine Husmann, Hannah Jaenicke, Oliver K. Kirui, Ehsan Eyshi Rezaei, Yasmin Smith, Justice Akpene Tambo, Detlef Virchow, Katharina Zinn

This report is work in progress and continuously being updated. Any feedback and suggestions for further improvement are welcome and can be sent to [pari@uni-bonn.de](mailto:pari@uni-bonn.de).

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## 1 General background information of the agricultural and food sectors

Burkina Faso is a landlocked country in West Africa. The economy has seen considerable growth over the past decade, with an annual average growth rate of over 6% between 2000 and 2012 (FAO, 2014). Agriculture, livestock, forestry and mining are the dominant economic activities. The agriculture sector employs the largest share of the workforce and accounted for 30% of Gross Domestic Product in 2012 (ibid). The cotton sector in particular has benefitted from the modernization measures implemented by the government, although insufficient water supply and poor soil continue to hamper the growth the sector. Cereal output has also been on the rise but part of the demand still needs to be met with imports. Other important crops are cassava, cowpeas, sweet potatoes, and tobacco. Sugarcane has recently been introduced on a large scale and is becoming an important cash crop.

### 1.1 Pan-African policies and strategies

Burkina Faso was the 20<sup>th</sup> African country to sign the **Comprehensive Africa Agriculture Development Programme (CAADP)** compact in 2010. In most years since 2003, Burkina Faso has exceeded the CAADP 10% budget allocation target. It has also exceeded the annual 6% growth rate target.

Burkina Faso is one of the West African countries that adopted the **ECOWAS Agricultural Policy (ECOWAP)** in 2005 to ensure food security, economic and social development, and poverty reduction in the region. Another objective of ECOWAP is to operationalize the CAADP process in West Africa. In 2012, Burkina Faso joined the **New Alliance for Food Security and Nutrition** with the commitment to achieve sustained inclusive, agriculture-led growth in the country. It seeks to facilitate greater private investment in agricultural development, scale innovation, achieve sustainable food security outcomes, reduce poverty, and end hunger. Burkina Faso is also part of the **Grow Africa Partnership**, with the goal of increasing private sector investment in agriculture, and accelerating the execution and impact of investment commitments. In 2013-2014, US\$ 36 million investments were made, 172,000 smallholders were reached, and 1,751 jobs were created in Burkina Faso by international and national companies through the Grow Africa Partnership and New Alliance for Food Security and Nutrition initiatives.

### 1.2 National (and regional) policies and strategies

The Government of Burkina Faso adopted a new development strategy in 2010, the five-year Strategy for Accelerated Growth and Sustainable Development (SCADD). The SCADD is centered on promising areas and value chains for the acceleration of growth and job creation through private investments and diversified high value production. SCADD emphasizes: (i) promoting growth poles, (ii) developing promising value chains, business niches and clusters and (iii) encouraging a pro-poor growth to effectively alleviate poverty.

Under ECOWAP and SCADD, the government developed a National Rural Sector Programme (PNSR) in 2012 which has the objective of contributing to ensuring food and nutrition security, sustained economic growth and poverty reduction.

Some key agricultural and food sector policy decisions by the Burkinabe government in recent years include:

- Input subsidies, which accounts for a large share of agricultural expenditure;
- Provision of price support to cotton farmers;

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- Increased investments in irrigation systems;
- Adoption of new legislation to enhance land tenure security;
- School feeding as one of the main social safety nets;
- Use of food security stock for emergency purpose;
- Suspension of import tariffs to respond to the food crisis.

### **1.3 Data on food and nutrition security in the country and AIC region**

The following section includes information about important socio-economic indicators, production and trade data and data on consumption and nutrition status.

**Table 1: Selected national economic and health-related data**

<b>Indicator</b>	<b>Data</b>	<b>Year</b>
Population, total	17,419,615	2014
Population growth (annual %)	1.6	2014
Rural population (% of total population)	71	2014
GDP per capita, PPP (constant 2011 international \$)	1,606	2014
GNI per capita, PPP (constant 2011 international \$)	1,591	2014
Poverty headcount ratio at \$2 a day (PPP) (% of population)	72	2009
Poverty headcount ratio at \$1.25 a day (PPP) (% of population)	44	2009
Poverty headcount ratio at national poverty lines (% of population)	47	2009
Rural poverty headcount ratio at national poverty lines (% of rural population)	53	2009
Agricultural land (% of land area)	44	2012
Agricultural irrigated land (% of total agricultural land)	no data	
Agriculture value added per worker (constant 2005 US\$)	190	2014
Agriculture, value added (% of GDP)	22	2014
Access to electricity, rural (% of rural population)	1.4	2012
Employees, agriculture, female (% of female employment)	87	2005
Employees, agriculture, male (% of male employment)	82	2005
Employment in agriculture (% of total employment)	85	2005
Literacy rate, adult total (% of people ages 15 and above)	29	2007
Ratio of female to male secondary enrolment (%)	85	2013
Mortality rate, under-5 (per 1,000 live births)	98	2013
Malnutrition prevalence, weight for age (% of children under 5)	26	2010
Malnutrition prevalence, height for age (% of children under 5)	35	2010
Maternal mortality ratio (modeled estimate, per 100,000 live births)	340	2010

Source: World Bank, <http://data.worldbank.org/country>

**Table 2: Trend of Burkina Faso's GDP from 2003-2011**

	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Evolution of real GDP</b>	8.00	4.5	8,7	5,5	3,6	5,2	3,2	7,9	5,6

Source: Comité de prévision et de conjoncture /DPAM/DGEP et FMI (2012).

## 1.4 Data on most relevant crops and value chains

The most relevant crops in Burkina Faso include sorghum and millets, maize, sesame, legumes (groundnuts, Bambara beans, and cowpeas), rice, sweet potatoes and vegetables. (Cotton production is also an important sector.

### 1.4.1 Production

**Table 3: Top 10 crops produced by area, volume and value**

Area harvested (ha)		Production volume (tons)		Production value*	
Top 10	Share of Total	Top 10	Share of Total	Top 10	Share of Total
Sorghum	27.0	Sorghum	22.2	Sorghum	22.8
Millet	19.1	Maize	17.7	Maize	18.8
Cow peas, dry	17.4	Millet	12.5	Seed cotton	14.5
Maize	12.6	Seed cotton	7.6	Millet	12.7
Seed cotton	7.9	Cow peas, dry	6.8	Cow peas, dry	11.3
Groundnuts	6.3	Sugar cane	6.0	Rice, paddy	6.8
Sesame seed	2.5	Cottonseed	4.5	Groundnuts	4.2
Rice, paddy	2.1	Groundnuts	3.9	Sesame seed	3.5
Cashew nuts	1.5	Rice, paddy	3.6	Sweet potatoes	1.1
Bambara beans	0.8	Vegetables, fresh nes	2.7	Yams	1.1
		Rank 13: Sesame seed	1.4		

\* Gross Production Value (constant 2004-2006 million US\$)

Note: nes refers to Not elsewhere specified

Data: average 2011-2013, FAOStat, accessed 9 July 2015

### 1.4.2 Consumption and nutrition status

**Table 4: Food supply by tons, kg per capita and kcal per capita**

Food supply quantity (tons)		Food supply quantity (kg/capita/yr)		Food supply (kcal/capita/day)	
Top 10	% of total	Top 10	kg	Top 10	kcal
Beverages, fermented	35	Beverages, fermented	199	Maize and products	568
Maize and products	12	Maize and products	65	Sorghum and products	442
Millet and products	10	Millet and products	59	Millet and products	418
Sorghum and products	10	Sorghum and products	58	Rice (Milled Equivalent)	205
Rice (Paddy Equivalent)	6	Rice (Paddy Equivalent)	32	Rice (Paddy Equivalent)	205
Rice (Milled Equivalent)	4	Rice (Milled Equivalent)	21	Beverages, Fermented	169
Groundnuts (in Shell Eq)	3	Groundnuts (in Shell Eq)	15	Groundnuts (in Shell Eq)	161
Vegetables, Other	3	Vegetables, Other	15	Groundnuts (Shelled Eq)	161

Pulses, Other and products	3	Pulses, Other and products	15	Pulses, Other and products	134
Groundnuts (Shelled Eq)	2	Groundnuts (Shelled Eq)	11	Wheat and products	81

Data: average 2011-2013, FAOStat, accessed 22 July 2015

### 1.4.3 Trade

Table 5 below shows that cotton has long been the flagship product of Burkina Faso's exports. Thus, between 2002 and 2008, cotton is the main export product, but its share in exports has decreased over time and in 2009 gold overtook cotton in terms of export value. The decrease in the share of cotton exports in Burkina Faso reflects the agricultural crisis in the area.

**Table 5: Changes in the share of export of five main products in total exports (in %)**

	2002	2003	2004	2005	2006	2007	2008	2009
Cotton	42.27	70.72	62.18	49.45	52.47	48.44	28.31	28.23
Gold	0.48	0.71	0.59	0.66	1.51	1.54	17.92	33.66
Seeds and oleaginous fruit	5.65	2.46	2.41	3.71	4.56	9.60	5.94	5.64
Livestock	2.14	1.30	0.94	0.94	0.79	0.41	2.60	1.40
Cigarettes (tobacco)	0.96	4.68	2.27	1.35	1.22	1.57	1.38	0.66

Source: Adapted from African Yearbook (2011).

The seeds and oil fruits, animals, and tobacco/cigarettes are also important export products, but their share of the total exports remains low and variable.

Considering individual countries, Côte d'Ivoire is the largest supplier country of Burkina Faso with 13.69% of Burkina Faso's imports in 2009 coming from this country (Table 6). Imports from Côte d'Ivoire decreased from 17.62% in 2002 to 13.69% in 2009. Côte d'Ivoire is directly followed by France whose imports decreased from 19.80% in 2002 to 12.61% in 2009. Imports from France consist of 11.40% of medical drugs, 6.01% wheat, 2.50% school supplies, 2.12% gas oil and 1.65% other food products. Chinese imports have increased from 3.79% in 2002 to 10.25% in 2008 and 9.98% in 2009. Further important import partners are USA and India.

**Table 6: The five main countries from where Burkina Faso imports**

	2002	2003	2004	2005	2006	2007	2008	2009
<b>Côte d'Ivoire</b>	17.62	8.28	14.40	15.78	19.76	17.68	15.02	13.69
<b>France</b>	19.80	20.28	19.09	16.40	17.05	16.17	14.02	12.61
<b>China</b>	3.79	2.50	3.58	3.79	4.58	8.73	10.25	9.82
<b>USA</b>	2.85	1.89	1.93	4.09	3.66	6.91	6.85	6.84
<b>India</b>	2.14	2.20	1.54	3.09	4.51	6.89	5.72	4.22

Source: Adapted from ADGB *et al.* (2011).

In 2002, France was the first destination of Burkina Faso's exports (Table 7). But since 2004, it has been relegated to second place by Switzerland which is the main destination of Burkina Faso's products, primarily of gold (77.25%) and cotton (10.44%).



Table 7: The five main exportation partners of Burkina Faso

	2002	2003	2004	2005	2006	2007	2008	2009
<b>Switzerland</b>	7.08	3.98	7.96	19.08	18.75	20.40	27.96	29.92
<b>France</b>	31.92	4.57	5.71	13.89	12.80	10.79	6.20	10.93
<b>Belgium</b>	2.73	0.50	0.07	6.25	6.47	8.60	2.77	4.90
<b>Singapore</b>	3.72	0.01	0.19	5.25	3.80	5.35	7.66	5.11
<b>Côte d'Ivoire</b>	5.04	1.94	7.05	3.11	2.65	3.08	4.33	1.46

Source: Adapted from ADGB *et al.* (2011).

France imports from Burkina Faso cotton (44.47%), gold (23.18%) and sesame seeds (8.58%). Other destinations of Burkina Faso's products are Côte d'Ivoire, Belgium, Singapore and China.

Table 8: Burkina Faso's imports

Import volume (tons)		Import value (US\$)	
Top 10	Share of Total	Top 10	Share of Total
Rice – total (Rice milled equivalent)	44.5	Rice – total (Rice milled equivalent)	23.6
Wheat	8.6	Tobacco products nes	10.5
Sugar refined	8.0	Food prep nes	9.4
Flour, wheat	6.8	Sugar refined	6.9
Oil, palm	5.6	Wheat	6.6
Food prep nes	2.6	Flour, wheat	5.2
Macaroni	2.3	Oil, palm	5.2
Food wastes	2.1	Milk, whole dried	3.3
Beverages, non alcoholic	1.5	Coffee, extracts	2.8
Malt	1.5	Macaroni	2.8
Sesame seed	0.0	Sesame seed	0.0

Data: average 2010-2012, FAOStat, accessed 31 Oct 2015

Note: nes refers to Not elsewhere specified

Table 9: Burkina Faso's exports

Export volume (tons)		Export value (US\$)	
Top 10	Share of Total	Top 10	Share of Total
<b>Cotton lint</b>	41.2	Cotton lint	63.1
<b>Sesame seed</b>	17.6	Sesame seed	16.2
<b>Cashew nuts, with shell</b>	11.8	Cashew nuts, with shell	7.2
<b>Beans, dry</b>	4.7	Oilseeds nes	1.6
<b>Maize</b>	4.4	Cigarettes	1.4
<b>Cake, cottonseed</b>	4.4	Fruit, tropical fresh nes	1.4
<b>Tomatoes</b>	3.2	Maize	1.1
<b>Fruit, tropical fresh nes</b>	1.9	Cake, cottonseed	1.1
<b>Cotton waste</b>	1.7	Cashew nuts, shelled	1.0
<b>Onions, shallots, green</b>	1.5	Beans, dry	0.9
<b>Rice – total (Rice milled equivalent)</b>	0.0	Rice – total (Rice milled equivalent)	0.1

Data: average 2010-2012, FAOStat, accessed 31 Oct 2015

Note: nes refers to Not elsewhere specified

## 1.5 National (and regional) innovation system

### 1.5.1 Research system and organizations

The international and national agencies that are conducting research activities, and their research areas are summarized in the tables below.

#### 1.5.1.1 International

**Table 10: International research organizations in Burkina Faso**

Organization	Research focus
International Institute of Tropical Agriculture (IITA)	Cowpea
International Livestock Research Institute (ILRI)	Livestock
International Water Management Institute (IWMI)	Water and land resources
Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)	Crops, livestock, food and energy security, public policy
West African Science Service Center on Climate Change and Adapted Land Use (WASCAL)	Crops, livestock, climate change
Institut de Recherche pour le Développement (IRD)	Social, biophysical and medical sciences

#### 1.5.1.2 National

**Table 11: National research organizations in Burkina Faso**

Type	Organization	Research Focus
<b>Government</b>	Institut de l'Environnement et des Recherches Agricoles (INERA)	Crops, natural resources, forestry, socioeconomics
	Institut de Recherche en Sciences Appliquées et de Technologie (IRSAT)	Off-farm post-harvest, natural resources, agricultural engineering, socioeconomics
	Laboratoire National d'Élevage (LNE)	Livestock, pastures and forages
	Centre National de Semences Forestières (CNSF)	Forestry, socioeconomics
	Bureau National des Sols (BUNASOL)	Soils
	Direction des Pêches (DDP)	Fisheries
<b>Higher Education</b>	Institut du Développement Rural (IDR), Université Polytechnique de Bobo-Dioulasso (UPB)	Natural resources, pastures and forages
	Unité de Formation et de Recherche (UFR) - Sciences de la Vie et de la Terre (SVT), Université de Ouagadougou (UO)	Crops, livestock, natural resources
	Unité de Formation et de Recherche (UFR) - Sciences Économiques et Gestion (SEG), Université de Ouagadougou (UO)	Crops, livestock, pasturages and forages, off-farm post-harvest, natural resources, socioeconomics
	Département de Biologie, Technologie et Informatique (DBTI), Université Catholique de l'Afrique de l'Ouest (UCAO)	Livestock, socioeconomics
	Centre Agricole Polyvalent de Matourkou (CAPM)	Crops, livestock, natural resources, socioeconomics
<b>NGO</b>	Centre Ecologique Albert Schweitzer (CEAS)	Crops, livestock, off-farm post-harvest

Source: asti.cgiar; author

### 1.5.2 Innovation platforms

Before 2010, the main approach for the country's agricultural products development was based on the sectorial approach. The first experience with the value chain and innovation platforms (IPs) was implemented with the FARA project DONATA in Sissili province of Burkina Faso. Since then, the approach has been applied to several agricultural value chains in the country. Table 12 presents some of the innovation platforms that have been implemented in the country.

**Table 12: Some of the IPs actually implemented in Burkina Faso at regional or local level**

IP Name	Location	Name of focal	Email/phone Web page	Commodity of interest
<b>Maize</b>	Leo province	Dr Taonda J., INERA	<a href="mailto:staonda2@yahoo.fr">staonda2@yahoo.fr</a>	Maize grain
<b>Yellow maize</b>	Banfara/Comoe province,	Dr Wereme/ N'diaye A., INERA	<a href="mailto:weremea@yahoo.fr">weremea@yahoo.fr</a>	Yellow maize
<b>Maize and animal products</b>	Koumbia/Houet province	Ouedraogo S., INERA	<a href="mailto:osilamana@yahoo.fr">osilamana@yahoo.fr</a>	Maize and animal products
<b>Maize</b>	Dedougou/Mouhoun province	Dr Wereme/ N'diaye A., INERA	<a href="mailto:weremea@yahoo.fr">weremea@yahoo.fr</a>	Yellow maize
<b>Agricultural seed system</b>	Pouni/Boulkiemde province	Gué J.	<a href="mailto:guejulienne@yahoo.fr">guejulienne@yahoo.fr</a>	Improved seeds
<b>Cowpea</b>	Kongoussi/ Bam province	Siambo E., PPAAO/WAAP	<a href="mailto:semmabf@yahoo.fr">semmabf@yahoo.fr</a>	Cowpea
<b>Sweet potatoes</b>	Orodara KénéDougou province	Dr SOME K., INERA	<a href="mailto:koussao@hotmail.com">koussao@hotmail.com</a>	Yellow potatoes
<b>Yam</b>	Leo/Sissili province	Dr KIBA I., INERA	<a href="mailto:innokiba@yahoo.fr">innokiba@yahoo.fr</a>	Yam tubers
<b>Kilishi</b>	Koupela/ Kouritenga province	Siambo E., PPAAO/WAAP Burkina	<a href="mailto:semmabf@yahoo.fr">semmabf@yahoo.fr</a>	Kilishi (dried meat)
<b>Rice</b>	Bama/Houet province	Ouattara A D., INERA	<a href="mailto:deli1ouattara@yahoo.fr">deli1ouattara@yahoo.fr</a>	Rice
<b>Milk</b>	Banfara/ Comoe province	Traore A. APESS	<a href="mailto:tradamus@yahoo.fr">tradamus@yahoo.fr</a>	Milk
<b>Fonio</b>	Bomborokuy Kossi province in the Mouhoun river region	Mme Koncobo C. IRSAT/INERA	<a href="mailto:jcharma@yahoo.fr">jcharma@yahoo.fr</a>	Processed fonio cereal
<b>Small ruminants</b>	Titao/Yatenga province	Traore A., APESS	<a href="mailto:tradamus@yahoo.fr">tradamus@yahoo.fr</a>	Small ruminants
<b>Shea nut</b>	Leo/ Sissili province	Siambo E., PPAAO/WAAP Burkina	<a href="mailto:semmabf@yahoo.fr">semmabf@yahoo.fr</a>	Shea nut
<b>Mango</b>	Bobo/ Houet province	Siambo E., PPAAO/WAAP Burkina	<a href="mailto:semmabf@yahoo.fr">semmabf@yahoo.fr</a>	Cowpea

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Below is a brief description of some of the IPs in Burkina Faso.

### **Maize in Sissili province**

The IP on maize production in Sissili province had been set up during the DONATA project. The strategy of the project was to use an innovation platform based on the maize value chain to facilitate technology adoption by creating synergies between several actors: research, the departments in charge of extension, policy makers, farmers' organizations, private sector, agro-business and NGOs. After one year implementation (2010), the returns generated were 5 tons/ha with maize hybrid variety Bondofa, 3.5 tons/ha with open pollinated varieties Barka and Wari, and 2 tons/ha of certificated seed. A total of 4,358 tons maize grains was produced by the Fédération des Professionnels Agricoles de la Sissili (FEPPASI) from which 500 tons were sold under contract with National Society of Safety Stock Management (SONAGESS), and 170 tons of certified seeds. As the maize grain production was getting high, the IP decided to tackle the problem of market access and the processing aspects to create more added value. The project contributed to generate income for farmers via maize production. The driver of success in that case was the presence of a strong farmers' organization that was able to mobilize farmers and get their commitment and active participation to the project.

### **Maize and animal products IP in Koumbia**

In the same vain, maize and animal products in Koumbia was a success because of farmers' commitment to the project and mainly by contracting yellow maize between farmers and private actors in 2014. The entire inputs (including improved seed) were provided by the private sector and farmers delivered high quality yellow maize grain. Therefore, IP members' capacities were strengthened in contract negotiation and advocacy, thus they were able to renew the contract in 2015.

### **Seed system IP in Pouni**

This IP was able to bring together farmers, researchers, extension agents, private actors and local policy makers on the access to quality seeds for farmers. Potential appropriate varieties were identified in a participatory field selection process and actors were aware of their responsibilities to provide quality seed to poor farmers.

**The CGIAR Challenge Program on Water and Food's Volta2 project**, which was implemented from October 2010 for 3 years, used IPs as its principal development tool to achieve integrated management of rainwater for crop-livestock agro-ecosystems in Yatenga province in northern Burkina Faso. A study by Teno *et al.* (2013) shows that the two Volta2 IPs in the Yatenga province contributed to an increase in crop and livestock production in the region.

**The West and Central African Council for Agricultural Research and Development (CORAF/WECARD)** developed a maize value chain IP in Burkina Faso in 2008 through INERA facilitation. This IP inspired commercial production of certified seed maize among farmers within two years after its creation, it also enhanced the adoption of improved maize technologies (CORAF/WECARD, 2012).

**The Syprobio project** is using IPs to test innovative practices in cotton production systems in Burkina Faso. An impact so far is that the IPs have helped farmers to gain self-confidence in self-organized processes, and it has also increased farmers' trust in research.

**In conclusion**, most of earlier agricultural research innovations were not adopted by farmers because of insufficient linkage to market. The pilot IPs demonstrated that there is a potential to develop efficient value chain-based IPs either at local, regional and national levels but they need to be well designed and well mentored to get the expected impacts in terms of social innovation. There is a need to develop and provide local agricultural services that could help IPs to be more efficient in job creation. The IPs' functioning also needs to be documented for future learning.

### **1.5.3 Extension system and organizations**

There is a pluralistic extension system in Burkina Faso with different stakeholders (public, private sector, NGOs and farmer organizations) providing extension services. Four ministries under the Government of Burkina Faso provide extension and advisory services in the areas of agriculture, livestock and natural resources. These ministries are: Ministère de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques (Ministry of Agriculture, Water and Fishery Resources), Ministère des Enseignements Secondaire, Supérieur et de la Recherche Scientifique (Ministry of Higher Education and Scientific Research), Ministère des Ressources Animales (Ministry of Animal Resources) and Ministère de l'Environnement et du Cadre de Vie (Ministry of Environment). These ministries provide extension services through the following departments and institutes:

Ministère de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques (MAHRH):

- Regional Directorate for Agriculture, Water and Fisheries;
- Systeme National de Vulgarisation et d'Appui Conseil Agricole (SNVACA).

Ministère des Ressources Animales (MRA):

- Laboratoire National d'Élevage (LNE);
- Systeme National de Vulgarisation Agricole (SNVA).

Ministère de l'Environnement et du Cadre de Vie (MECV):

- Direction Generale Amelioration Cadre de Vie.

Ministère des Enseignements Secondaire, Supérieur et de la Recherche Scientifique (MESSRS):

- Centre National de la Recherche Scientifique et Technologique (CNRST).

The following public research institutions also have research units:

- Institut de l'Environnement et de Recherches Agricoles (INERA);
- Centre International de Recherche-Développement sur l'Élevage en Zone Subhumide (CIRDES);
- Agency for the Promotion of Small and Medium-sized Agricultural Enterprises and Handicrafts (APME).

University-based extension services include:

- Université Polytechnique de Bobo-Dioulasso (UPBD);
- Institut de Développement Rural (IDR).

Some NGOs are involved in extension advisory services delivery to farmers in Burkina Faso.

Examples include:

- Sasakawa Africa Fund for Extension Education (SAFE);

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- Institut Africain pour le Développement Economique et Social (INADES), Centre Africain de Formation, Bureau National du Burkina Faso;
- Long Live the Farmer Association (AVLP);
- Delwende Development Association;
- Catholic Relief Service (CRS; [www.g-fras.org](http://www.g-fras.org)).

### **1.5.4 Private R&D activities**

The private sector, which comprises agro-dealers, banks, and input supply companies, works closely with farmers and livestock producers in Burkina Faso. Its members facilitate access to inputs and credits and also finance the agricultural sector. Through the Grow Africa Partnership, a number of private companies are investing in the agricultural sector of Burkina Faso. Among the companies are: Ecobank, Sarepta, Global Shea Alliance, Union Conannet des Etuveuses de Riz de Bagre (UCERB), UPL Limited, Yara International ASA, etc.

### **1.6 Key challenges, emerging needs and potentials in the agricultural sector**

Key challenges include a variety of socio-economic and environmental issues:

- Population growth;
- Climate change (low and irregular rainfall);
- Labour migration;
- Child labour;
- Land tenure insecurity;
- Limited knowledge and capacity of producers;
- Poor transportation infrastructure (poor roads);
- Transport challenges (i.e., lack of coastline);
- Limited access to credit for farmers;
- Fragmented value chain;
- Insect borne infection;
- Extensive use of natural resources for agriculture.

Based on the general approach (see Africa-wide study Chapter 4) and in pursuit of efficiency and effectiveness, investment by Germany into the agricultural and food sector are suggested in those African countries, which:

- Show actual progress in sustainable agricultural productivity driven by related innovations, as indicated by comprehensive productivity measurement and innovation actions on the ground;
- Have a track record of political commitment to foster sustainable agricultural growth, as indicated by performance under CAADP, and
- Prioritize actions for hunger and malnutrition reduction and show progress, but where agricultural and rural development and nutrition interventions are likely to make a significant difference, as indicated by public policy and civil society actions.

Based on this approach, investment into the agricultural and food sector of Burkina Faso can be expected to have relatively low effect on food and nutrition security improvements in the country.

Table 13: Country level Performance Indicators

Indicator	Index	Performance (%)
1. Number of Years with more than 6% agricultural growth (2005 to 2014)	4	40
2. Percentage point change in TFP index between 2001 and 2008	-16	0
3. Number of years with more than 10% government expenditure (2005 to 2014)	4	40
4. Average share of agricultural GDP spent on R&D (2005 to 2011) in %	0.4	39
5. Steps in CAADP completed	7	88
6. Percentage point improvement in undernourishment between 2001 and 2011	6	60
7. Global hunger index (2014)	19.9	60
Total score (weighted)		45

Source: Own computation based on World Bank (2015), FAO (2015), ASTI database and von Grebmer *et al.* (2014)

Note: the % performance (rounded) is defined as follows for the respective indices: 1. % out of 10 years; 2. classes: if <1, or negative= 0; 1 – 7= 30, 8-15= 60, > 15= 100; 3. % out of 10 years; 4. % of the AU target value of 1% spent on R&D; 5. % of the desired 8 steps; 6. classes: if < 2 = 0; if 3-5= 30; if 6-10=60, if >10=100; 7. classes: if < 12= 0; 12-16: = 60; 17-20: = 60; > 20= 100.

Total score (weighted) performance and need to invest: (sum of (1.+2.)/2 (expected growth performance); + sum of (3.+4.+5.)/3 (expected government commitment); + sum of (6.+7.)/2 (performance in food and nutrition security and need)) divided by 3.

#### Results of assessment (Table 13):

##### Expected agricultural growth performance:

- Burkina Faso has increased its agricultural growth only for four years by more than the annual 6% agricultural growth target defined by CAADP, between 2005 and 2014 ([www.resakss.org](http://www.resakss.org));
- Total factor productivity in Burkina Faso had declined by 16% between 2001 and 2008 (Fuglie and Rada, 2011), which is the worst innovation performance record even by the sub Saharan Africa standard.

##### Government commitment:

- Burkina Faso has a track record of political commitment to foster sustainable agricultural growth by being active in the CAADP process and having completed seven out of the eight steps in the CAADP process ([www.resakss.org](http://www.resakss.org));
- However, the Burkina Faso government has shown a below average willingness to invest in agricultural sector by investing more than 10% of total government expenditures (CAADP target) in the agriculture for only four years between 2005 and 2014 ([www.resakss.org](http://www.resakss.org));
- In addition, Burkina Faso had spent only 0.4 % of its agricultural GDP on agricultural research and development, which is much lower than the Sub-Saharan Africa average ([www.asti.cgiar.org](http://www.asti.cgiar.org)) and the AU target value of 1% spent on R&D. This indicates that Burkina Faso's investment on agricultural innovation is not yet sufficient.

##### Food and nutrition security progress and need:

- Burkina Faso is only modestly prioritizing actions for hunger and malnutrition reduction and show only a less than 6% improvement in undernourishment between 2001 and 2011, which is lower than the 10% threshold level (FAO, 2014);

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- In addition, Burkina Faso has the GHI score value of 19.9 reflecting a serious level of hunger (von Grebmer *et al.*, 2014)<sup>1</sup>. This makes the investment into the agricultural and food sector in Burkina Faso urgent to fight the high numbers of food insecure people.

However, the overall economic, political and social/nutrition framework in Burkina Faso does not seem to suggest accelerated investment into the agricultural and food sector of the country.

Nonetheless, there are some potentials in the country's agricultural sector. For instance, Burkina Faso has a large land resource, with only a third of total farmland and 12% of irrigable land presently under cultivation. In addition, there is so far unexploited potential for rice cultivation: less than 10% of the 500,000 ha of lowland has been brought into production, coupled with the irrigation potential. Burkina Faso also has a comparative advantage in cotton production and is well placed to develop fruit and vegetable as a source of export diversification.

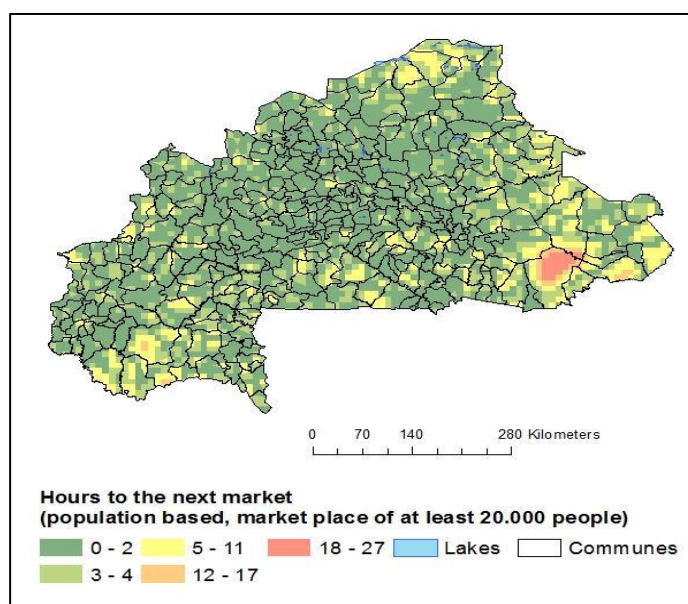
Transport intensive products should be promoted in areas that are well connected to markets, whereas the remote areas should focus on low volume and livestock value chain segments.

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<sup>1</sup> GHI score Values less than 5.0 reflect low hunger, values from 5.0 to 9.9 reflect "moderate" hunger, values from 10.0 to 19.9 indicate a "serious" level of hunger, values from 20.0 to 29.9 are "alarming," and values of 30.0 or greater are "extremely alarming" (IFPRI,2014).



Figure 1: Distance to market



Data sources: Hours to next market - HarvestChoice, 2015;

Administrative areas: <http://www.gadm.org/>, accessed 20.9.2015

Inland water bodies: <http://www.diva-gis.org/gData> (water bodies), accessed 20.9.2015

## 2 Most relevant value chains Burkina Faso

### 2.1 AIC-Value Chains

Rice and sesame were chosen as the value chains in the agricultural innovation centers (AIC).

#### 2.1.1 Rice

Rice production is a major development priority for the Government of Burkina Faso in its food security strategy. The National Strategy for the Development of the Rice Value Chain (2011-2018) has the aim of intensifying and increasing rice production, improving the quality of the finished product reaching the market, and strengthening stakeholder capacity in the rice sector. There are about 100,000 smallholder rice producers in Burkina Faso, with average plot sizes from 0.5 to 1 ha, spread across three main producing areas: Bagré, West and Sourou. Bagré is the most attractive production region due to good transport links to the national capital (Ouagadougou), the planned expansion of its irrigated land (from 1,800 ha today to 15,000 ha in 2015), the importance of rice as a cash and staple crop in the region. Rice consumption in Burkina Faso is constantly increasing, but national rice production covers only about 47% of population needs. Rice consumption in the country is satisfied mainly by low quality imported rice, local parboiled rice and to a limited extent, local white rice. There are no commercial rice producers and millers in the country.

#### 2.1.2 Sesame

Sesame was cultivated for consumption or sold on a small scale in Burkina Faso, but since 2010, it has developed from a marginal crop to a major agricultural export commodity. The volumes exported increased more than ten-fold and the area dedicated to sesame production is now five times larger. Sesame production is attractive for producers compared to cotton as it provides higher profits per hectare, requires less investment, is not as labor intensive, is more drought tolerant, and is paid in cash at the farm gate. The sesame sector is

entirely export oriented, and there is hardly any local market. Due to the recent importance of sesame in Burkina Faso's economy, the government, producers and NGOs are showing interest in organizing the sesame chain and supporting producers. The major sesame producing regions are Boucle de Mouhoun (40% of national production), Est (20%), Cascades (13%) and Hauts-Bassins (9%) (Oudendijk, undated). A large share of sesame is exported to Asian markets, while European market is the main destination of organic sesame (Oudendijk, undated)

## **2.2 Other relevant value chains**

The agricultural development programme of GIZ (2004-2016) supports the government of Burkina Faso in implementing the Rural Sector National Programme, which increases the competitiveness of the value chains of sesame, manioc, rice and horticultural products. Some achievements of the programme include:

- The average annual income of the market participants of sesame, cashew nuts, cassava, and rice value chains rose by an average of 60% between 2004 and 2013;
- Since 2010, over 10,000 sesame producers were able to improve their harvest yields and product quality to such an extent that exports rose by 75%;
- There has been over 300% increase in the production, processing and marketing of cashew
- 6,000 additional jobs have been created along the value chains.

The cotton value chain is the most structured value chain in Burkina Faso. An organic cotton value chain programme was promoted in Burkina Faso by an NGO, Helvetas Swiss Intercooperation, between 2004 and 2011. The value chain led to an important increase in employment: producers went from about 1,800 in the production years 2007/2008 to about 6,600 in 2011/2012. It also led an increase in the incomes of the producers involved, who receive for their product a price which is, in average, 50% higher than that received by traditional farmers (Oxfam Italia, 2013).

The shea (*Vitellaria paradoxa*) value chain in Burkina Faso provides a source of income for nearly 500,000 women involved in the collection of kernels and the production of shea butter with direct jobs in processing and marketing. Women account for about 90% of those associated with the shea value chain. The shea value chain plays an essential role in food security for participants by providing fruit and cooking oil, and by generating income that can be used to purchase basic food.

## **3 Innovations in value chains in the past 20 years**

### **3.1 The most crucial limiting factors in Burkina Faso / AIC-region / in AIC-value chains**

A key factor has been sustained underinvestment in agricultural research and development, especially operating costs and capital investments for research are largely dependent on volatile donor funding. The number of agricultural researchers has steadily declined since 2006. In addition, producers have limited knowledge and capacity, there is a poor transportation infrastructure (poor roads) and the land tenure is rather insecure.

### **3.2 The most important / beneficial innovations in the relevant VCs of Burkina Faso**

#### **3.2.1 AIC value chains**

*- pending further information -*

#### **3.2.2 Other value chains and cross-cutting innovations**

Several value chains and innovations are implemented in Burkina Faso:

- Zai pit technology for land rehabilitation and restoration of soil fertility;
- Bt Cotton;
- Contract farming;
- Weather-index drought insurance.

### **3.3 Most promising approaches for farmer and small business related value chain innovations**

The most promising approach is the innovation platform approach that brings the value chain actors together in the purpose of linking agricultural products to the market. This approach, although new, is becoming popular amongst the research-development actors, extension agents, NGOs, local policy makers and mainly farmer's organizations.

## **4 Suggestions for Collaboration**

The approach of IPs based on value chains is now well understood by some stakeholders, mainly by policy makers and farmers' organizations. There are still some gaps remaining that could be filled by a collaboration between Burkina Faso and Germany:

- Funding on competitive process way, research & development projects on targeted VC at regional levels, based on the integrated agricultural research for development (IAR4D) promoted by FARA, CORAF/WECARD and other partners;
- The generalization of such an approach at national level, with a clear understanding of relations between such IPs on the same value chain from local to the nation level;
- Capacity building for the facilitation of IPs by building a training program that could be carried out by high school partners in a medium term;
- Capacity building in value chain analysis (mainly how to increase added value while considering social equity);
- Development of infrastructure that supports the IPs (e.g., storage, processing units, etc.);
- Building on business plan based micro-projects that can provide intermediate services to the IP actors, mainly farmers;
- Development of negotiation and marketing skills of farmers and their organizations involved in the VC based IP.

#### **4.1 Promising agricultural products and value chains**

Besides assessing the returns of investments into institutional innovations in Burkina Faso, analysis to choose the most promising value chains in the country is also undertaken. In compliance with the availability of data and the purpose of the study four criteria that focus on poverty and market potential are used to select the five most promising agricultural products from the long list of agricultural products the country produces and sells. The first indicator, the trade potential (revealed comparative advantage (RCA) index), is computed to

identify value chains over which the country has revealed (but not potential) comparative advantage. In the present case, the RCA index compares the share of a given agricultural product in Burkina Faso's export basket with that of the same product in total world exports. The second indicator, yield gap, is used to assess the expected return of the envisaged Germany investment on the given AIC country value chains. A third indicator, average yield growth, is used to examine the potential of the product for poverty reduction. The production share of total supply is also used to assess the present integration of the poor in the market (relevance).

The summary of the five most promising value chains based on Revealed Comparative Advantage (RCA) index, average yield growth and relative yield gap is reported in Table 14 below. The production share, RCA index, actual yield growth and relative yield gap for the GIZ-selected value chain(s) is also reported at the bottom of the table, when they are not included in the list of the first five most promising value chains.

**Table 14: Selection of promising agricultural products /value chains**

Rank by RCA		Rank by Yield			Rank by yield gap		Rank by relevance of crop	
Rank	Name of agricultural product	RCA index (2012)	Name of the crop	Average annual yield growth (2005 to 2012)	Name of staple crop	Relative yield gap (%)**	Name of agricultural product	Production share of supply (2012)*
1	Sesame seed	54	Sweet potatoes	10	Rainfed maize	85.6	Maize and products	126
2	Oilseeds	45	Rice, paddy	8	Rainfed rice	84.8	Cottonseed	121
3	Cake, cottonseed	40	Cashew nuts, with shell	5	Rainfed sorghum	85.2	Sorghum and products	105
4	Cashew nuts, with shell	19	Yams	5	Irrigated rice	63.8	Yams	100
5	Goats	18	Sesame seed	5	Rainfed millet	82.4	Sugar cane	100
<b>GIZ selected</b>							Sesame seed	85
							rice	50

Source: \* Own computation based on FAO 2015 data, \*\* from Van Bussel *et al.* (2015).

Note: \*\*\* a minimum of 0.5% production (volume) share threshold is used as a screening (crop relevance) criteria

Results of assessment (Table 14):

- The trade potential (revealed comparative advantage (RCA) index) is very high for sesame seed (selected by GIZ), oilseeds, cottonseed cake, cashew nuts and goats. This indicates that Burkina Faso has comparative advantage (in the export) of these commodities. The country do not have comparative advantage (in the export) of the other GIZ value chains;

- The yield performance indicating progress suggests that over the CAADP period (2005 to 2012) sweet potatoes, the two GIZ selected value chains (rice and sesame), cashew nuts and yams are the five most promising crops;
- Yield gaps indicate potentials from another angle, and is observed to be high for rain fed maize, rain fed and irrigated rice (GIZ selected), rain fed sorghum and rain fed millet indicating the high potential return of investing on these value chains;
- In terms of relevance (production share of supply) maize, cotton seed, sorghum, yams and sugar cane are the leading. The total production of the first three products exceeds the total supply. About 85% of the total supply of sesame (GIZ selected value chain) and 50% of rice (the other GIZ selected crop) are also domestically produced.

#### **4.2 A systematic assessment of promising partnerships for each promising innovation area**

*- pending further information -*

#### **4.3 Some potential partners for the German collaboration: in science and research, private sector and NGOs and governmental organizations**

GIZ is a main leader of German cooperation in Burkina Faso. The agency has developed an important network of collaborating institutions in the public, private and NGOs areas that could be used as reference. Therefore, we can indicate:

- Ministries in charge of agriculture, animal resources, environment, higher education and scientific and innovation research and their representatives at any national levels;
- National agricultural research system actors (INERA, IRSAT, universities...);
- Farmers' organizations and their representatives at national, regional, provincial and local levels;
- Other policy makers at regional, provincial and communal levels like regional chambers of agriculture, regional councils, mayors...;
- Consulting institutions (GRAD, BRD....).

#### **4.4 Needed implementation research**

Most of the experience with VC-based IPs is very recent and there are still a number of challenges that need more attention from research:

- How to develop resources persons in charge of the IP management so that participatory learning processes can be strong and lead to the expected results?
- Determine the structure of the IPs from local level, so that farmers can be heavily involved, to the regional and national levels, where policy makers and market actors are more relevant.
- Which mechanism can be implemented to get better involvement of microfinance actors so that access to inputs could be facilitated?
- How to balance mechanization with sustainable production for example in terms of soil fertility management?
- How to develop and manage innovative services to support the IPs and allow more added value to the targeted value chain (land preparation, post-harvest operations, rural transport, grain cleaning, crop residues packaging for animal feeding, ...)? Those services will contribute to increase value chains' efficiency and provide jobs.
- Which mechanisms to capture the global impact of the value chain-based IPs?

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- How can systemic research fit in that VC-based IP to deal with sustainability, food security, poverty alleviation and resilience?

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