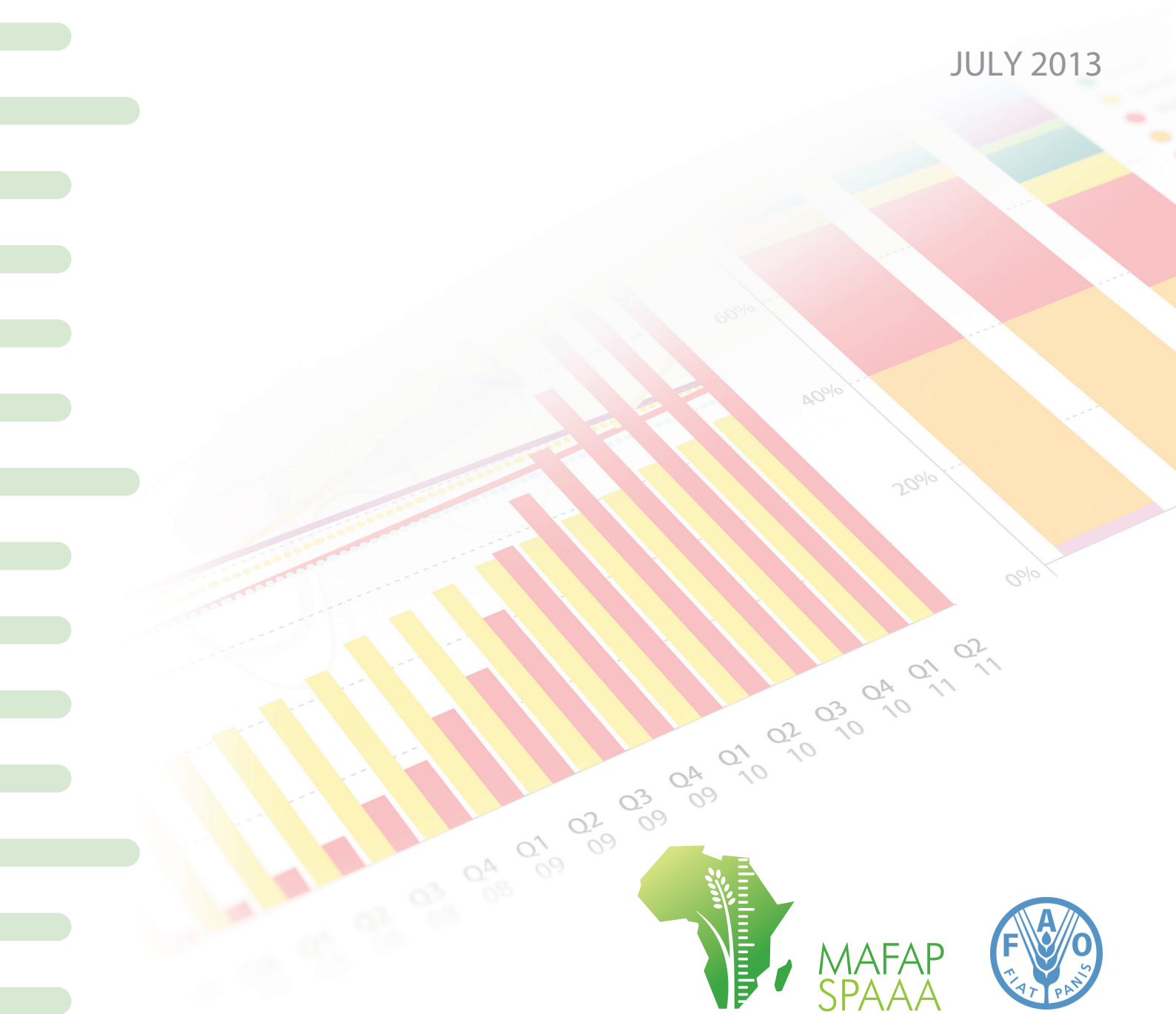
MONITORING AFRICAN FOOD AND AGRICULTURAL POLICIES (MAFAP)

REVIEW OF FOOD AND AGRICULTURAL POLICIES IN BURKINA FASO 2005-2011

COUNTRY REPORT

JULY 2013



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Monitoring African Food and Agricultural Policies

Organisation des Nations Unies pour l'alimentation et l'agriculture

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Acronyms

ACF	Action against Hunger
CAADP	Comprehensive Africa Agriculture Development Programme
CAIA	Action Framework for Agricultural Investment
CAPES	Center for Economic and Social Policies Analysis
CGE	Computable General Equilibrium
CIC-B	Interprofession Committee for Rice of Burkina
CIC-B	Interprofession Committee for Cereals of Burkina
CIF	Cost, Insurance, Freight
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
CIRAD	International Cooperation Center in Agronomic Research for Development
CNRST	Centre for Scientific and Technological Research
CNRST	National Center for Scientific and Technologic Research
CONASUR	National Council for Emergencies and Rehabilitation
CSLP	Strategic Framework for Poverty Reduction
DDFA	Agricultural Value Chain Development
DGB	General Budget Unit
DGCOOP	General Division for Cooperation
DGFOMR	General division for Land, Training and Organisation of the rural world
DGPER	General Division for Rural Economics
DGPSE	General division for Prospective and Statistics for Livestock
DGRH	General division for Hydraulic Resources
DIMA/DGPV	Division for Agriculture Mechanisation/General Division for Crops
DPSAA	Division for Prospective and Food and Agricultural Statistics
EA/QUIBB	Annual Survey on Households Living Conditions
EBCVM	Burkina Survey on Households Living Conditions in Burkina Faso

ECOWAP	Economic Community of West Africa Policy
ECOWAP	Regional Agriculture Policy for the Economic Community of West African States
ECOWAS	Economic Community of West African States
EDS	Health Survey
EGASA	National Consultation for Agriculture and Food Security
EICVM	Integral Survey on Households Living Conditions in Burkina Faso
EPA	Permanent Agricultural Survey
FAO	Food and Agriculture Organization of the United Nations
FAPDA	Food and Agriculture Policy Decisions Analysis
FASA	Food Security Support Fund
FCFA	African Financial Community Franc
FOB	Free on Board
GDP	Gross Domestic Product
GFRA	Global Forestry Resources Assessment
GNP	Gross National Product
HDI	Human Development Indicator
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IGB	Geographical Institute of Burkina
INSD	National Institute of Statistics and Demographics
LNAE	National Laboratory for Water Analysis
MAFAP	Monitoring African Food and Agricultural Policies
MAHRH	Ministry of Agriculture, Water and Fisheries
MATD	Ministry for Urbanization and Decentralization

MDG	Market Development Gap
MEDD	Ministry for Environment and Sustainable Development
MEF/IAP	Ministry of Finance/Automated Prediction Instrument
MIS	Market Information System
NGO	Non Governmental Organization
NPK	Azote Phosphore Potassium Fertilizer
NRA	Nominal Rate of Assistance
NRP	Nominal Rate of Protection
OECD	Organisation for Economic Cooperation and Development
ORO/AOC	Observatoire Régional de l'Oignon
PAFASP	Support Project for Agro-Sylvo-Pastoral Sectors
PAPISE	Action Plan and Investment Programme for Livestock Sector
PAPSA	Agricultural Productivity and Food Security Improvement Project
PAU	Agricultural Policy of the Union
PDDEB	Ten-Year Plan for the Development of Basic Education
PDIS	Integrated Development Programme for the Samendéni Valley
PET	Potential Evapotranspiration
PNDEL	National Policy for Sustainable Development of Livestock
PNSR	National Programme for the Rural Sector
RESIMAO	Market Information Systems Network for West Africa
RGA	General Agricultural Census
RGPH	General Census of Human Population
SAM	Social Accounting Matrix
SAP	Structural Adjustment Programmes
SCADD	Strategy for Accelerated Growth and Sustainable Development

SDA	Business Development Service
SDR	Rural Development Strategy
SN-CITEC	New Company for Oil and Soap Citec
SOCOMA	Gurma Cotton Company
SOFITEX	Burkina Company for Textile Fibers
SOFIVAR	Company for Investment and Services for Groundnuts
SONAGESS	National Society of Food Security Stock Control
SP/CPSA	Permanent Secretariat for the Coordination of Sectoral Agricultural Policies
TFR	Total Fertility Rate
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Scientific and Cultural Organization
USAID	United States Agency for International Development
WAEMU	Western African Economic Monetary Union
WDI	World Development Indicator

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Organization and partners

Implementation of MAFAP in Burkina Faso is being jointly handled by the General Directorate for the Promotion of the Rural Economy (Direction Générale de la Promotion de l'Economie Rurale) and the Permanent Secretariat for the Coordination of Agricultural Sector Policies (Secrétariat Permanent de Coordination de Politiques Sectorielles Agricoles), with the support of the Food and Agriculture Organization of the United Nations (FAO). To carry out the work, a technical secretariat has been set in place, made up of officials from DPSAA and SP/CPSA, under the technical coordination of Richard Guissou.

The work began with a training workshop on methodology, held from 03 to 07 October, 2011, and with information meetings for the ministries involved. Following this workshop, working groups were set up. These helped both to collect data and analyze the indicators.

The working groups were made up as follows:

1. Work on livestock meat sector: DGPSE, DEP/MRA, DGSV, DPFA, DGEAP, FIAB, DRCA

2. Work on cereals sector (Rice, Maize, Sorghum) + Cowpeas: DDFA, DPSAA, DOMPA, DGPV, SONAGESS, CICB, IGAE

3. Work on cash crops sector (Cotton+sesame+groundnuts): DDFA, BCEAO, ONAC, DOMPA, SP/Coton, UNPCB, Cotton companies, COB, APM/2A, DGCE

4. Work on jatropha, palm oil sector: DEP/MEDD, Belwet, DEP Ministry of Energy, ANPFNL, DEP/MAH

5. Work on non-timber forest product sector (gum arabic): APFNL, DPSAA, DEP/MEDD

6. Work on fisheries sector: DGRH, DPSAA, DSSE

7. Work on vegetables sector: DDFA, DGPV, DPSAA, DOMPA, ONAC

8. Performance and Development Indicators : DPSAA, DEPs, SP/CPSA, DPAM, DGPSE, DGPV, INSD, Customs, CCI, CBC, DGC, IGAE

9. Public expenditure: DGB, DPSAA, Customs, DEPSI, DPFA, INSD, DAFs, DGCOOP

Once the first documents had been developed, the reports were revised by the FAO team and by the OECD. Some results were presented to the cabinet of the Ministry of Agriculture.

Executive summary

This report provides an in-depth analysis of the impact of food and agricultural policies in Burkina Faso. The analysis in this report, which covers the period from 2005 to 2010, carefully examines price incentives and disincentives faced by farmers and consumers of ten key agricultural commodities. It also looks at the composition and level of public expenditure to support agriculture. Finally, the report looks at how well public expenditure and policy measures in the country are aligned, and if agricultural policies are consistent with overall government objectives. Opportunities for investing in different value chains are also examined.

The evidence and analysis in this report are based on the Monitoring African Food and Agricultural Policies (MAFAP) rigorous methodology for measuring the impact of agricultural and food policies. The approach is unique and has been used for the first time in Burkina Faso. Its findings provide evidence for policy dialogue among key decision makers and development partners in Burkina Faso.

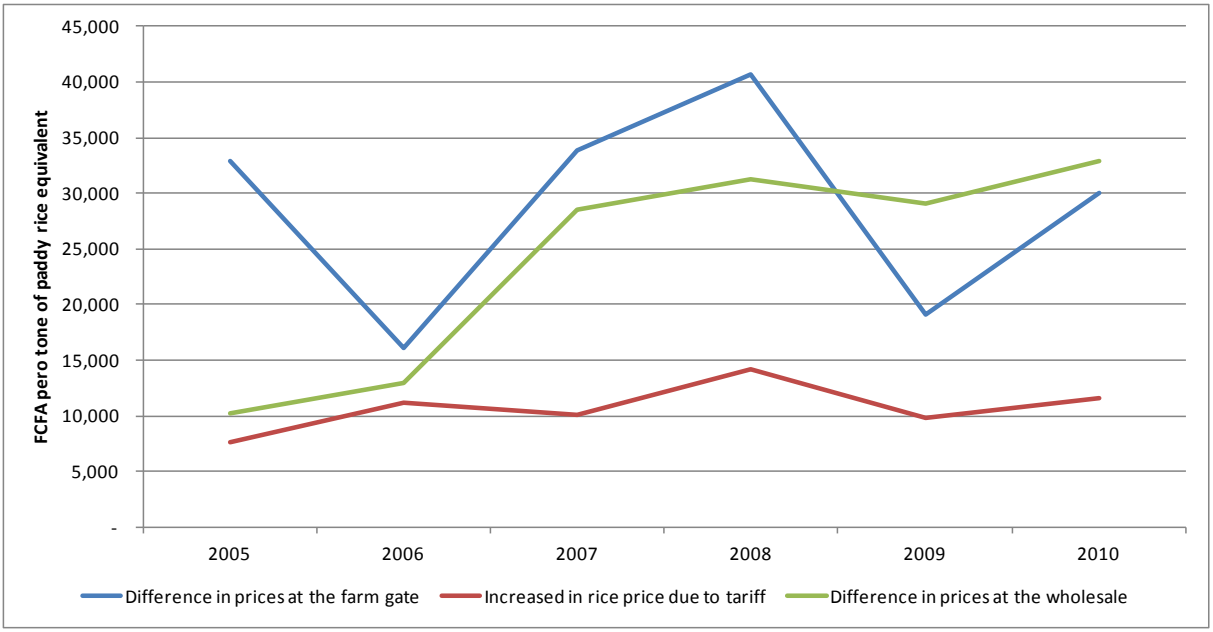
Key messages

- **Although Burkina Faso's economy has been growing at a steady pace, it has not been enough to reduce poverty.** Since the agricultural sector contributes to 25 percent of the gross domestic product, any poverty reduction strategy needs to include agricultural growth as a key objective.
- **Policy measures implemented between 2005 and 2010 have sometimes conflicted with overall policy objectives of sustained increase of agricultural growth and rural incomes. Furthermore, many commodities have been neglected.** During the high food price crisis, most policies focused on lowering prices for consumers. These included waiving tariffs on imported food, instituting price controls, and controlling exports. However, these measures decreased revenues for farmers and neutralized the benefits of other measures aimed at fostering productivity (i.e. fertilizer subsidies). Most commodities studied lacked a specific policy or strategy.
- **Despite progress made in adopting a more coordinated and sectoral approach, agricultural policies are implemented through a myriad of programs, projects and trade policies, without clear priorities.** Furthermore, several programs and policies have been cancelled before they were fully implemented.
- **On average, farmers in Burkina Faso have been receiving prices below what they would receive in the absence of current policies and with more efficient markets.** From 2005 to 2010, the prices that farmers received were 10 to 15 percent below what they could have obtained. This has limited both farmers' incomes and their capacity to invest.
- **Lower prices for farmers have not necessarily translated into lower prices for consumers.** Producer's prices for maize, one of Burkina Faso's main staples, were consistently lower than what they could have been. On the other hand, maize wholesale prices were higher than those that would have prevailed with more efficient markets.
- **Farmers growing specific products, in particular rice, cotton and sorghum, received higher prices than what they would have received in a policy free and efficient market environment.** The reasons for this are diverse: import tariffs keep prices high for rice

farmers, but lead to higher prices for rice consumers. Cotton farmers receive higher prices from the three domestic cotton boards - the sole buyers for cotton in Burkina Faso. However, cotton is often exported at a loss. Sorghum prices in Burkina Faso are higher than regional benchmark prices, which creates production incentives. Nevertheless most producers export to neighboring countries instead of marketing the sorghum domestically and benefitting from high prices.

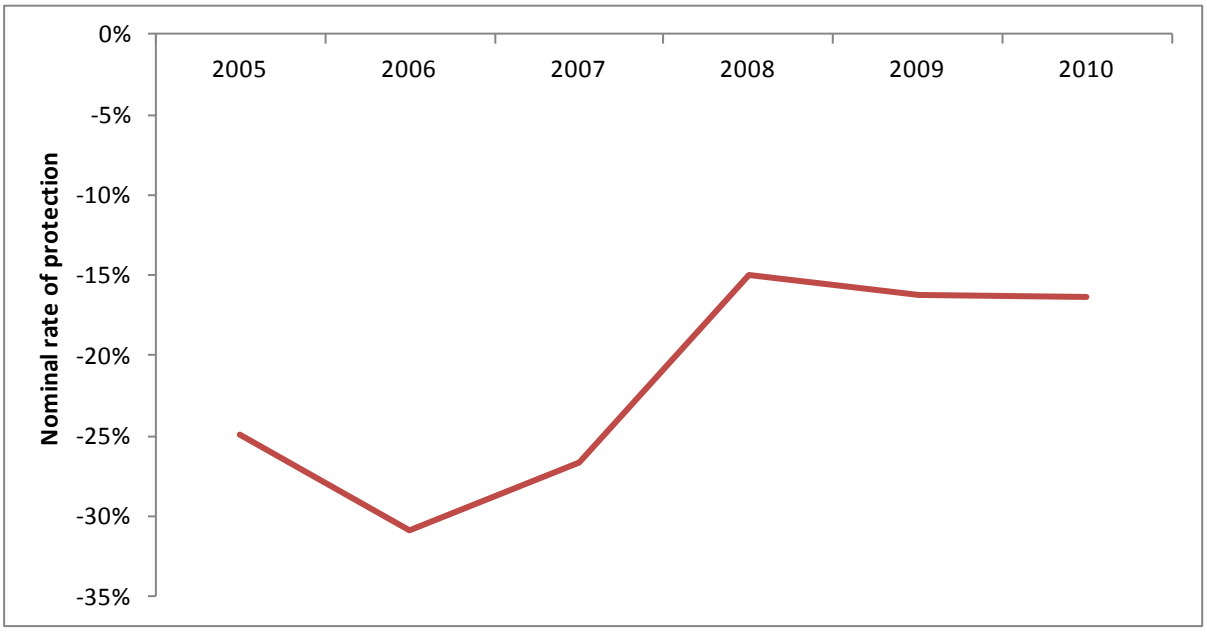
- **Current policies are the main source of incentives for producers, while underdeveloped markets are the main reason for disincentives.** High producers' prices compared to reference prices are mostly due to policies such as import tariffs and price setting schemes. However, in cases when producers' prices are lower than the reference price, it is mostly due to inefficient markets or non-explicit trade barriers such as red tape at borders.
- **Rice farmers receive higher prices mainly due to the protection offered by the common external tariff of the West African Economic and Monetary Union (WAEMU). The current value chain structure provides few incentives to rice farmers, while contributing to higher prices for consumers.** However the common external tariff is not the only reason why farmer experience high prices. Indeed, Figure 1 shows that the level of protection received by producers is higher than what should derive from the tariff: in 2008 and 2009, the tariff was lifted but producers and wholesalers nonetheless received prices higher than what would be expected.

Figure 1. Expected tariff protection versus protection revealed by MAFAP, for rice, 2005-2010



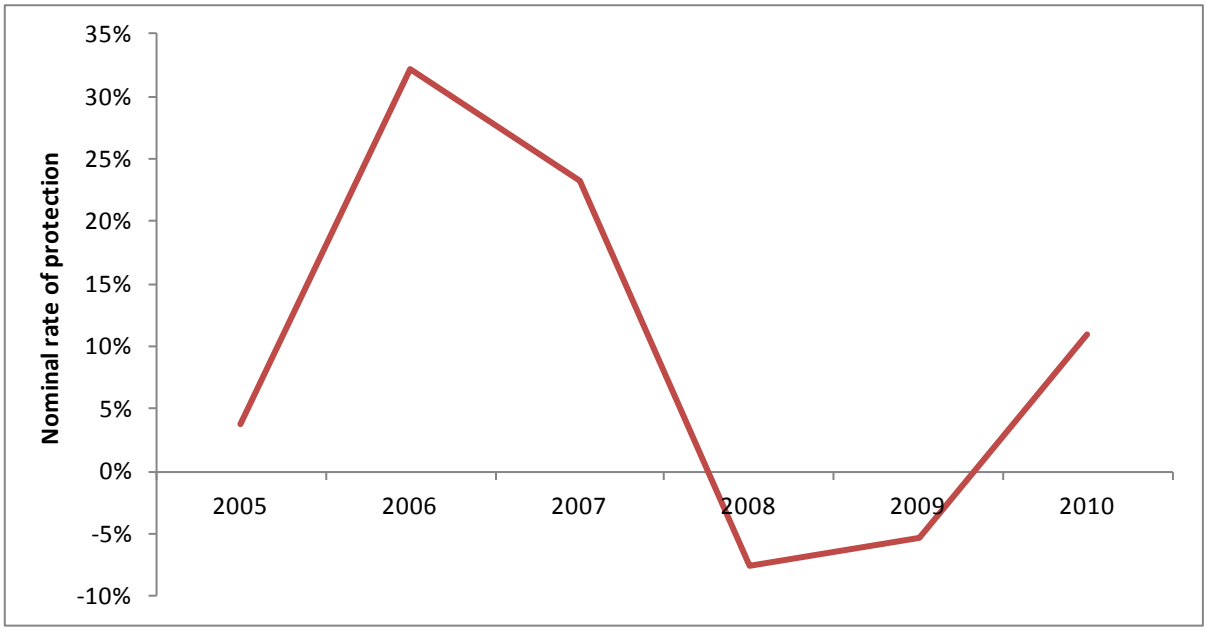
- **Even though Burkina Faso does not tax agricultural exports, farmers do not benefit from higher prices in regional markets due to poorly functioning value chains.** For all commodities except cotton, extra costs are mainly due to excessive transport costs and lengthy border crossing procedures (Figure 3). Farmers would greatly benefit from domestic policies aimed at lowering marketing costs.

Figure 2. Policy through price incentives support for export commodities (excluding cotton), 2005-2010



- **The 2007 to 2008 food price spikes corresponds to an increase in disincentives for farmers. This was because government policies focused on making food more affordable for consumers.** Producer prices for import commodities did not follow the international price spike due to import tax lift or ceiling prices, and prices also remained low for thinly traded commodities, often important for food security, which are disconnected from the regional or international market. As a consequence, after 2007, there was a sharp decline in producers' incentives for commodities important for food security (see figure 3).

Figure 3. Policy support through price incentives for commodities important for food security in Burkina Faso (2005 – 2010)

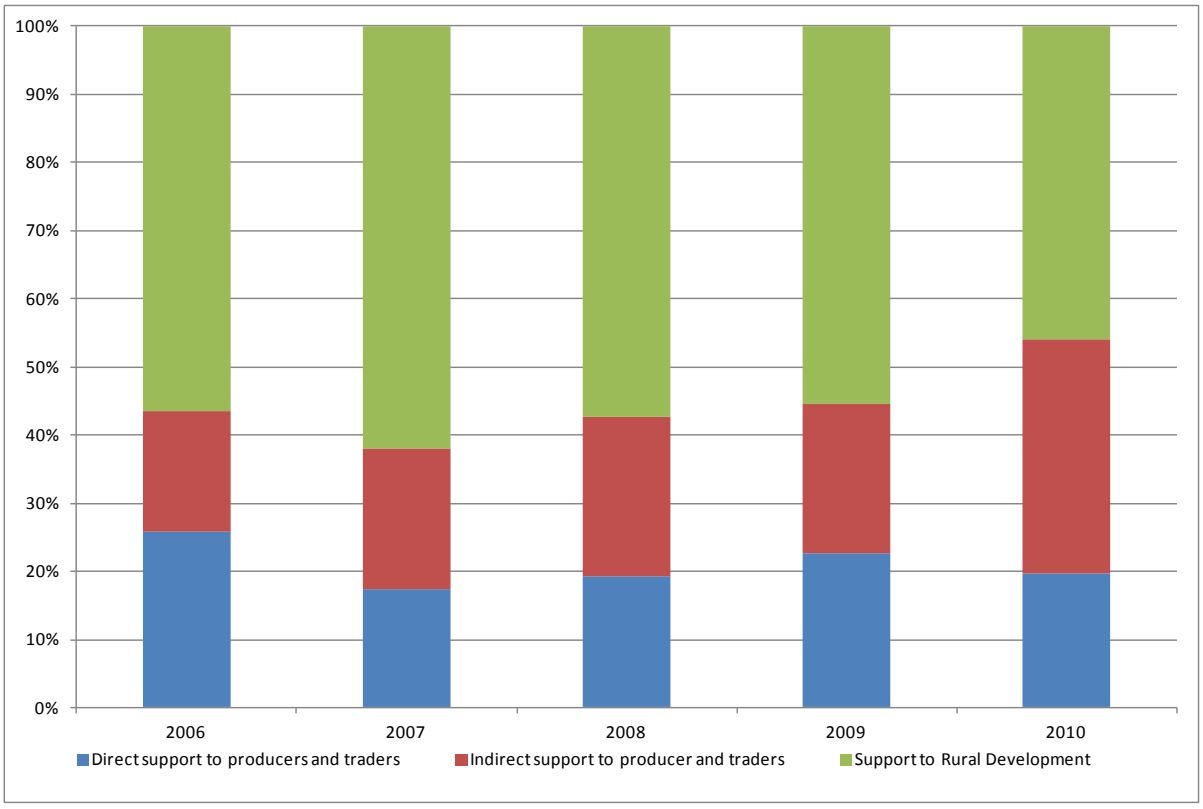


- **Burkina Faso's overvalued currency penalizes farmers.** The overvaluation of the CFA franc means that producers of all commodities, except rice, are receiving lower prices than they would be able to obtain if the franc was realigned to the US dollar. However, realigning the franc would cause consumer prices and the cost of imported inputs to increase.

- **Although Burkina Faso still allocates more than ten percent of its budget to the agricultural sector, the overall share has decreased by four percent in the last five years.**

- **The composition of public expenditure has been shifting away from general rural development towards agriculture-specific policies.** Furthermore, agriculture-specific expenditure has shifted towards more general support (i.e. training, agricultural research and off-farm infrastructure) and away from direct payments to farmers and other people working in the agricultural sector (figure 4).

Figure 4. Evolution of the composition of public expenditure on agriculture in Burkina Faso (2006 -2010)



- **Although underdeveloped markets are the main reason farmers receive lower prices, there is limited support for improving infrastructure that would make markets more efficient.** In particular, public expenditure on marketing and storage infrastructure, and rural roads, remains limited.

- **Almost 90 percent of commodity specific public expenditure goes to rice and cotton.** Commodities that are most important for people's diet are not targeted by specific policies or strategies.
- **The impact of agricultural investment varies.** Horticultural products and cotton have had the most positive impact on economic growth. Cotton and livestock have the biggest pull effect on the economy (ie. they generate additional economic opportunities related to processing by-products, etc) .

Conclusions

- **Additional efforts are needed to ensure that Burkina Faso achieves its short- and medium-term agricultural policy objectives. Policies should focus more on improving value chains that foster economic growth.** In order to diversify agricultural production, the government should consider reducing the share of support going to rice and cotton and include other commodities in sectoral plans and strategies. Agricultural policies should not necessarily center on providing subsidies to producers. Instead, they can focus on reducing the cost of processing and transporting products within the country and to regional markets. Finally, it is important to monitor the actual implementation of such policies.
- **Reducing marketing and transport costs will help increase the incomes of farmers of export-oriented commodities.** Moreover, the government should examine policies governing the exports of commodities important for food security to see if they are consistent with its overall objective of promoting free trade.
- **Additional policy efforts should focus on creating a marketing environment that enables producers of staple crops to benefit from higher regional and international prices.** Improving market information, storage capacity and transportation will help reduce costs and increase income for producers.
- **The current pricing system for cotton in Burkina Faso may be unsustainable since it is based on high prices for farmers and low prices for ginners.** The government, with support from the French cooperation agency, has been investing significant amounts on price fixing schemes and input subsidies. A more sustainable approach would focus on increasing the added value of cotton by-products (such as cotton oil and cotton seed), which currently are underdeveloped. Moreover, this would allow the government to devote more resources to other commodities and thereby enhance agricultural diversification.
- **The share of public expenditure on agriculture should not be further reduced.** Moreover, expenditure on rural development should not be neglected.

Introduction

The MAFAP (SPAAA) project aims to help African policy makers and various development partners to ensure that policies and investments in agriculture and rural development focus on agriculture, sustainable use of natural resources and strengthening food security.

From this perspective, the MAFAP project conducted a thorough analysis of agricultural and food policies implemented as a result of analyses carried out into the structure, level and composition of public spending, and incentives and disincentives faced by different actors in the country's main agricultural sectors.

This report is the first review of policies made in this project. The report was drawn from ten technical notes that provide detailed and innovative analyses covering nine leading products representing 85 percent of the value of agricultural production in Burkina Faso. These also absorb a large share of government expenditure and aid. The technical notes, which constitute the full results of the MAFAP project, are available in addition to the report.

This review is to be updated periodically as part of a biennial country report, identifying key developments in the sector.

The main objective of this review is to support dialogue on food and agricultural policies in Burkina Faso between the principal decision-makers and also with development partners. The report offers concrete results achieved with the implementation of a rigorous methodology for measuring the effects of agricultural and food policies and those of public spending in agriculture and rural development. The approach adopted is new: this is the first time that it has been used in Burkina Faso. The report aims to shed new light on the rural and agricultural sector in Burkina Faso, that will prove useful and helpful to decision-makers and prompt them to support a move to institutionalize this type of work in Burkina Faso. It is true that the MAFAP/SPAAA seeks to clarify and inform debate on policy reform. However, this project does not aim to promote or influence specific reforms, nor adjustments designed from outside the country. Such developments must be endogenous and, if they occur, they must lead to a dialogue on government policies between stakeholders in the country.

Furthermore, this report does not claim to be an exhaustive presentation either of method or viewpoints. For this reason, it is important that the policy dialogue that it engenders should be supplemented by other contributions proposed by various institutional actors who will make valuable observations on the situation regarding agricultural and food policies in Burkina Faso.

The report has three main parts:

- The first part offers a description and analysis of the context of government policy in Burkina Faso, notably through selected development performance indicators (DPI). There is also a description of the main government policy decisions in the field of food and agriculture policy in Burkina Faso.
- The second part constitutes the core of the report. Firstly, it presents the incentives and disincentives to production observed for the ten main products studied. Subsequently, the level,

composition and efficiency of public expenditure and aid are studied in depth. Finally, the coherence of government policy is explored and discussed.

- The third part deals with a topic of specific national interest to the country – the choice of a national team. This year, this part focuses on an analysis of the ripple effects of the countries studied, for the sector and the national economy on the one hand, and on a discussion of the finance model for agriculture on the other.

Part 1. Context of food and agricultural policies

This section presents and analyzes the development and performance indicators (DPI) common to all countries covered by the MAFAP project. The choice of a common group of indicators was made, so as to facilitate comparison between countries but also developments within the same country over time (see Table 1 below).[1]

1. Burkina Faso in brief

The agriculture sector scores good performances but remains extensive and is still dominated by cotton

During the past decade, the economy of Burkina Faso has seen considerable growth, but this remains insufficient to bring about a significant reduction in poverty, given the country's high population growth. The agriculture sector is performing well, with a 9 percent growth rate of agricultural GNP in 2010 (MEF/IAP, 2012). As such, it has made a major contribution to national economic growth, notwithstanding the mining boom. Indeed, gold has become one of the country's main exports. In 2009, agriculture contributed to 35.3 percent of GNP and accounted for more than 37 percent of national exports (MEF/IAP 2012, FAOSTAT 2012). Agricultural activity remains extensive, dominated (72 percent) by small-scale farms of less than 5 ha in 2008 (MEF/IAP, 2012). Agricultural production is dominated by cereals and cotton, and dry cereals and rice are the main foods consumed (DGPER, 2010). Cotton aside, to which the government has dedicated special attention for a number of years, commodity sectors are poorly structured. They face trade challenges linked to insufficient integration of the agricultural economy into the sub-regional and global market, and to an inadequate communications network (rural roads). Organizing rural areas remains a cause for concern for the government. Farms also face constraints of poor access to inputs, low levels of equipment and problems of finance. In 2008, just 0.2 percent of farms were estimated to use a tractor (DGPER, 2011). Several promising sectors have been identified and their development should encourage diversification and a higher value added component for the sector, as a way of increasing revenues for farmers. In addition, there is good scope offered by, amongst other features, the availability of agricultural land, the potential for irrigation, significant herds of livestock and the young average age of the population, all factors that promise a bright future for the agricultural sector.

High population growth with negative effects on the environment and living standards
Burkina Faso has a high rate of population growth – one of the highest in the world, estimated at 3.1 percent in 2006, with a total fertility rate of 6.2 births per woman (INSD, 2006). The population is very young, with an average age of 21.8 years and has a high rate of both births and deaths. The strong growth in population, 77 percent of which is rural (INSD, 2006), has significant negative effects on the environment. Increasing areas of concern are deforestation, linked to the fact that farming is mainly extensive, and high levels of waste and wastewater production (FAOSTAT, 2010; MEDD, 2011). Annual deforestation rates were estimated at 1.03 percent over the period 2005-2010 (FAOSTAT, 2012). Despite good macroeconomic performances, poverty levels remain high with 43.9

[1] The data cited in this section are developed and referenced in the text of the report.

percent of households living below the poverty threshold in 2009. It is estimated that 72.56 percent of the population lives on less than two US dollars a day (INSD, 2010; World Bank, 2012). This poverty has an even greater impact on rural communities where the incidence of poverty rises to 50.7 percent, compared with 19.9 percent in urban areas (INSD, 2010). Levels of income inequality are falling, but they remain high. Youth unemployment levels are high, especially in urban areas. It has reached 15.7 percent for 20 to 24 year-olds, while the national average is only 2.4 percent (INSD, 2010). Such precarious conditions often cause social unrest. According to data gathered during the general census of 2006, internal migration is increasing, especially the rural exodus, and migration flows to neighbouring countries are significant.

A predominantly illiterate population with still precarious health, dietary and nutritional conditions and marked inequalities between genders

Burkina Faso's health system faces a number of challenges. Rates of maternal and infant mortality, respectively 307 for 1000 births and 81 for 1000 births, are among the highest in the world (Ministry of Health, 2012). The proportion of stunted children is around 36 percent and nearly 32 percent are underweight (Ministry of Health, 2012). In addition, the average incidence of HIV infection in the adult population of Burkina Faso was estimated at 1.6 percent in 2007 (UNAIDS, CNLS-IST, 2010). Health services continue to face a great many problems, notably those linked to inadequate human and material resources, insufficient health centres and long distances between those that do exist, and the absence of a social welfare scheme. In spite of these challenges, less than 10 percent of the national budget is allocated to the health sector and a significant share of the health budget is derived from external funding (29.1 percent in 2011) (Ministry of Health, 2012). Nevertheless, the health system has made considerable progress, notably in vaccination cover and the increased number of attended births. Living conditions do not favour effective disease prevention and they contribute to increased malnutrition. Rates of access to drinking water and sanitation remain worryingly low and agricultural production does not manage to cover the food needs of the population in terms of either quantity or quality (INSD, 2011; Ministry of Agriculture and Water, 2011). Food products are dominated by cereals, which are poor in vitamins (FAOSTAT, 2012). The population is predominantly illiterate, with a literacy rate of just 28.3 percent for people over 15. (Ministry of Basic Education and Literacy, 2011). Despite the efforts of government and its partners, not all school age children have access to education: the gross enrolment rate in primary school was estimated at 77.6 percent in 2011 (Ministry of Basic Education and Literacy, 2011). Rates of enrolment in secondary and higher education are low, with a national level of 32.3 percent and 4.8 percent respectively (Ministry of Secondary and Higher Education and Scientific Research, 2011). All this comes against a backdrop of gender inequalities and disparities, which make themselves felt in all aspects of economic and social life.

Table 1. Development and performance indicators (DPI)

Domain	No.	Indicator	Latest available statistics for Burkina Faso	Reference for Africa	Reference for the world
1. Macroeconomic performance	**DPI 1**	Share of agricultural value added/GDP (MEF)	35.3% (2009)	13.29% (2009) Sub-Saharan Africa (WDI)	2.76% (2009) (WDI)
	DP1 2	Growth of agricultural GDP (WDI)	9% (2010)	4.35% (2010) (Sub-Saharan Africa)	2.74% (2010)
2. Performance of agriculture and rural sector	**DPI 3**	Share of agricultural land use (% national land) (DGPER)	17.49% (2011)		
	DPI 4	Share of agricultural exports/total exports, in value (IAP/MEF, FAOSTAT)	37% (2009)	8.78% (2009)	7.56% (2009)
	DPI 5	Value of agricultural imports/total imports, in value (IAP/MEF, FAOSTAT)	20% (2009)	13.08% (2009)	7.75% (2009)
	DPI 6	Share of small farms - less than 5ha (General Agriculture Census, 2008)	72% (2008)		
3. Input market and constraints for sector development and performance	**DPI 7**	Fertilizer use, kg/ha on arable land (WDI)	9.13 (2009)	10.46 (2009) (Sub-Saharan Africa)	122.13 (2009)
	DPI 8	Share of farms with a tractor (General Agriculture Census, 2008)	0.2% (2008)		
	DPI 9	Doing Business Index on the extent of legal rights and credit information (WBI)	3 out of 10/1 out of 6 (2012)	NA	NA
	DPI 10	Share of paved roads/total road network (WDI)	4.17% (2004)	18.3% (2004) (Sub-Saharan Africa)	45.02% (2004)
4. Environment and agriculture	**DPI 11**	Share of total land used for permanent meadows and pastures (FAOSTAT)	21.93% (2009)	30.62% (2009)	25.81% (2009)
	DPI 12	Rate of deforestation (FAO GFRA)	1.03% (2005-2010)	0.5% (2005-2010)	0.14% (2005-2010)
5. Demography	**DPI 13**	Average population growth rate (INSD)	3.1% (2006)	2.5% (2006) (Sub-Saharan Africa) (WDI)	1.15% (2006) (WDI)

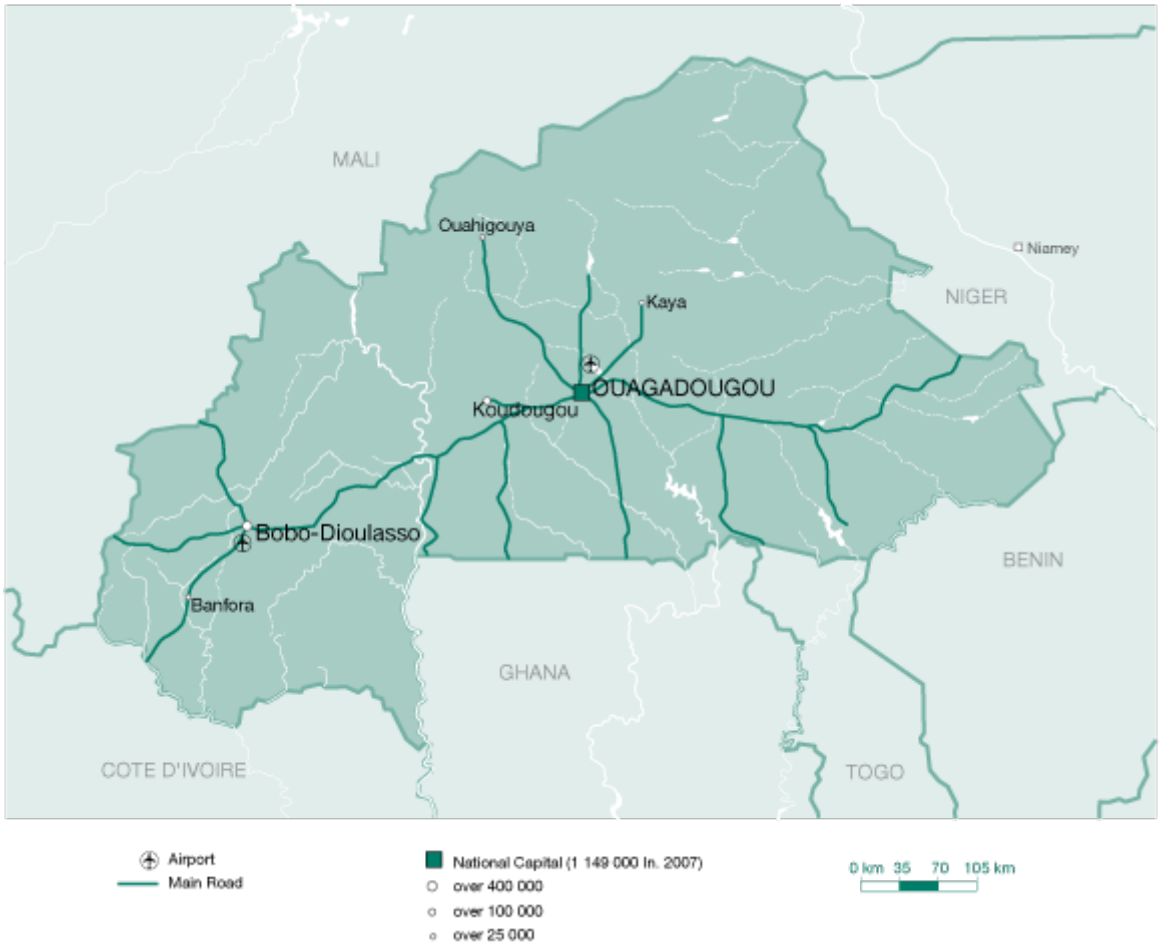
	DPI 14	Mortality and birth rate (WDI)	Mortality: 11.89/1000; Birth: 43.20/1000 (2010)	Mortality: 12.55/1000; Birth: 37.44/1000 (2010)	Mortality: 8.18/1000; Birth: 19.59/1000 (2010)
	DPI 15	Total fertility rate (WDI)	5.85 births/ woman (2010)	4.94 births/ woman (2010)	2.46 births/ woman (2010)
6. Poverty, inequality and employment	**DPI 16**	Share of the population living below the national poverty threshold (INSD)	43.9% (2010), in rural areas: 50.7% (2010)	NA	NA
	DPI 17	Per capita gross national income (constant $PPP 2005) (UNDP)	US$ 1,141 (2011)	US$ 1,966 (2011) (Sub-Saharan Africa)	US$ 10,082 (2011)
	DPI 18	Gini coefficient (UNDP)	39.6 (2010)		
	IDP 19	Unemployment rate (INSD)	3.3% (national)/ 0.6% (rural) (2010)		
7. Migration and urbanization trends	**DPI 20**	Rural population as proportion of total population (WDI)	79.6% (2010)	62.6% (2010) (Sub-Saharan Africa)	49.3% (2010)
	DPI 21	Urban population growth rate (WDI)	5.06% (2010)	3.87% (2010) (Sub-Saharan Africa)	2.00% (2010)
	DPI 22	Net migration rate (UNDATA)	-1.6 (2005-2010)	-0.7 (2005-2010)	NA
8. Food security and socio-sanitary conditions	**DPI 23**	Human Development Index (UNDP)	0.331 (2011)	0.463 (2011) (Sub-Saharan Africa)	0.682 (2011)
	DPI 24	Mortality rate for children under 5 (per 1000 live births) (UNDP)	166 (2009)	129 (2009)	58 (2009)
	DPI 25	Proportion of births attended by skilled health provider (UNDP)	54% (2005-2009)	47.7% (2005-2009) (Sub-Saharan Africa)	76.4% (2005-2009) (Sub-

					Saharan Africa)
	DPI 26	Prevalence of undernourishment (FAO)	8% (2006-2008)	23% (2006-2008)	13% (2006-2008)
9. Education and gender	**DPI 27**	Gross enrolment rate for primary education (UNESCO)	79.44% (2011)	99.86% (2009) (Sub-Saharan Africa)	107.11% (2009)
	DPI 28	Adult literacy rate (% of 15-year-olds and over) (UNDP)	28.7% (2005–2010)	61.6% (2005–2010)	80.9% (2005–2010)
	DPI 29	Gender inequality index (UNDP)	0.596 (2011)	0.610 (2011)	0.492 (2011)
	DPI 30	Rate of economic activity for women and men (UNDP)	Women: 78.2%, Men : 90.8% (2009)	Women: 62.9%, Men: 81.2% (2009)	Women: 51.5%, Men: 78.0% (2009)

2. Geographical context

Burkina Faso is a landlocked country situated in the heart of West Africa at the bend in the River Niger, between 9°20' and 15°05' North latitude, 5°20' West longitude and 2°03'East longitude. It is spread over a surface area of 273,187 km². It is bordered to the North and West by Mali, to the East by Niger and to the South by Côte d'Ivoire, Ghana, Togo and Benin (Figure 5).

Figure 5: Map of Burkina Faso



Source : African Economic Outlook, 2012

For administrative purposes, Burkina Faso is divided into 13 regions, 45 provinces (see Figure 6), 350 departments and 8,337 villages. The largest region is that of the *Est*, which accounts for 17.17 percent of total national territory. This is followed by the *Sahel* region. The smallest region is *Kadiogo* (1.05 percent), followed by *Plateau Central* (3.13 percent of total national territory). The characteristics of the different regions are presented in Table 2.

Table 2 : Administrative organization of territory of Burkina Faso

Regions	Surface area (Km²)	%	Cultivated area (% total surface area cultivated in 2011)	Number of departments	Number of Villages
Boucle du Mouhoun	34,497	12.63	18	47	1,042
Cascades	18,663	6.83	4	17	264
Centre	2,857	1.05	2	6	160
Centre-Est	14,722	5.39	7	30	676
Centre-Nord	18,212	6.67	7	28	757
Centre-Ouest	21,853	8	10	38	563
Centre-Sud	11,326	4.15	4	19	508
Est	46,807	17.13	9	27	806
Nord	17,885	6.55	8	31	821
Hauts-Bassins	25,606	9.37	13	33	479
Plateau Central	8,571	3.14	4	20	530
Sahel	35,612	13.04	6	26	645
Sud-Ouest	16,576	6.07	6	28	1,086
BURKINA FASO	**273,187**	**100**	100	**350**	**8,337**

Source: IGB, INSD, MATD, DGPER, 2012

Burkina Faso's geographical position gives it particular characteristics in terms of climate, soil and vegetation.

The climate of Burkina Faso is Sudanian, characterized by alterning dry and rainy seasons, the latter lasting from three to six months, depending on the area. The wet season goes from June to September and is dominated by humid winds from the southwest (monsoon) coming from the Gulf of Guinea. On average, the dry season lasts from November to April, lasting longer in the North. It is characterized by northeast winds (harmattan) which carry dust. May and October are transitional months. The alternation of the two types of season is determined by movement of the Intertropical Front (ITF).

The spatial distribution of rainfall makes it possible to distinguish three main climatic zones in Burkina Faso :

- ✓ **The Sahelian zone**: situated to the north of parallel 14°00'N. It is characterized by average annual rainfall of between 300 and 600 mm, concentrated over three months. This is the

driest zone, which often has less than two months of rainy season. Rainfall varies widely from one year to another and over time and space. There are often substantial daytime and annual temperature differences and very high rates of Potential Evapotranspiration (PET) during the hot period (from March to June). This zone covers about 25 percent of the country's surface area.

- ✓ **The Sudan-Sahelian zone :** situated between parallels 11°30' and 14°00'N, it is characterized by an average rainfall of between 600 mm and 900 mm spread over four or five months during the rainy season. Daytime and annual temperature differences are less marked than in the northern part of the country, and PET levels are moderate. It covers the centre of the country and is the largest climatic zone.

- ✓ **The Sudan-Guinea zone** : situated south of parallel 11°30', it has average annual rainfall of between 900 and 1,200 mm, spread over six to seven months. This is the most humid zone. Daytime and annual temperature differences and PET levels are relatively low.

The scarcity and poor distribution of rainfall drives more and more people to migrate, principally from the north and centre towards the towns and the southwest of Burkina Faso and coastal countries. The temperature ranges between 16 and 45 degrees Celsius; average annual evaporation is estimated at 3,000 mm and annual groundwater recharge is put at 40 mm.

3. Socio-Economic context

Macroeconomic performance

A growing yet unstable economy, dominated by the tertiary and primary sectors

The economy of Burkina Faso is enjoying strong growth, despite cyclical crises and climatic variations. However, economic analyses carried out during the development of the Strategy for Accelerated Growth and Sustainable Development (SCADD) showed that the current economic growth rate is insufficient to bring about a significant reduction in poverty. SCADD aims to achieve double digit growth by 2015 (SCADD document, 2010).

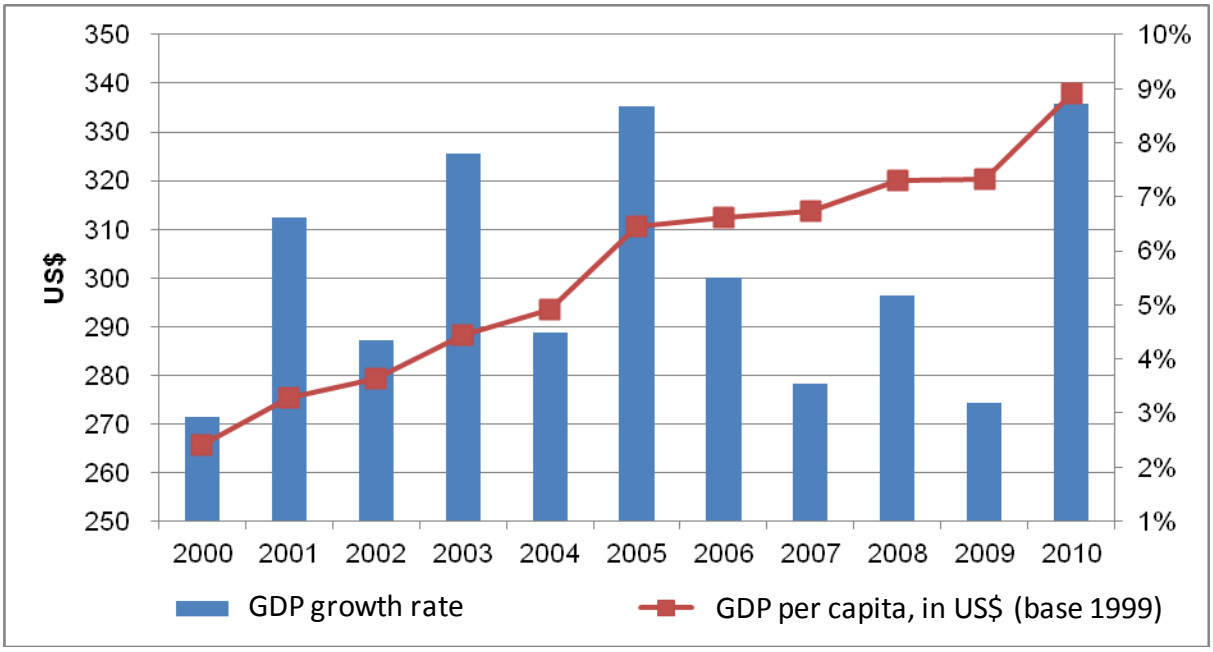
During the past decade (2000-2010), GDP has risen from 1,890 billion in 2000 to 3,317 billion in 2010, with an average annual growth rate of 5.54 percent (MEF/IAP, 2012). However, in view of the population growth rate (3.1 percent), it will take about 35 years to double per capita income, and in so doing maintain the current economic growth rate (SCADD document, 2010).

Despite this overall performance, the per capita GDP remains one of the lowest in the world, with a ten-year average of US$302 (MEF/IAP, 2012). Growth in per capita GDP is much weaker than overall GDP (Figure 6). The ten-year average growth rate for per capita GDP is about 2.15 percent (MEF/IAP, 2012). In some years, it is even negative. This reflects a weak level of productivity of the national economy.

Recent years have been marked by a slowing of growth, mainly due to the global economic crisis. The years 2007 and 2009 are evidence of this, with respective growth levels of 3.55 percent and 3.19 percent (MEF/IAP, 2012). Other outside factors such as climate and the political crisis in Côte d'Ivoire

have also had a negative impact on the national economy.

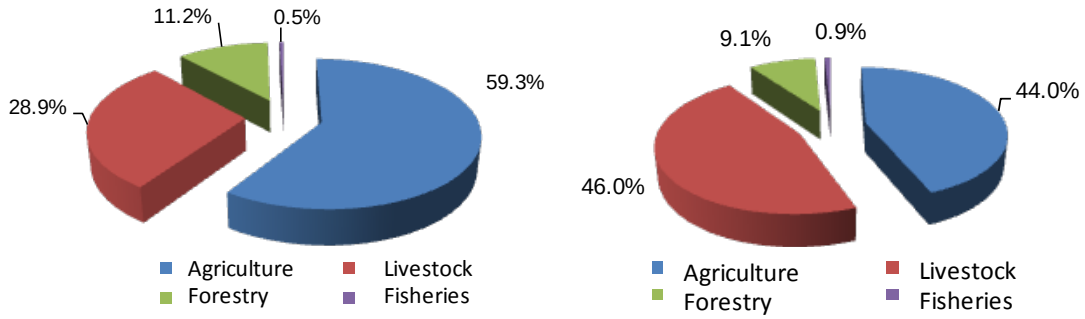
Figure 6: Development of GDP and per capita GDP



Source: IAP 2012

The primary sector (crop production, livestock, forestry and fisheries) makes a major contribution to the national economy. This sector is dominated by agriculture (cash crop and subsistence production) and livestock keeping, which together accounted for more than 90 percent of value added for the sector in 2010 (MEF/IAP, 2012). The contribution of livestock keeping saw a significant increase between 2001 and 2010, rising from 28.9 percent to 46 percent of value added of the primary sector. This was mainly achieved at the expense of agriculture, which dropped from 59.3 percent to 44 percent (MEF/IAP, 2012).

Figure 7: Repartition of value added in the primary sector in 2001 and 2010



Source: IAP 2012

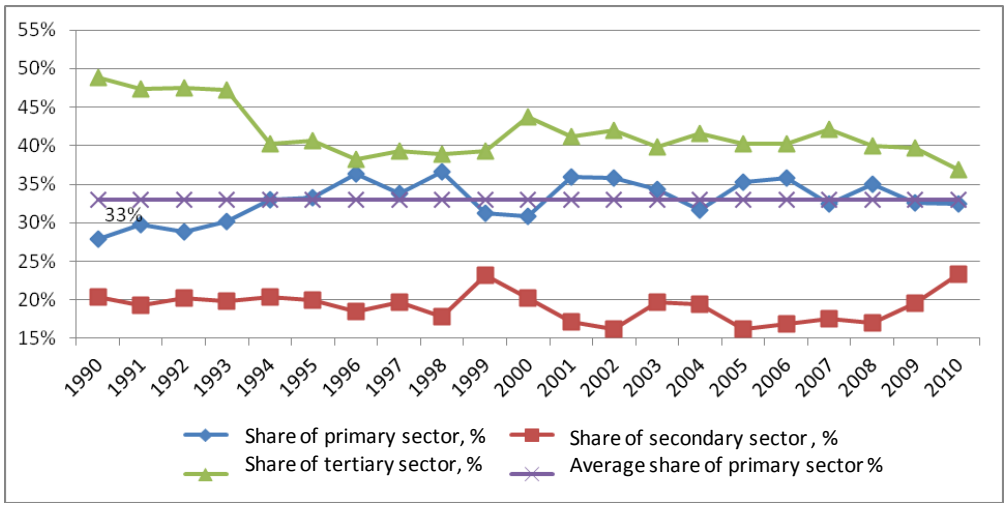
The mining boom causes a fall in the contribution of the agriculture sector to economic growth

An analysis of the contribution to GDP (baseline 1999) by the various sectors of the economy reveals that the tertiary sector has been dominant during the past twenty years. Agriculture, through the primary sector, comes in second place, with an overall contribution of 27.2 percent (Figure 12), although there is a noticeable downward trend in the contribution of the primary sector, to the advantage of the secondary and tertiary sectors.

The contribution of the agriculture sector to GDP hovered around a ten-year average of 34 percent during the period 2000-2010 (MEF/IAP, 2012). During the period 1990-2010, the agriculture sector made an average contribution of 32.46 percent to GDP. A detailed analysis of the development of this sector's contribution to GDP during the period 1990-2010 shows:

- ✓ Between 1990-1996, a high upward trend, with the contribution rising from 27.63 percent in 1990 to 35.28 percent in 1996, profiting from a decline in performance of the two other sectors, especially the tertiary sector, whose share of GDP fell from 48.79 percent to 38.3 percent (MEF/IAP, 2012).
- ✓ Between 1996 and 2006, a new decline, with an average contribution from this sector of about 34.1 percent (MEF/IAP, 2012).
- ✓ From 2006 onwards, a downward trend in the contribution of the primary sector to GDP, linked notably to climate factors and global economic and food crises, with an average of 33.6 percent (MEF/IAP, 2012). In 2010, the lowest level of contribution since 1994 was recorded, with a figure of 33 percent (MEF/IAP, 2012).

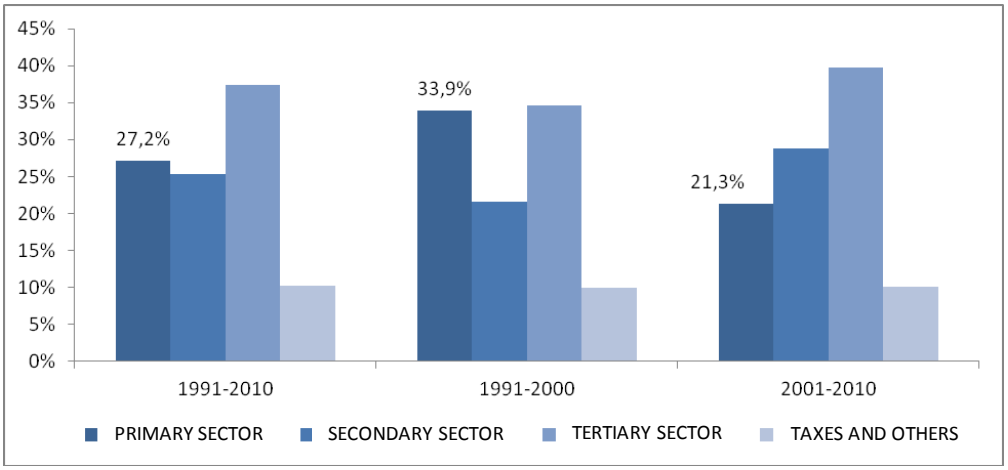
Figure 8: Share of economic sectors in GDP



Source: IAP 2012

Overall, the economy was therefore dominated by the tertiary sector for the whole period 2001-2010 (MEF/IAP, 2012). However, during the last three years, a decline in contribution from this sector was observed, with a rise in that of the secondary sector. This was particularly due to the growing importance of mining to the economy, with gold replacing cotton as the chief export.

Figure 9: Contribution of economic sectors to GDP

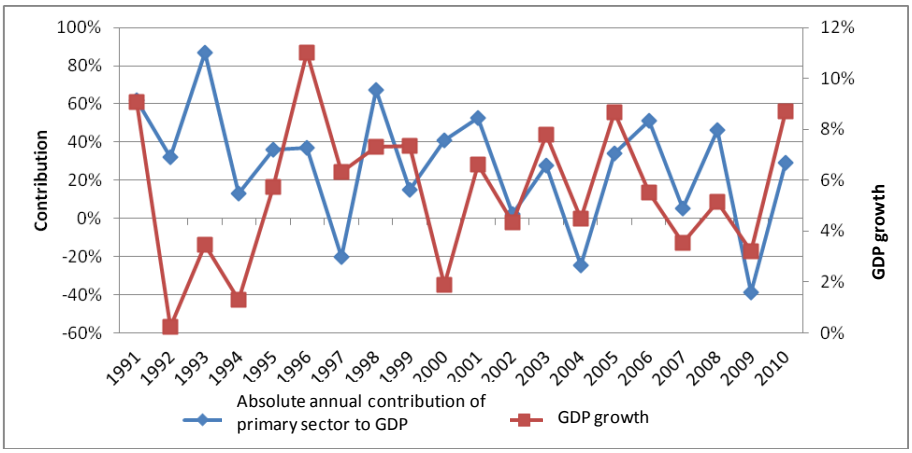


Source: IAP 2012

The development of absolute annual contributions by the primary sector to GDP between 1991 and 2010 shows that the sector made a positive contribution throughout the entire period, with the exception of the years 1996-1997, 2003-2004 and 2008-2009[2].

A comparative analysis of the development of contributions with that of economic growth (Figure 10) reveals that each time that the absolute contribution of the primary sector falls, global economic growth suffers a significant decline. This shows that agriculture is an engine for growth. The 67 percent rise in the contribution of the primary sector to GDP between 2009 and 2010 corresponded with a revival in growth of 6 percent.

Figure 10: Development of annual contributions by the primary sector to GDP, in %



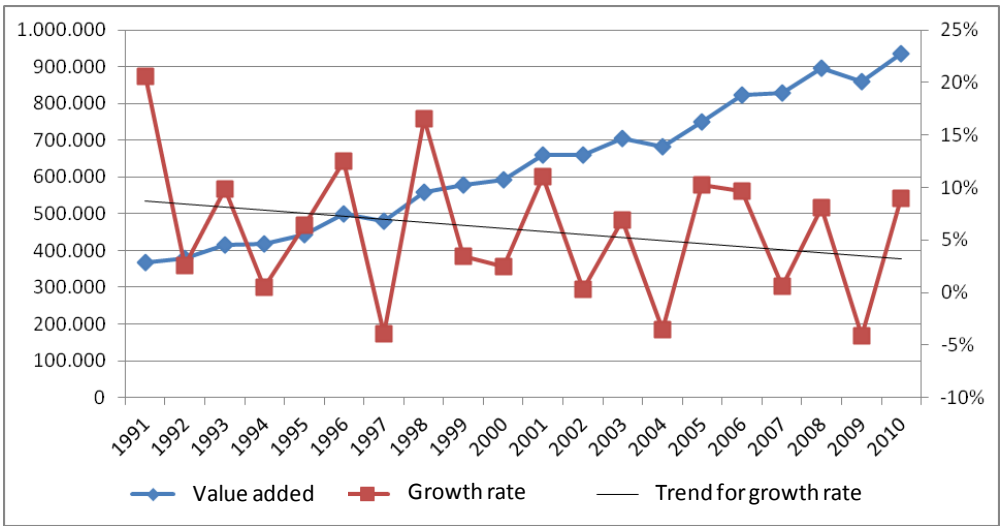
Source: IAP 2012

[2] The absolute contribution of the primary sector to GDP is the proportion of the absolute variation in GDP linked to that of the primary sector. It is calculated by determining the ratio between the absolute difference in value added for the primary sector and the absolute difference in GDP in absolute value between the two given periods.

An upward trend in agricultural value added, but a decline in global performance

The past twenty years have seen a structural increase in value added (baseline 1999) from the agriculture sector, rising from 368 billion FCFA in 1991 to 936.4 billion FCFA in 2010, the equivalent of an overall growth of 154 percent. However, an analysis of annual growth levels for value added reveals a structural decline in performance for the sector from 1998 onwards. With the exception of 2001, annual growth levels were below the 10 percent threshold from 1999 to 2010, registering a downward trend. Overall during the decade 2001-2010, there was a rise of 42 percent in value added for the agriculture sector, which is 20 percent less than during the decade 1991-2000.

Figure 11: Dynamics of value added for the agriculture sector (baseline 1999), in billion FCFA (left axis) and per cent (right axis)

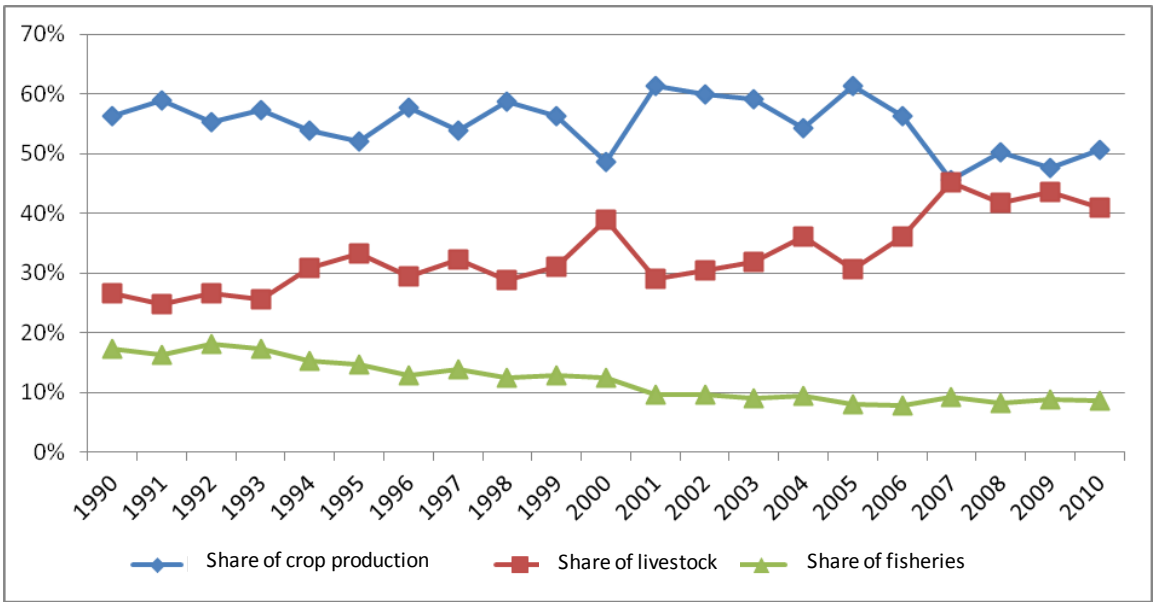


Source: IAP 2012

Over the entire period 1990-2010, value added for crop production (subsistence and cash crops) accounted for the largest share of agricultural value added. It can be seen that crop production clearly dominated agricultural value added between 1990 and 2005, with an average share of 57 percent, compared with an average of 30 percent for livestock and 13 percent for forestry and fisheries.

However, between 2005 and 2007, there was a decline in the contribution of crop production, which fell from 61 percent to 46 percent, a reduction of 15 percentage points. This was to the benefit of livestock keeping, whose contribution to agricultural value added rose from 31 percent to 45 percent, an increase of 14 percentage points. This could be explained by climate factors, which have a far greater negative effect on crop production, but also by a decline in cotton prices during the period 2005-2010.

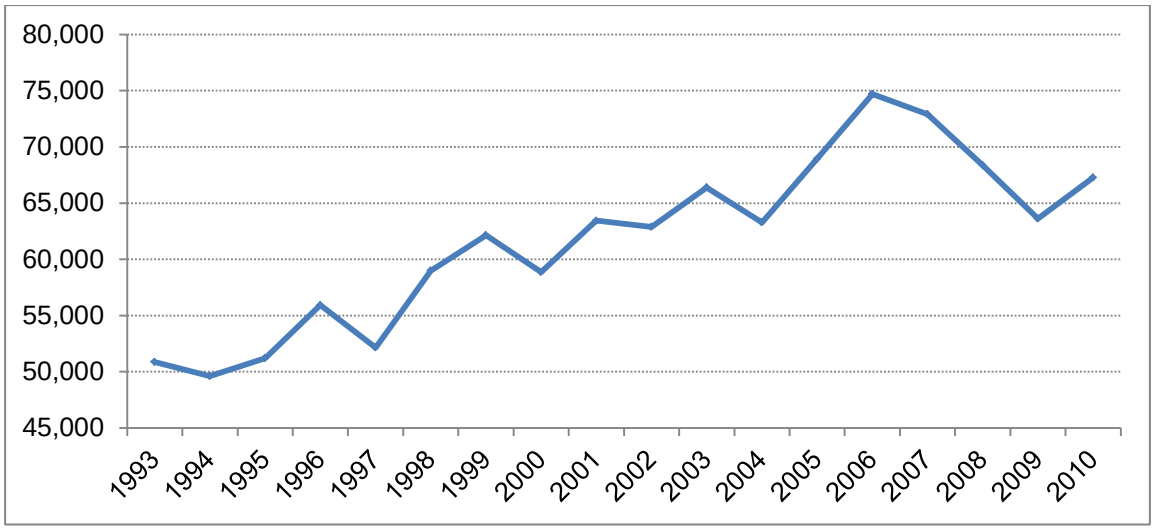
Figure 12 : Contribution of sub-sectors to agricultural value added (current prices)



Source: IAP 2012

Figure 12 shows the development of per capita agricultural value added (determined by the ratio of agricultural value added to the agricultural population) for the period 1993-2010. It can be considered as an approximate value for per capita revenue in rural areas. Between 1993 and 2006, there was an upward trend in per capita agricultural value added. This rose from 50,873 FCFA in 1993 to 74,702 FCFA in 2006, marking an overall increase of nearly 47 percent and an average annual growth rate of 3 percent for that period. Between 2006 and 2009, overall per capita agricultural value fell by almost 15 percent. This decline could be explained by the drought of 2007 followed by the food price crisis of 2008. A rise of 6 percent was observed between 2009 and 2010.

Figure 13 : Development of per capita agricultural value added between 1993 and 2010



Source: IAP 2012

Agricultural and rural development performance[3]

Agricultural production in Burkina Faso is relatively volatile since agriculture is mainly rainfed and therefore sensitive to climate variation. The coefficient of variation was 38 percent for the period 1984-2010.

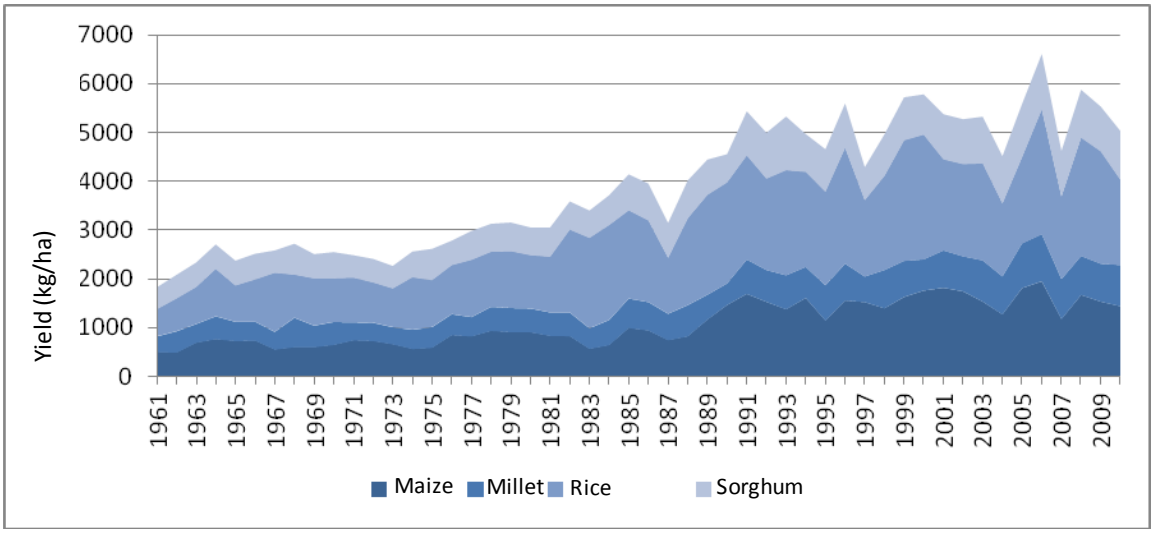
Agricultural production dominated by cereals and cotton

In Burkina Faso, the volume of agricultural production rose from 4 million tonnes in 2001 to 6 million tonnes in 2010, with an average annual growth rate of 14 percent. Production is dominated by cereals, which make up an average of more than 77 percent of cultivated surface area and accounted for more than 71 percent of total production for the period 2001-2010. Cereal production is itself dominated, to the tune of 44 percent, by sorghum, followed by millet, maize and rice, which account for, respectively, 31 percent, 21 percent and 4 percent of production. However, in terms of value added, maize and rice produced the highest levels of net value added per hectare (DGPSA, 2008). This level of value added justifies the interest of the government of Burkina Faso in these crops for its policies on food security and poverty alleviation. Produciton of rice and maize is expanding rapidly, increasing respectively by 4.1 and 3.7 times between 2000 and 2010. However, the country is still far from being self-sufficient in rice and has to resort to imports, which have only seen a slight decline, falling from 255,000 tonnes in 2008 to 249,000 tonnes in 2010.

An analysis of yields between 1961 and 2010 reveals that rice and maize remained the most productive crops throughout the period, with yields reaching 1,9 kg/ha for maize and 2,5 kg/ha for rice.

[3] Unless otherwise indicated, the figures analyzed in this section, are drawn from permanent agricultural surveys organized annually by the General Directorate for the Promotion of the Rural Economy.

Figure 14 : Development of yields of principal cereals for the period 1961-2010



Source: FAOSTAT, 2012

Cash crops accounted for an average of 18 percent of agricultural production in Burkina Faso between 2001 and 2010 and were mainly destined for export. In this sense, they are an important source of foreign currency for the national economy. In terms of volume, cash crop production is dominated by cotton, accounting for more than 61 percent, followed by groundnuts (34 percent) and sesame (4 percent). Cotton and groundnut production increased, respectively, to 529,620 tonnes and 340,166 tonnes in 2011.

Burkina Faso is one of the largest cotton producers in Africa. At global level, Burkina Faso holds the twelfth place, behind countries such as China, India, the United States of America, Pakistan and Uzbekistan. Cotton plays a key role in the country's poverty reduction strategy, providing a livelihood for almost 10 percent of the total population (IFDC, 2010). Cotton cultivation is the main source of cash revenue in rural areas, especially in cotton producing areas. It accounts for 26 percent of total export receipts and 25 percent of GDP (MEF/IAP, 2012).

Consumption centred on dry cereals and rice

Cereals have an important place in the diet of people in Burkina Faso. According to an analysis of the dynamics of consumption in Burkina Faso (DGPER, 2010), millet and sorghum account for the majority of food expenditure. Nearly 25 percent of household expenditure was on millet and sorghum in 1994, rising to 30 percent in 2003.

Wheat, wheat-based products, cereal-based products, fruit, vegetables and meat have also accounted for a greater share of expenditure in the past ten years. While tubers, legumes and vegetables are less widely consumed by households, dietary patterns regarding these products are changing, due to new techniques for conservation and horticulture (CNRST, CIRAD, 2002).

It should however be noted that consumer habits vary according to place of residence and living standards. In rural areas, diets are strongly dominated by traditional cereals (millet, sorghum and maize) and their by-products, as well as by milk, especially for pastoral communities in the north of the country. By contrast, in urban areas, households favour rice (13.7 percent in 1994 and 13.8 percent in 2003) and maize (6.6 percent in 1994 and 9.6 percent in 2003). Meat (6.5 percent in 1994

and 8.9 percent in 2003) and vegetables (7.8 percent in 1994 and 10 percent in 2003) are increasingly being consumed (DGPER, 2010).

An analysis based on living standards shows that food consumption for the 60 percent poorest people is dominated by sorghum and millet, while for the 40 percent richest people, rice is the predominant foodstuff consumed (DGPER, 2010).

Table 3. Principal foods consumed in Burkina Faso, in g/cap/day

Food products	1990-92	1995-97	2000-02	2003-05
Sorghum	247	270	225	241
Millet	223	178	190	197
Fermented drinks	140	153	128	137
Maize	95	83	106	132
Rice (milled)	33	57	59	46
Whole milk	36	40	39	42
Other vegetables	58	54	47	40
Other legumes	34	30	31	38
Shelled groundnuts	23	29	36	26
Wheat	12	19	15	22
Meat, beef	17	19	20	21
Sugar (raw)	10	12	12	17
Other fruit	18	17	15	14
Sweet potatoes	4	3	7	12

Source: FAOSTAT, 2012

Agricultural exports strongly dominated by cotton and a surplus agricultural trade balance

In Burkina Faso, agriculture supplied more than 48 percent of national exports in 2011 (MEF/IAP, 2012). In 2006, this share was estimated at 93 percent (MEF/IAP, 2012); in recent years, the mining boom has led to a sharp decline in the share of agriculture to national exports. Agricultural exports are highly concentrated, dominated by cotton, sesame, live animals and shea nuts. Together, these four products account for more than 90 percent of agricultural exports. Overall, the cotton sector accounted for 23 percent of exports in 2009, compared with 33 percent in 2008 (MEF/IAP, 2012).

Imports are far less concentrated, in spite of the dominant position of rice (14 percent) and tobacco-

based products (11 percent) (FAOSTAT, 2012).

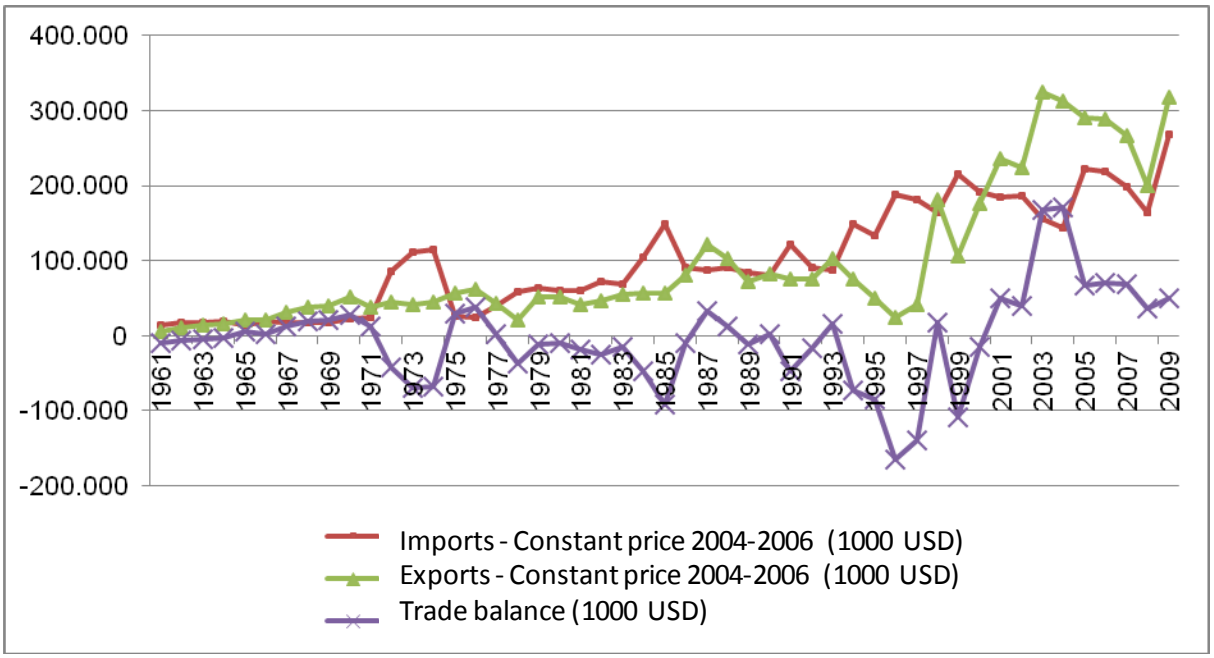
Table 4: Principal products imported and exported by Burkina Faso in 2009

Imports			Exports		
Products	**Value ($1000)**	**Import share (%)**	**Products**	**Value ($1000)**	**Export share (%)**
Milled rice	43,919	14	**Cotton fibre**	248 730	68
Tobacco-based products	34,342	11	**Sesame**	47,524	13
Wheat	26,000	8	**Live animals**	20,096	6
Food preparations	25,830	8	**Shea nuts**	12,611	3
Broken rice	24,204	8	**Cotton seedcake**	4,209	1
Palm oil	17,000	5	**Maize**	4,097	1
Refined sugar	13,635	4	**Fresh tropical fruit**	3,339	1
Wheat flour	12,325	4	**Cigarettes**	2,908	1
Barley malt	10,018	3	**Cashew nuts**	2,291	1
Pasta products	8,363	3	**Raw organic matter**	1,864	1
Dried whole milk	6,589	2	**Food preparations**	1,858	1

Source: FAOSTAT, 2012

An analysis of the development of agricultural imports and exports shows an overall upward trend for the two aggregates over the period 1961-2009. Between 1999 and 2009, an average annual growth of 5 percent for imports and 15 percent for exports was observed (FAOSTAT, 2012). However, there was greater variation in levels of exports than for imports. The coefficients of variation for imports and exports were respectively 69 percent and 95 percent. The strong fluctuation in exports is mainly linked to the significant share of cotton (68 percent), whose output may vary considerably from one year to the next, depending on the situation in the agricultural season. As a result, the agricultural trade balance has developed erratically. In the course of the past fifty years, it has shown a deficit on 25 occasions; it has, however, shown a surplus in the course of the past ten years.

Figure 15 : Development of value of agricultural imports and exports (in thousands of US$) in Burkina Faso, 1961-2009



Source: FAOSTAT, 2012

Of all the UEMOA countries, Burkina Faso exports the least amount in relation to its national wealth: the export-to-GDP ratio is 13 percent, compared with an average in UEMOA of 26 percent (MEF/IAP, 2012; FAOSTAT, 2012). This under performance may be explained, among other factors, by problems linked to product competitivity, lack of product promotion and inadequate organization on the part of value chain actors (CAPES, 2003). To this should be added the poor road network and the landlocked nature of the country, making it reliant on coastal countries for international trade. The proportion of paved roads in the total road network was estimated at 4.17 percent in 2004, compared with an average of 16 percent between 1995 and 1999 (World Bank, 2012). This shows that improvements made in laying out and building roads has not been followed up by similar efforts to repave them.

Table 5: Development of the proportion of paved roads out of the total road network in Burkina Faso, 1990-2004

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2004
Proportion of paved roads (% of total road network)	16.6	17.1	17.6	18.2	18.7	16	16	16	16	16	4.17

Source: World Bank, 2012

Problems of trade within and outside the country, with poorly structured sectors aside from cotton

Weak market integration of the agricultural economy, as well as a poor road network, hamper the development of the distribution and trade sectors. Certain socio-cultural factors exacerbate the situation. For example, many herders focus on having higher quantities of livestock as a sign of prestige, and neglect the quality of the herd. Other constraints include the isolation of some areas in terms of both consumption and production, coupled with the inadequacy of rural roads (Bako, 2009). Traders are poorly organized, and this restricts their access to information and their ability to negotiate prices. The agriculture sector has weak processing capacities, a factor linked to the limits of small-scale technologies and the embryonic state of agro-industry. As a result, the full potential of agricultural products is not realized.

Cotton, which is strategic for the country's economic development, is the best organized sector. It is exempt from most of the problems mentioned above. Long established as a cash crop, under the monopoly of parastatal company SOFITEX, it was privatized in 1999, when the government released its majority shareholding in SOFITEX. The sector was subsequently liberalized in 2003, with the emergence of two new companies, SOCOMA and Faso Coton. The sector is well integrated. The cotton companies provide supplies of inputs (fertilizer, pesticides, seeds, animal-drawn cultivation equipment) in close collaboration with finance institutions for credit, training for farmers and purchase of cotton from producers (Bako, 2009). Downstream, the cotton companies also handle processing (ginning) and the sale of 99 percent of the fibre produce to European and Asian markets (AICB, 2008). A small unit for processing cotton into textiles does exist, at the *Filature du Sahel* factory, which has a capacity of 5,400 tonnes/year (Agrer, 2007a). The SN CITEC company also produces cottonseed oil, though in very small quantities, with a total annual output of around 20 tonnes (MAFAP, 2012).

Low price levels are the number one problem cited by producers when it comes to trade (General Survey of Agriculture (RGA), 2008). Delays in payments are also mentioned as a major problem by more than 71.4 percent of cotton farmers.

Table 6: Marketing levels for main crops in 2003 and 2009

Products	2003	2009
Millet	6%	7%
Sorghum	9%	10%
Maize	12%	30%
Rice	22%	86%
Cotton	86%	77%
Groundnuts	34%	37%

Source: from EPA data 2003 and 2009

Agriculture in Burkina Faso is dominated by household small-scale farms, with 72 percent of farms measuring less than 5 ha, generally producing very low yields. This is subsistence agriculture, and the farms are increasingly faced with a range of different challenges. Agricultural production is mainly destined for self-consumption. With the exception of cotton and rice, producers consume most of their output.

Table 7: Typology of farms (size of farm) in Burkina Faso

Size	Number	% of total
Less than 5 ha	899,721	72%
Between 5 and 10 ha	260,414	20.8%
Between 10 and 20 ha	74,760	6%
More than 20 ha	14,249	1.1%
Total	**1,249,144**	**100%**

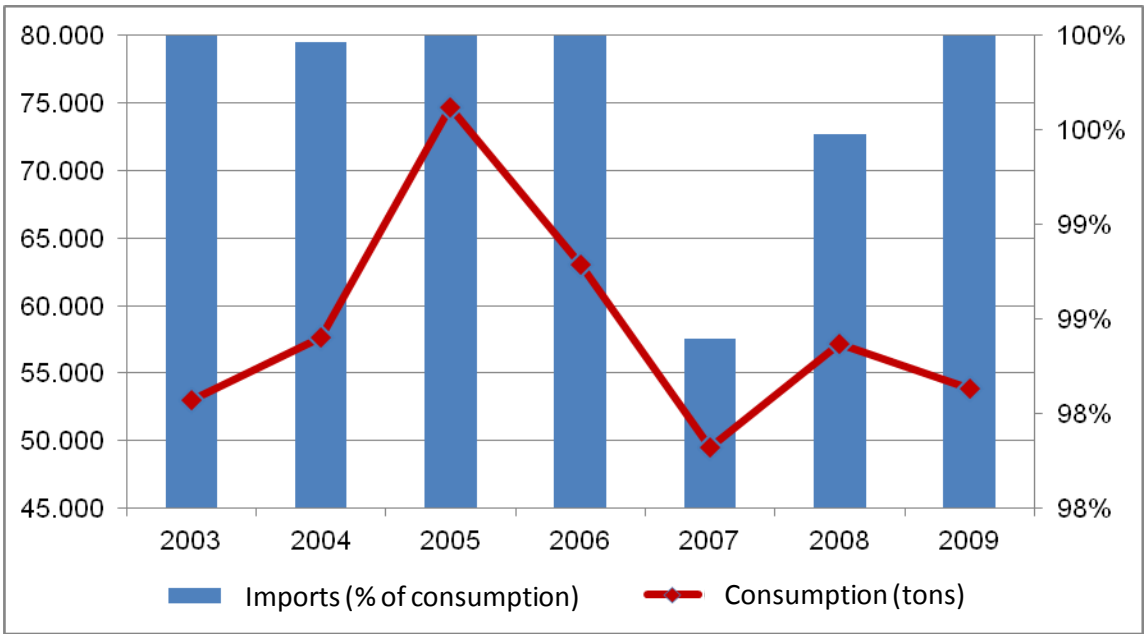
Source: from data obtained by RGA 2008

Input markets and sector development

An agriculture that remains extensive, with constraints of access to inputs, equipment and credit

In Burkina Faso, access to inputs is still a problem for farmers. According to results of the RGA survey in 2008, this difficulty is mainly linked to availability and the high cost of inputs. Use of mineral inputs fell by nearly 28 percent between 2005 and 2009 (FAOSTAT, 2012). National use of inputs relies almost exclusively on imports, as can be seen from the overlap in curves showing the development of quantities of fertilizer used and levels of imported fertilizer (Figure 16). Such use increased from almost 53,000 tonnes in 2003 to more than 75,000 tonnes in 2005, before declining again to a little over 53,000 tonnes.

Figure 16: Changes in fertilizer imports and use



Source: FAOSTAT, 2012

The amount of mineral inputs applied per hectare is low: it increased from 10.95 kg in 2003 to 9.13 kg in 2009. At this rate, Burkina will be unable to achieve the objective of the Abuja declaration, which seeks to reach a target of 50 kg/ha by 2015. The proportion of land benefiting from organic waste, including household waste and manure from livestock pens, is estimated at 33.4 percent, according to the results of the RGA survey in 2008; in 2010, this figure was 21.6 percent. This practice appears to be in decline, despite the efforts of the government to raise awareness among producers and promote the benefits of organic waste. Such low levels of input use helps to explain the poor yields produced by the majority of farms in Burkina Faso.

Table 8: Evaluation of use of mineral and organic inputs

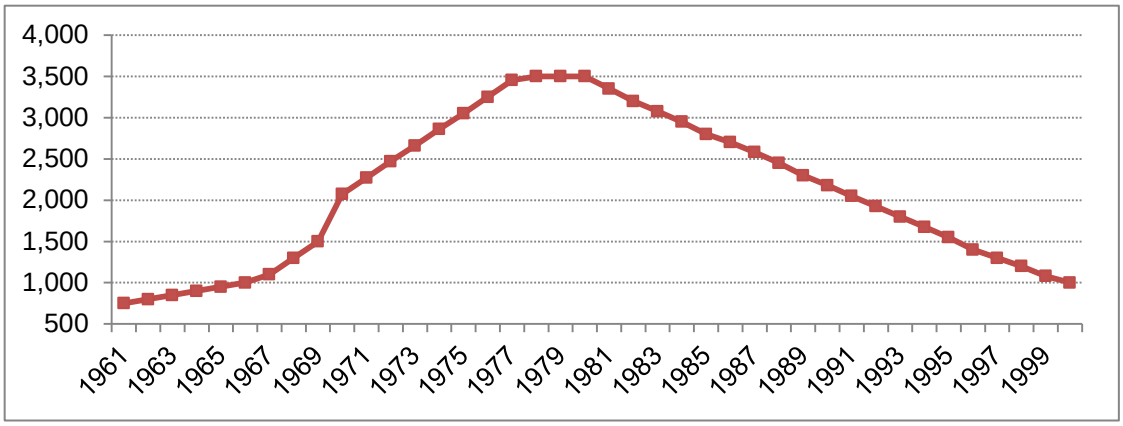
	2003	2004	2005	2006	2007	2008	2009	2010
Amount of mineral inputs used (kg/ha)	10.9	11.9	15.4	12.6	9.5	9	9.1	-
Proportion of land benefiting from organic manure (%)						33.4	22.2	21.6

Source: WDI, EPA data

Low levels of equipment

Lack of equipment is a major constraint to agriculture in Burkina Faso. Agricultural mechanization consists mainly of animal traction, with limited extension advice on the use of tractors. During the 1997-1998 season, the proportion of farmers who owned a plough varied between 20 percent and 34 percent, and only 0.13 percent of producers owned a tractor (farmer surveys). Since then, there has been little progress in terms of mechanization. Indeed, an analysis of ownership of agricultural equipment in the course of the past five years reveals that levels of mechanization of farm labour are still low, with an ownership rate of tractors per household of just 0.2 percent in 2010 (EPA, 2010). Overall, there was a decline in the number of tractors used between 1980 and 2000, with a fall from 3,500 to 1 000 tractors.

Figure 17 : Development in number of tractors in Burkina Faso, 1961-2000



Source: World Bank, 2012

However, there has been a strong increase in the use of animal traction. Ownership levels of draught oxen rose from 34.1 percent in 2005-2006 to nearly 61 percent in 2009-2010, representing an increase of almost 27 percentage points. Similarly, ownership levels of ploughs and draught donkeys rose respectively by 13 percent and 10 percent (EPA, 2011).

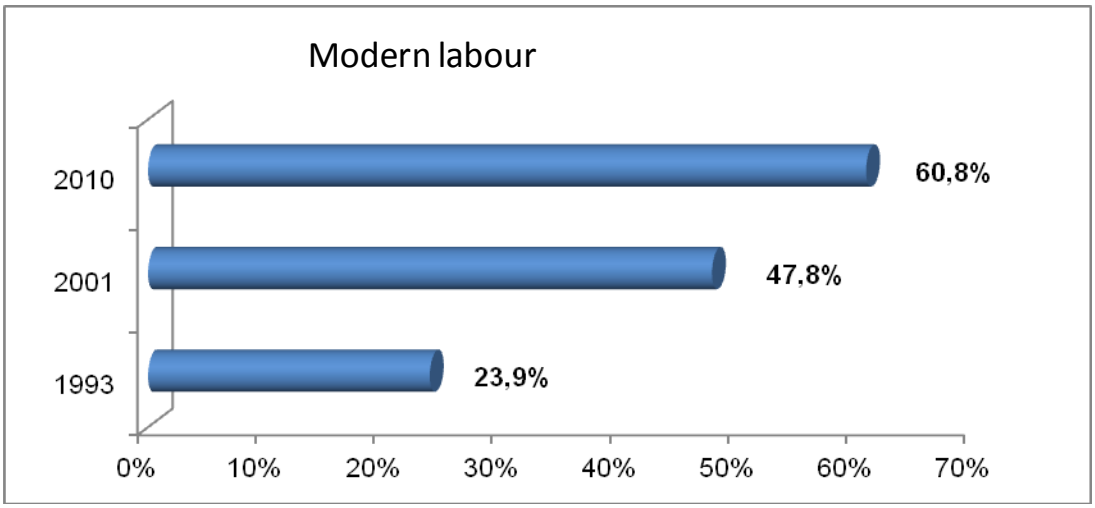
Table 9: Proportion of farm households owning equipment

Equipment	Farming season	
	2005-2006	2009-2010
Tractor	0.1%	0.2%
Ridgers	13.5%	13.3%
Ploughs	47.4%	60.9%
Draught oxen	34.1%	61.0%
Draught horses	1.0%	0.9%
Draught donkeys	39.1%	48.7%
Draught camels	0.6%	0.3%

Source: EPA, 2011

The proportion of land worked using non manual labour (draught or mechanized) has increased significantly in the past twenty years in Burkina Faso, rising from about 24 percent in 1993 to nearly 61 percent in 2010. Between 2001 and 2010, it increased by more than 13 percentage points, rising from 48 percent to 61 percent (EPA, 2011).

Figure 18: Proportion of land worked with modern labour



Source: EPA, 2011

Poor access to credit

Access to credit remains one of the main constraints to agriculture in Burkina Faso. According to the results of the RGA survey in 2008, only 8 percent of producers had access to credit. The main obstacle to accessing credit cited by farmers is the absence of organisms providing credit. The main structures supplying agricultural credit are:

- the *Banque Agricole et Commerciale du Burkina* (BACB, ex-CNCA), a specialized bank developed as a result of an «agricultural and development bank» approach;
- indirect finance systems that cover loans granted by agribusiness companies to producer groups, as part of an integrated value chain;
- Microfinance institutions (MFIs).

Loans made by BACB to producers and farmers' organizations are mostly operating funds, and in a more restrictive manner, loans for equipment. The major hurdle to an expansion of this method of providing finance lies in the fact that there is inadequate security for risk cover. This explains why BACB has particularly focused on the cotton sector, where it operates in conjunction with SOFITEX. The cotton security (repayment of loans from payments made by SOFITEX), the setting up of checks on loan allocation by organized producers, and the sharing of activities between the two institutions combine to ensure that the system is effective (SDR, 2003). The different types of loans extended to farmers and POs are: loans for production, loans for cultivation with draught labour, loans for investments and equipment, marketing loans, loans to cover the cost of labour, harvests, livestock fattening, production and marketing.

Despite progress in microfinance, there is still much to be done to ensure better access to agricultural credit. According to the World Bank's *Doing Business* 2012 report, Burkina Faso must still make a number of reforms concerning the cover, spread and accessibility of information on credit, which needs to be made available to public and private sources of information on credit.

Table 10: Evaluation of ease of access to loans in Burkina Faso in 2011

	2005	2006	2007	2008	2009	2010	2011	2012
Depth of credit information index (0-6)	1	1	1	1	1	1	1	1
Strength of legal rights index (0-10)	3	3	3	3	3	3	3	6

Source: Doing Business, World Bank, 2012

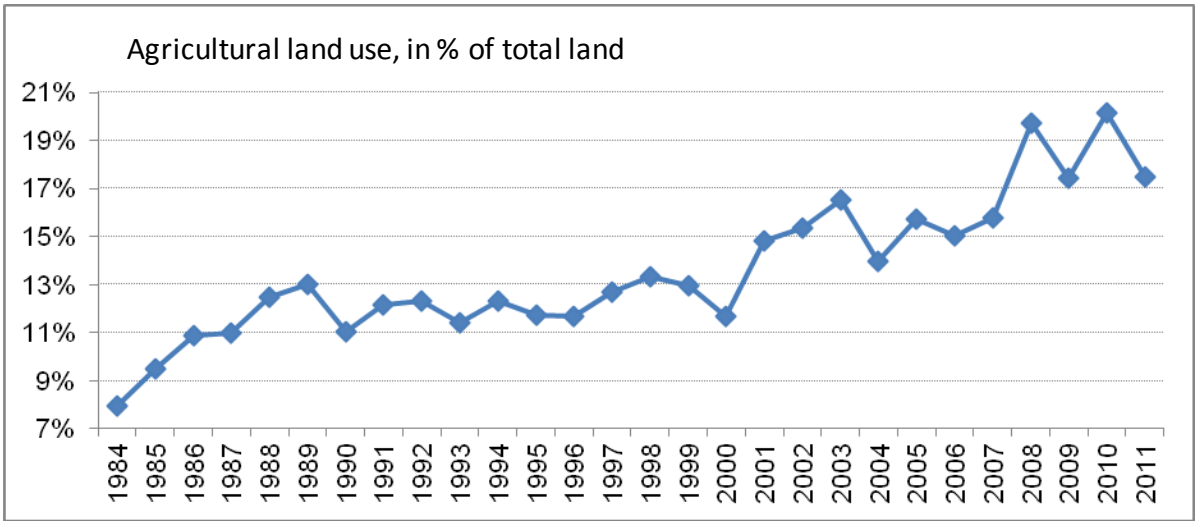
Environment and agriculture

The environment is threatened by extensive agriculture, sanitation problems and climate change

The total area of arable land is calculated at about 9 million hectares (1/3 of national territory). Areas of farmed land are increasing by an annual average of 2.8 percent, and if this trend continues, agriculture in Burkina Faso will exhaust its supply of arable land by 2030. The increase in cultivated land is explained by the population growth, given that the area cultivated by each worker has remained practically unchanged over the past fifteen years. This figure is estimated at an average of 0.66 ha (DGPER, 2009).

The total area under active or operational pastoral use was estimated at 772,377 ha in 2009, equivalent to 2.83 percent of national surface area (FAOSTAT, 2012). The proportion of total land area used for agriculture rose from 8 percent in 1984 to more than 17 percent in 2011.

Figure 19: Agricultural surface area as % of total surface area in Burkina Faso



Source: EPA surveys

Deforestation

There has been a progressive decline in forested land in Burkina Faso. Overall, between 1990 and 2010, almost 1,200 ha of forests were lost. In the course of the past five years, there has been an annual recorded loss of 1.03 percent.

Table 11: Trends in forest extent 1990-2010

Forested land (1,000 ha)				Annual rate of change					
				1990-2000		2000-2005		2005-2010	
1990	2000	2005	2010	1,000 ha/year	%[a]	1,000 ha/year	%[a]	1,000 ha/year	%[a]
6,847	6,248	5,949	5,649	-60	-0.91	-60	-0.98	-60	-1.03

[A] Rate of gain or loss as percentage of forested land remaining each year during the given period.

Source: FAOSTAT, 2010

Environmental and climatic risks

Burkina Faso is regularly exposed to natural disasters, such as locust invasions (2003-2004), violent flooding, especially in the north, droughts leading to chronic food insecurity and, most recently, the presence of avian influenza.

In 2004 and 2007, serious droughts caused a significant decline in agricultural production (-16 percent in 2007), exacerbating food insecurity for rural communities and bringing about a slowdown in the growth of value added for the agriculture sector (DGPSA, 2008). In 2009, floods affected more

than 173,226 people in the rural sector and in Ouagadougou (CONASUR, 2011).

Table 12: Number of people affected by type of disaster

Year	2006	2007	2008	2009
Floods	11,170	111,356	24,676	173,226
Strong winds	-	-	883	
Water saturated soil	-	-	316	
Fire			624	

Source: CONASUR, 2011

Each year, floods and drought affect agricultural land, causing significant economic losses estimated at more than 175 billion FCFA between 2005 and 2010.

Table 13: Economic losses (millions FCFA) linked to climate factors

	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	Total
Drought	6,226	15,985	70,538	17,451	31,611	141,811
Floods	535	3,362	14,006	8,502	6,958	33,363
Total	6,762	19,347	84,544	25,953	38,568	175,174
% agricultural GDP	0.9%	2.3%	10.2%	2.9%	4.5%	4.2%

Source: DGPER (2011)

Development of irrigated land

The total amount of land under irrigation (horticultural crops, irrigated rice and maize) was estimated at 58,122 ha in 2008, about 25 percent of the land that could potentially be irrigated. This figure became 25,610 ha (11 percent of the land that could potentially be irrigated) in 2004.

Between 2004 and 2008, there was an overall increase of 127 percent in irrigated land, mainly due to progressive government efforts to set up irrigation systems in recent years. As part of the National Programme for the Rural Sector, in particular, irrigation systems for more than 60,000 ha of land are planned. There is an average annual growth of 23 percent in such irrigated areas, despite a reduction of almost 20 percent in 2006 (horticulture survey, 2004; RGA, 2008). However, it should be added that figures for irrigated land for the period 2005-2007 are projections, and that the methodology of the horticulture survey of 2008 took into account more crops than in 2004.

Table 14: Development of irrigated land between 2004 and 2008

	2004	2005	2006	2007	2008
Farmed land under irrigation	25,610	35,414	28,410	34,806	58,122
Proportion of potentially irrigable land	11%	15.2%	12.2%	14.9%	24.9%
Annual growth	-	38%	-19.8%	22.5%	67%
Overall growth	127%				
Average annual growth	22.7%				

Source: Horticulture survey, 2004; RGA, 2008

Production of waste and wastewater

Discharges of wastewater cause environmental problems. The annual output of residual water linked to leather production is estimated at about 250,000 m^3 (LNAE, 2008).

Daily waste production increased from 1,240 tonnes in 2001 to more than 2,000 tonnes in 2009, an overall rise of 68 percent in 9 years. The rate of average annual growth is about 7 percent.

Table 15: Daily production of waste

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Paper and cardboard	112	121	131	142	154	167	180	195	210
Textiles	62	64	*66*	69	71	73	76	*78*	80
Plastic	124	143	165	190	218	251	288	331	379
Glass	37	40	42	45	48	52	55	58	62
Metal	50	51	52	53	55	56	57	58	60
Food and garden waste	483	511	540	570	601	633	666	701	736
Other inorganic waste	372	392	412	433	455	478	501	525	550
Total	**1,240**	**1,321**	**1,409**	**1,503**	**1,603**	**1,710**	**1,824**	**1,946**	**2,077**

Source: MEDD, 2011

Population

A young, rapidly increasing population with high birth and mortality rates

The population of Burkina Faso increased from 7,964,705 inhabitants in 1985 (RGP 1985) to 10,312,609 inhabitants in 1996 (RGPH 1996), reaching 14,017,262 inhabitants in 2006 (RGPH 2006). Men and women accounted, respectively, for 48.3 percent and 51.7 percent of the population in 2006.

Some 61.8 percent of the urban population lives in the two major cities of Ouagadougou (1,475,223 inhabitants) and Bobo-Dioulasso (489,967 inhabitants). The geographical distribution of the population is uneven between the regions.

Average national population density is 51.4 inhabitants per km², though this varies considerably from one region or province to another. At regional level, the density varies from 27 inhabitants per km² in *Sahel* to 81 in *Plateau Central* and 602 inhabitants in *Centre* (the region of the capital).

The results of the RGPH 2006 show a crude birth rate of 45.8 percent for the whole of Burkina Faso in 2006, with a rate of 48.4 percent in rural areas, compared with 38.1 percent in urban areas. The total fertility rate (TFR) was estimated in 2006 to be 6.2 on a national scale. This rate is fairly typical of populations with a high birth rate, and is characterized by an early start and a late exit to child bearing for women: the birth rate is 127.7 percent for 15-19 years and 40.1 percent for 45-49 years. It is at the intermediate ages that the birth rate reaches its peak: at 20-24 years, the birth rate is 277.1 percent and at 25-29 years it is 280.2 percent (RGPH 2006).

In Burkina Faso, the mortality rate remains high, despite efforts by various actors to bring down the number of deaths. Indeed, the crude death rate has seen a significant fall in Burkina Faso since 1960. From 32 percent in 1960, it fell to 17.5 percent in 1985 and 14.8 percent in 1996. In 2006, there were about 12 deaths per 1000 inhabitants (RGPH 2006).

The population of Burkina Faso is very young. The under 15 year-olds account for 46.6 percent of the population, while the 15 to 64 year-olds account for 50 percent of the population and the over 65 year-olds just 3.4 percent. The average age for the population as a whole is 21.8 years, 21.2 years for men and 22.5 years for women (RGPH 2006).

Table 16: Characteristics of population of Burkina Faso in 2006

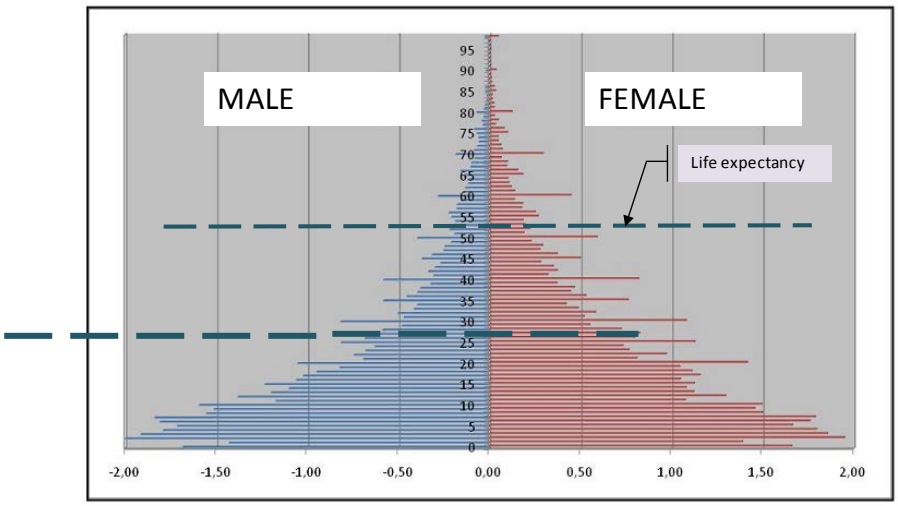
Total population	14,017,262
Male population	6,768,739
Female population	7,248,523
Urban population	3,181,967
Rural population	10,835,295
Population density (inhabitants per km²)	51.4
Proportion of women in population (%)	51.7
Rate of urbanization (%)	22.7
Annual average rate of population growth (%)	3.1

Source: INSD RGPH 2006

The agricultural population of Burkina Faso increased from 8,301,669 inhabitants in 1993 to 13,098,679 inhabitants in 2008, with an annual average growth rate of 3.09 percent. Gender distribution shows that there are more women (51.9 percent) than men (48.1 percent).

The young average age of the population can be seen in a diagram showing age composition. The pyramid is very wide at the base and narrows rapidly to a tapered apex for the higher ages. This model is accurate for the country as a whole as well as for the rural areas and for most of the regions.

Figure 20: Age composition (by years) in Burkina Faso



Source: INSD 2006

Poverty, inequalities and employment

A population marked by high levels of poverty, inequalities and youth unemployment in urban areas

In 2003, with a poverty threshold defined at 82,672 FCFA per person per year, the proportion of the population of Burkina Faso living below the poverty threshold was estimated at 46.4 percent.

About 37.5 percent of households are unable to meet their basic food and non-food needs. The results show that poverty is mainly a rural phenomenon, with more than half the rural population (52.3 percent, or 43.5 percent of rural households) living below the poverty threshold, compared with 19.9 percent in urban areas (INSD, 2003).

Provisional results of the EICVM 2009-2010 indicate an overall poverty threshold estimated at 108,454 FCFA per year. An analysis of household spending in Burkina Faso shows that 44 percent of households live below this threshold. However, this overall rate conceals disparities between regions and places of residence. Indeed, an analysis by place of residence shows that the incidence of poverty is 19.9 percent for urban areas and 50.7 percent for rural areas (INSD/EICVM 2010). According to World Bank figures (2010), the proportion of the population living on less than US$2 a day is estimated at 72.56 percent.

Still in 2003, extreme poverty affected people with an annual average consumption expenditure of less than 52,440 FCFA. The proportion of the population living below the threshold of extreme

poverty was 20 percent at national level, 23 percent in rural areas and 6.3 percent in urban areas (INSD 2003).

The per capita gross national income, expressed in purchasing power parity (PPP). increased from $1,100 in 2007 to $1,250 in 2010, representing an average annual growth of 4 percent.

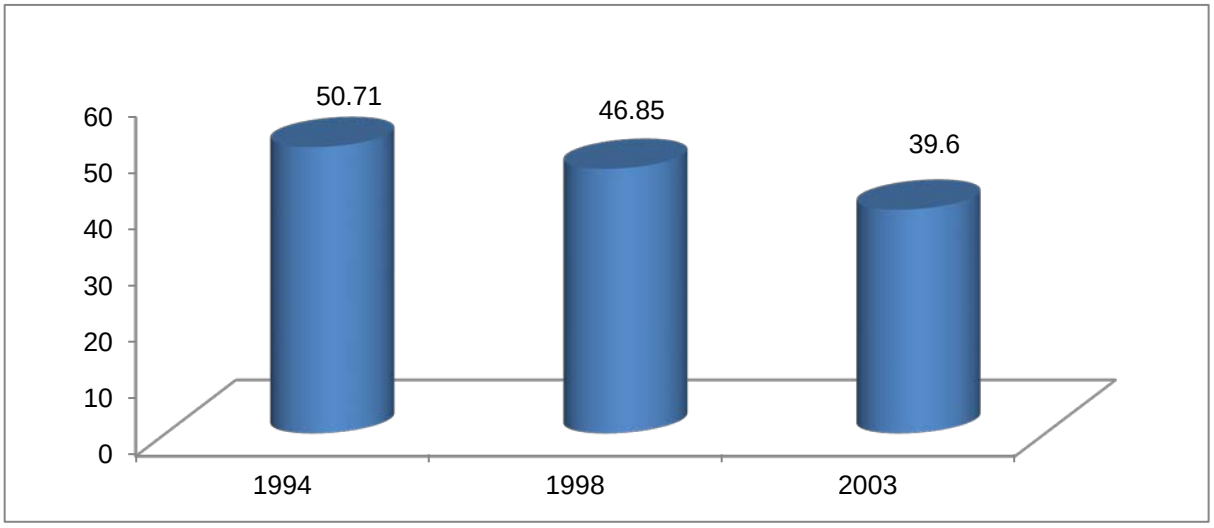
Table 17: Development of per capita gross national income (GNI) (expressed in purchasing power parity, in current international dollars)

Year	2007	2008	2009	2010
GNI per capita in PPP	1,100	1,130	1,160	1,250

Source: World Bank, 2012

The Gini index measures levels of inequality within a country. It consists of a number, ranging from 0 and 1, and the higher the figure, the more that society is suffering from inequalities. An analysis of the development of the Gini index in Burkina Faso shows that inequality levels dropped between 1994 and 2003, with a decline of more than 11 percentage points. However, the level of inequality still remains high (World Bank, 2012).

Figure 21: Changes in Gini index in Burkina Faso



Source: World Bank, 2012

The national unemployment rate is estimated at 2.4 percent and conceals significant disparities between different places of residence, according to the RGPH 2006. The unemployment rate in urban areas (9.3 percent) is more than fifteen times higher than that of rural areas (0,6 percent). In other words, unemployment is virtually non existent in rural areas. However, this figure can be misleading, for the result is based on the fact that the labour market does not exist in any formal manner in rural areas.

An analysis by gender shows that men are more affected by unemployment (3 percent) than women (1.7 percent) (INSD 2008). Looking at age groups, young people in urban areas are the worst affected by unemployment, as shown in the table here below. The guaranteed minimum wage has increased

from 5,027 FCFA in 1969 to a current figure of 30,684 FCFA (INSD, Priority Surveys 1994 and 1998, Burkina Faso survey on household living conditions 2003 and annual survey on household living conditions (EA – QUIBB) 2005 et 2007).

Table 18: Unemployment rate by age group, according to place of residence (%)

Age group	Place of residence		Total
	Urban	Rural	
15-19	17.5	1,1	3.6
20-24	15.7	0.8	4.1
25-29	11.6	0.5	3.2
30-34	6.7	0.4	2.0
35-39	4.4	0.3	1.2
40-44	3.5	0.2	1.0
45-49	3.0	0.2	0.8
50-54	3.4	0.2	0.8
55-59	3.2	0.2	0.7
60-64	3.3	0.3	0.7
Total	9.3	0.6	2.4

Source: INSD, 2008

Migration and urbanization

A mainly rural population with significant internal migration

In Burkina Faso, the phenomenon of migration has caused a number of recurring challenges for the country, with:

- ✓ millions of citizens living in precarious conditions in neighbouring countries, especially Côte d'Ivoire, where they are deeply involved in economic and social life;
- ✓ internal migratory displacement, which contributes to a growth in agricultural production, but which proves highly damaging to the environment (soil degradation, slash and burn cultivation, deforestation, etc.); and
- ✓ a rural exodus, which contributes to the growth of towns (especially Ouagadougou and Bobo-Dioulasso), where unfortunately social structures are not adequate to cover the needs of all residents and newly arrived residents.

According to the results of RGPH 2006, 16 percent of the population was made up of internal migrants in 2006.

Table 19 : Distribution of residents by migratory status and gender

Migratory status	Men		Women		Total	
	Number	%	Number	%	Number	%
Non migrants	5 032 528	74	5 256 563	73	10 289 091	73
International migrants	472 430	7	421 196	6	893 626	6
Internal migrants	950 827	14	1 249 737	17	2 200 564	16
Total migrants	1 423 257	21	1 670 933	23	3 094 190	22
N.D	312 954	5	321 027	4	633 981	5
Total	6 768 739	100	7 248 523	100	14 017 262	100

Source: RGPH 2006

The criteria for urbanization set out in 2006 give Burkina Faso 3,181,967 urban dwellers, or 22.7 percent of the country's total population. This is a mainly young population, with people under 20 years-old accounting for 50.4 percent of urban residents (57 percent of the population at national level). The number of people of working age (15 to 65 years-old) accounts for 59.5 percent of the urban population (RGPH 2006).

With a new momentum since the colonial era, migration towards neighbouring countries (especially Côte d'Ivoire) has intensified in Burkina Faso. The country is even due to sign future agreements with Côte d'Ivoire and Gabon to supply them with significant quantities of labour. Burkina Faso is the main source of migrants to Côte d'Ivoire, which in turn, is the main destination for migrants from Burkina Faso. According to World Bank statistics for 2011 on migration flows and remittances, Burkina Faso is one of the top 10 countries in Sub-Saharan Africa in terms of emigration, and the Côte d'Ivoire–Burkina Faso axis is the prime migration corridor for the entire area.

In 2010, emigration levels from Burkina Faso were estimated at 9.7 percent. The main destination countries are: Côte d'Ivoire, Niger, Mali, Italy, Benin, Nigeria, France, Gabon, Germany and United States of America. In 2000, the emigration level for higher education graduates was estimated at 2.6 percent (RGPH 2006). According to the World Bank, total transfer of funds to Burkina Faso was estimated at 43 million dollars in 2010. The proportion of this figure coming from remittances sent by migrants is unavailable (World Bank, 2012).

Table 20: Transfer of funds to Burkina Faso 2003-2010

	2003	2004	2005	2006	2007	2008	2009	2010
Inflows (millions of dollars)	50	50	50	50	50	50	49	43

Source: World Bank, 2012

Food security and health

Precarious socio-sanitary conditions, despite relatively low levels of undernourishment and prevalence of AIDS at African level

In common with most developing countries, in Burkina Faso, the health situation is characterized by high crude rates of birth and death, which were estimated respectively at 46 per 1000 and 11.8 per 1000 in 2006 (RGPH 2006). Rates of maternal and infant mortality, which are respectively 307 per 100 000 live births and 81 per 1000, are among the highest in the world (Ministry of Health, 2012). It was estimated that in 2007, 36 percent of children suffered from retarded growth and nearly 32 percent were underweight (Ministry of Health, 2012). Levels of contraceptive use continue to be low: the figure for 2010 is estimated at 28.3 percent (Ministry of Health, 2012). Life expectancy at birth was estimated to be 55.4 years in 2011, compared with over 80 years in developed countries such as Norway (UNDP, 2011). General prevalence of acute malnutrition in Burkina Faso declined from 21.2 percent in 2003 to 11.3 percent in 2009; the country is still considered to be at emergency undernutrition levels (INSD/EDS 2011).

Table 21: Level of coverage for main vaccines

Indicators	2006	2007	2008	2009	2010
Coverage for BCG (%)	104.3	108.4	108.4	106.1	104.2
Coverage for Penta 3 (%)	99.1	102.1	103.5	102.9	103.2
Coverage for VAR* (%)	82.6	93.7	97.6	99.4	99.3
Coverage for VAA** (%)	90.3	93.4	97.6	99.4	99.3
Coverage for VAT2 and + (%)	82.3	89.7	94.8	92.3	92.3

*Vaccine against measles **Vaccine against yellow fever

Source: Ministry of Health, 2012

In Burkina Faso, prenatal visits are frequent since, overall, 95 percent of women consult a health professional during pregnancy (EDS, 2004). This proportion remains high, regardless of the socio-demographic status of the woman. There is also little variation according to the woman's age. Levels of attended births were estimated at 76 percent in 2009 (Ministry of Health, 2012). However, an analysis of a breakdown of these rates in 1993, 1998 and 2003, according to place of residence and health personnel, showed that levels of attended births are much lower in rural areas (51 percent in 2003) than in urban areas (84 percent in 2003) (INSD, population and health surveys, 1993, 1998 and 2003). The figures also show that levels of births attended by a doctor are extremely low: in 2003, the rate was estimated at 6.6 percent in urban areas, compared with 0.4 percent in rural areas (INSD, population and health surveys, 1993, 1998 and 2003).

Table 22: Development of attended births by place of residence (in %)

	1993			1998			2003		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Doctor	3.7	0.9	1.3	4.4	0.4	0.8	6.6	0.6	1.4
Other healthcare personnel	87.9	32.2	40.2	85.8	24.1	30.2	84.1	50.8	55.1

Source: INSD, population and health surveys, 1993, 1998 et 2003

Burkina Faso is one of the West African countries worst affected by HIV, although the level remains very modest compared with the average for Africa as a whole. Based on sentinel sero-surveillance, overall HIV prevalence in the 15 to 49 age group fell from 2.7 percent in 2006 to 2.3 percent in 2007 and 2 percent in 2008. Concerning the seroprevalence situation, according to the UNAIDS 2008 report, the average prevalence of HIV infection in the adult population of Burkina Faso was estimated at 1.6 percent at the end of 2007, with a range of 1.4-1.9.

Overall, share of the national budget allocated to the health sector was less than 10 percent for the period 2006-2010. A large share of this budget comes from external funding – 29.1 percent in 2011 (Ministry of Health, 2012).

Table 23: Development of share of budget allocated to Ministry of Health

	2006	**2007**	**2008**	**2009**	**2010**
Total budget Ministry of Health *(millions of FCFA)*	69,610	77,194	82,74	99,310	102,858
% Ministry of Health budget/government budget	7.8	8.3	8.4	9.5	8.9

Source: Ministry of Health, 2012

The healthcare services are unable to answer the most vital needs of the people of Burkina Faso. There are many problems: scarcity of and long distances between health centres, inadequate human and material resources, costs of healthcare and medicines, lack of information for population, lack of social welfare system, poor access to safe drinking water, unhealthy environment, malnutrition, etc. The healthcare system's poor performance was partly responsible for the country being relegated to 181st place out of 187 in the UNDP classification for 2011 based on Human Development Indicators (HDI). The country's index rating saw a decline between 2007 and 2011.

Table 24: Development of HDI for Burkina Faso

Year	1975	1980	1985	1990	1995	2000	2005	2007	2011
HDI	0.257	0.248	0.264	0.285	0.297	0.319	0.367	0.389	0.331
Classification				128/130		159/162			181/187

Source: Date from UNDP reports on HDI

Finding access to safe drinking water is a chore for many women, especially in rural areas. This challenge has played a role in delaying school enrolment for girls who are often kept at home to help their mothers fetch water, even though they are of school age. At national level, the level of access to safe drinking water increased from 18.3 percent in 1993 to 66.3 percent in 2007 (INSD/EDS-IV 2011). According to INSD (2011), 82.9 percent of non-poor households have a WC or latrine, compared with 66.4 percent for poor households.

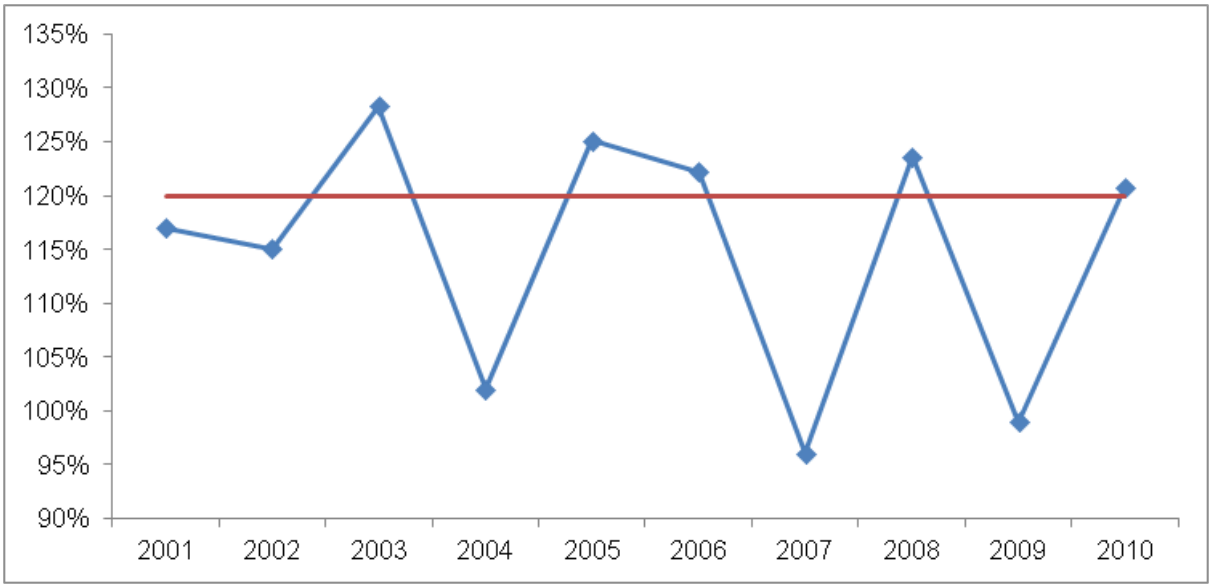
The rate of access to electricity varies widely according to the region of residence. It is 41.3 percent for the *Centre* region, 27.3 percent for the *Hauts-Bassins* region and 20.8 percent for the *Cascades* region. By contrast, it is still very low in the regions of *Sahel* (2.6 percent), *Centre-sud* (3.2 percent) and *Centre-nord* (3.4 percent) (INSD/EDS-IV, 2011).

Regarding food security and nutrition, FAO considered 8 percent of the population to be undernourished in 2008, compared with 14 percent in 1990. This shows a far lower rate of food insecurity than in the rest of Africa, where the average figure is about 27 percent, but it should not conceal the fact that Burkina Faso continues to have real problems in this respect (IFAD, WFP, FAO, 2011).

In terms of food availability, climate variation and natural disasters, together with locust invasions and poor rainfall can all cause deficits in food production. Particularly hard hit are dry cereal crops (millet/sorghum/maize), cornerstones of food security in Burkina Faso. Livestock keeping is also badly affected, due to a lack of fodder in lean periods.

Overall, during the 2001-2010 decade, levels of cover (ratio of cereal production to the population's cereal requirements) remained balanced between 90 percent and 120 percent during five farming seasons, with a surplus above the 120 percent benchmark during the other five farming seasons (2003, 2005, 2006, 2008 and 2010).

Figure 22 : Development of coverage ratio for cereals in period 2001-2010



Source: EPA surveys

Overall, food availability in the country increased from 1985 to 2007, rising from 1,900 Kcal/person/day in 1985 to 2,677 Kcal/person/day in 2007 (FAOSTAT, 2012).

Table 25. Food availability (Kcal/person/day) from 1985 to 2007

Date	Food availability (Kcal/person/day)
1985	1,900
1990	2,400
1995	2,545
2000	2,483
2005	2,653
2007	2,677

Source: FAOSTAT 2012

According to farm surveys, on average, between 2002 and 2010, 21 provinces out of 45 had a surplus level of cover. In terms of the number of provinces with surpluses, 2003 scored the best performance with a total of 30 provinces producing a surplus. Only 2007, the year of a serious drought, produced a situation where the quantity of provinces in deficit outnumbered the provinces producing a surplus (17 against 14).

In the period 2002-2010, eleven (11) provinces had an average rate of cereal cover that showed a deficit.

Figure 23: Provinces with structural deficits in Burkina Faso

		Taux de couverture									
REGIONS	PROVINCES	2010	2009	2008	2007	2006	2005	2004	2003	2002	Moyenne
CENTRE	KADIOGO	14%	11%	12%	7%	14%	16%	13%	18%	18%	14%
PLATEAU CENTRAL	OUBRITENGA	82%	80%	88%	89%	88%	119%	65%	78%	88%	87%
PLATEAU CENTRAL	KOURWEOGO	108%	52%	71%	63%	116%	124%	47%	64%	93%	79%
CENTRE NORD	BAM	93%	62%	83%	64%	51%	84%	58%	90%	59%	69%
CENTRE NORD	SANMATENGA	106%	63%	100%	58%	62%	107%	85%	148%	80%	88%
CENTRE OUEST	BOULKIEMDE	71%	66%	89%	65%	110%	120%	79%	79%	89%	87%
CENTRE SUD	NAHOURI	114%	110%	81%	39%	63%	67%	74%	53%	44%	66%
SAHEL	OUDALAN	130%	78%	68%	75%	115%	144%	16%	161%	53%	89%
CENTRE EST	BOULGOU	109%	77%	95%	43%	91%	93%	90%	99%	101%	86%
CENTRE EST	KOURITENGA	98%	63%	109%	90%	68%	74%	118%	76%	96%	87%
NORD	ZONDOMA	145%	55%	72%	80%	97%	101%	82%	81%	62%	79%
LEGENDE		Excédentaire				Equilibré			Déficitaire		

Source: EPA, 2002-2010

The issue of access to food is important, given that in 2006 and 2007 the share of household revenue used for food consumption in the region was of 30 percent (DGPSA, 2008), and this revenue was in any case very low. With prices having increased for most food products in Burkina Faso, following the food crisis of 2008, people's access to foodstuffs was compromised, generating social tensions in the country.

Use of food is also an important consideration. Diets in Burkina Faso are not very varied: an analysis of the food budget for 2009/2010 reveals a predominant share of cereals consumed by people in Burkina Faso (64 percent of calorie intake, or two-thirds of energy intake), followed by vegetables (9 percent of calorie intake) and legumes (11 percent of calorie intake). Consumption of tubers remains low, as does that of animal products. In relation to consumption standards, 126 percent of requirements for plant-based products are covered, while those of animal products are only covered at a level of 43 percent (DGPER 2011).

Faced with these challenges, a National Strategy for Food Security, adopted in 2001 and reviewed in 2002, is in the process of setting in place conditions for sustainable food security, with a goal of achieving this by 2015.

Education and Gender

Despite good performances from the education system, levels of school enrolment and literacy remain low[4]

In Burkina Faso, levels of school enrolment and literacy are among the lowest in the world. The vast majority of people in Burkina Faso are illiterate. Illiteracy rates in the over-15 age group were estimated at 28.3 percent on a national level in 2007. In this age group, women are far more likely to be illiterate than men: more than 79 percent of women do not know how to read or write, compared with 63 percent of men.

The government of Burkina Faso has, however, made considerable efforts to improve the education system in recent years. The share of the budget allocated to education rose from 16 percent in 2005 to 20 percent in 2011 (see Figure 24). In addition, a Ten-Year Plan for the Development of Basic

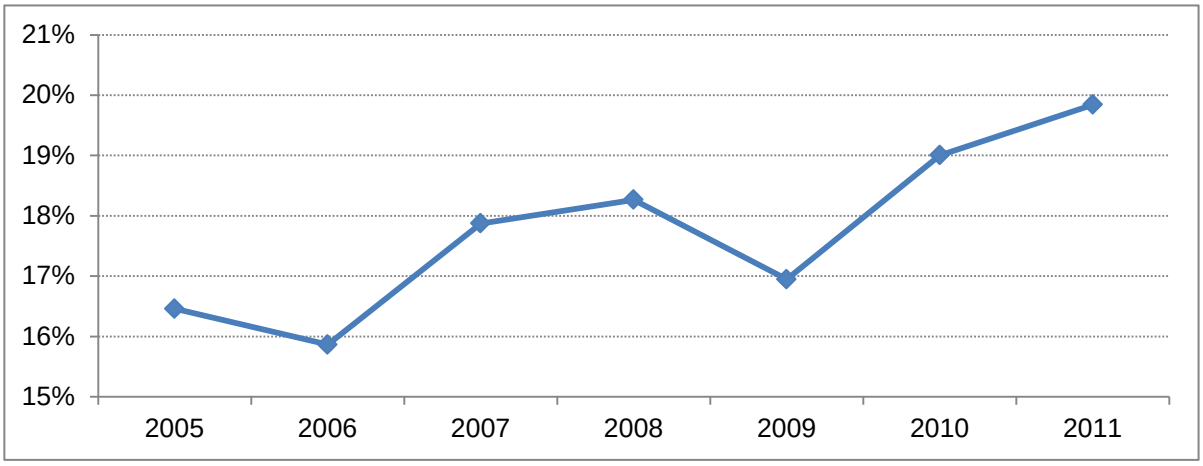
[4] Unless otherwise indicated, the figures for this section are drawn from annual data supplied by the Ministry of Education

Education (PDDEB) for the period 2000-2009 has been drawn up, with the goal of achieving a gross enrolment rate of 70 percent. Due to these efforts, Burkina Faso's education system has made significant progress in terms of primary school enrolment. Indeed, the gross primary school enrolment rate rose from 30 percent in 1990 to almost 75 percent in 2009, marking an increase of 45 percentage points in 20 years. In 2011, this rate was estimated at 77.6 percent; at 80.2 percent for boys and 75 percent for girls. The net primary school enrolment rate was 61 percent in 2011; at 63 percent for boys and 59 percent for girls.

Regarding secondary and higher education, enrolment levels are still very low. Gross and net secondary school enrolment rates were respectively 32.3 percent and 17.5 percent in 2011, compared with, respectively, 22.4 percent and 14.4 percent in 2007. The number of students per 100,000 inhabitants rose from 91.6 in 1999 to 324.2 in 2009, making an overall increase of 254 percent and an annual average growth of 14 percent. For higher education, the gross enrolment rate is 4.8 percent at national level; at 3.4 percent for women and 6.5 percent for men (RGPH, 2006).

The average number of pupils in a class remains high in primary schools. In 1997, the figure was estimated to be 50 pupils, but in some urban schools, this rose to 120 or even 150 (UNESCO, 2006). At secondary level, the average number of pupils in a class for the first and second stage of education is estimated, respectively, at 64 and 47. A technical secondary school teacher will have to manage an average class of 33 pupils.

Figure 24: Share of budget allocated to education 2005-2011



Source: Annual data supplied by MENA, 2011

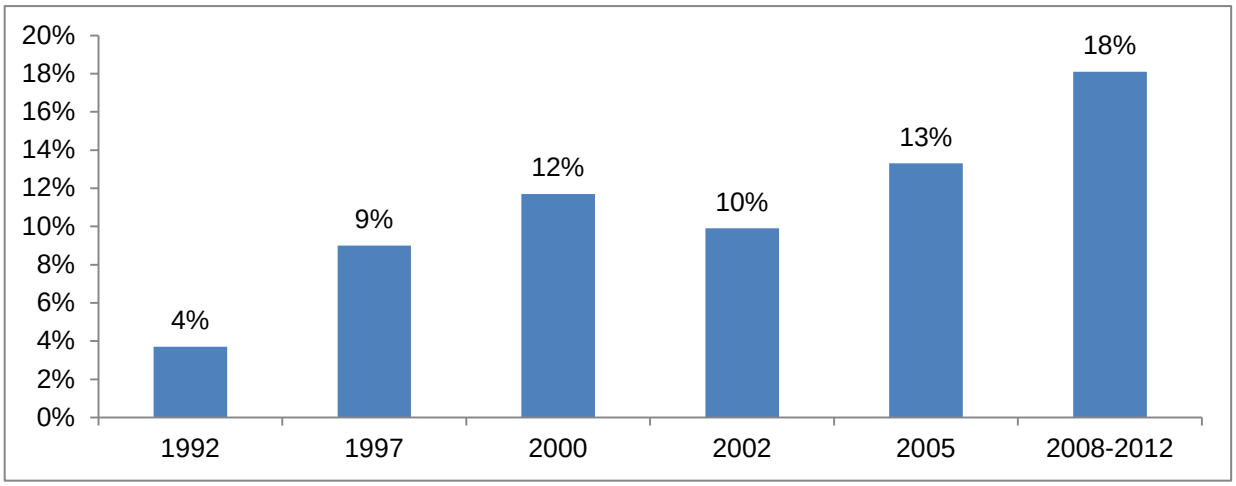
In rural areas, there has been an improvement in education levels for farming communities. The proportion of the population with literacy skills increased from 15.7 percent to 21.4 percent between 1993 and 2008, a rise of 5.7 percent. However, this level of literacy remains too low to accelerate the development of the agriculture sector.

According to UNDP, in 2011, the gender inequality index for Burkina Faso was estimated at 0.596. This is a composite index that measures lack of progress due to gender inequality, taking into account three aspects of human development: reproductive health, empowerment and the labour market. For this index, Burkina Faso is classified 121st out of 187 countries. In spite of considerable government efforts to improve the situation of women, gender inequalities and disparities continue to exist in all fields of economic and social life.

In a report on the socio-economic position of women (RGPH, 2006), activity levels of people aged between 15 and 64 were 62.7 percent for women compared with 87.4 percent for men. Occupation rates for people aged between 15 and 64 were 98.3 percent for women compared with 97 percent for men. Unemployment rates were 1.7 percent for women, compared with 2.9 percent for men. In 2006, out of Burkina Faso's total unemployed population, 76.9 percent were women compared with 23.1 percent of men.

Women were given the vote in 1956, the year the Framework Law was introduced. However, access for women to Parliament has been a slow process and has still remained limited since Independence: only one woman was elected in 1977, four in 1992 (3.7 percent), ten in 1997 (9 percent) and eleven in 2002 (9.9 percent). Since 2008, the proportion of women in Parliament has been 18 percent (UNDP, 2011; Tiendrébéogo, 2002).

Figure 25: Proportion of number of seats held by women in Parliament



Sources: Data from UNDP (2011) and Tiendrébéogo (2002)

4. Food and agricultural policy review

Key strategies and government priorities for agricultural and rural development

Since the Structural Adjustment Programmes (SAP) in the 1990s, Burkina Faso has made considerable progress in improving its macroeconomic management. Important features have been a consolidation of public finance, progressive liberalization of the economy, government withdrawal from certain production sectors and the adoption of a number of development and poverty reduction strategies. These efforts have encouraged a flow of foreign capital into the economy and an improvement in economic growth.

The agriculture sector was in the frontline of reforms, due to the important role that it plays in the national economy. A number of agricultural policies and strategies have been adopted and implemented, with significant amounts of public investment public.

During the 1990s, the government set up an Agricultural Sector Adjustment Programme (PASA). This programme has led to trade liberalization for agricultural products, the privatization of agro-industrial enterprises, reorganization and support for Business Services Development (SDA), the

privatization of all state controlled companies operating in the production, processing and marketing of agricultural products and the ending of subsidies for farm inputs.

Following the liberalization of the economy as part of PASA and the adoption of conventions made at the Rio summit, ministerial departments in charge of rural development developed policy documents and sectoral strategies between 1995 et 2003. The principal ones are listed here:

- ✓ Strategic Policy Document to work for sustainable growth for the agriculture and livestock sectors,
- ✓ Strategic Operating Plan (PSO) to work for sustainable growth for the agriculture sector,
- ✓ Action Plan and Investment Programme for Livestock Sector (PAPISE),
- ✓ National Forestry Policy (PFN),
- ✓ National Strategy for Food Security,
- ✓ National Water Policy (PNE),
- ✓ National Strategy and Action Plan for Biodiversity,
- ✓ National Programme of Action for Climate Change Adaptation,
- ✓ National Programme of Action Against Desertification,
- ✓ National Strategy for Environmental Education.

In December 2002, the government adopted a Policy Letter for Decentralized Rural Development (LPDRD) which aims to offer an umbrella framework and harmonize the methods and approaches of different projects and programmes targeting development for grassroots rural communities.

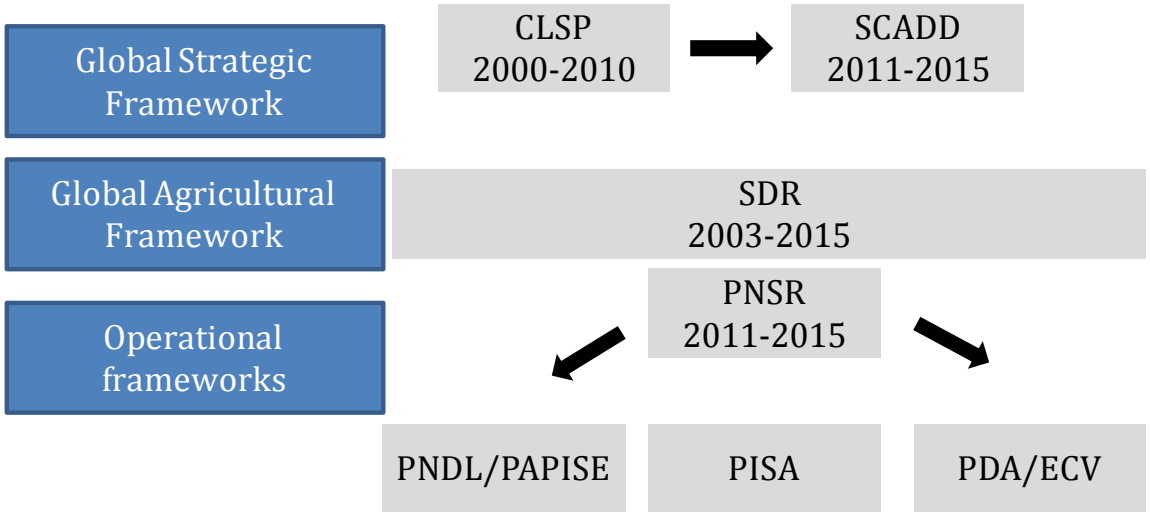
The Strategic Framework for Poverty Reduction (CSLP), drawn up in 2000 and revised in 2003, mentions that the government's goal is to stimulate growth in the agriculture sector by creating, on the one hand, a more favourable economic climate for private investment (especially in the fields of production, marketing and industrial processing) and the development of small and medium enterprises in rural areas and in areas where poverty is endemic, and, on the other hand, a biophysical environment favourable to rapid growth. In an effort to translate the CSLP objectives into concrete action, the government adopted, in 2003, a Rural Development Strategy (SDR), aimed at achieving sustainable growth for the agriculture sector as a means of ensuring greater food security and promoting real rural development. The main objectives of the SDR are to:

- Increase agricultural, pastoral, forestry, animal and fisheries output through improvements in productivity;
- Increase revenues through diversification of economic activities in rural areas;
- Strengthen production/market linkage;
- Ensure sustainable management for natural resources;
- Improve the economic position and social standing of women and young people in rural areas;
- Help rural communities to have a greater sense of responsibility as actors for development.

The Strategy for Accelerated Growth and Sustainable Development (SCADD 2011-2015) was adopted in December 2010, to replace the CSLP. Its aim is to «achieve strong sustainable and quality economic growth (10 percent par year), that will generate multiple impacts in improving revenues and living standards for people and will respect the principle of sustainable development». If these

objectives were to be realized, it would be possible to achieve the Millennium Development Goals (MDG), and bring poverty levels down to less than 35 percent in 2015. SCADD foresees a significant level of contribution of the rural sector to the national economy, with a specific target of achieving an average growth rate of 10.7 percent over five years (2011-2015). For this purpose, the Rural Sector National Programme (PNSR) is in the process of being finalized, in conjunction with SCADD and the regional agriculture policy for ECOWAS (ECOWAP/PDDAA).

Figure 26 : Strategic frameworks and operational programmes for agricultural policy in Burkina Faso



Source: Authors of policy documents

Current policy priorities and political environment

Given the predominant contribution of agriculture to the economy of Burkina Faso and its strategic role in promoting food security and poverty reduction, the government is planning to highlight this sector, notably by promoting areas of growth and development for promising sectors that could help to accelerate economic growth.

In an attempt to achieve strong economic growth of an annual 10 percent by 2015, SCADD is expecting an average 10.7 percent growth rate from the agriculture sector. To achieve this objective, the government has decided to identify promising sectors where support will be needed for development. The products selected are:

- oilseeds offering export potential on attractive international markets;
- cereals and cowpeas, whose export potential lies mostly in West African markets;
- fruits and vegetables, whose potential lies in both sub-regional and international markets;
- livestock products (meat, hides and skins) with export potential in both regional and international markets;
- milk and dairy products, for which the domestic market alone is calculated at almost 10 billion FCFA per year.

The government's vision and priorities for the agriculture sector for the period 2011-2015 are stated in the National Programme for the Rural Sector (PNSR). The PNSR is the benchmark framework for guidelines, planning, implementation and monitoring and evaluation of public and private

interventions in areas of rural development, agriculture, water, fisheries resources, animal resources, the environment and living conditions. The programme is part of a vision described as follows:

> «*By 2025, agriculture in Burkina Faso will be modern, competitive, sustainable and an engine of growth, founded on household farms and effective agricultural enterprises and ensuring all people of Burkina Faso have access to the food they need to lead active healthy lives* ».

This vision was drafted from the conclusions of the national conference on agriculture and food security (EGASA) held in November 2011. The PNSR envisages ambitious investments in the development of 17,000 ha of irrigated land, 35,000 ha of lowlands and the rehabilitation of some 1,500 ha of irrigated land.

The organization of the rural sector is one of the government's most pressing current concerns. With the aim of improving the structure of sectors in Burkina Faso, a law on inter-branch organizations is in the process of being adopted. The idea is to provide such organizations with a legal framework which will enable them to play a full role in the emergence of promising agricultural sectors (proceedings of Council of Ministers, 28 March, 2012).

A major construction project under way for the agriculture sector is the building of the Samendéni dam in *Ouest* province. This is part of the Integrated Development Programme for the Samendéni Valley (PDIS), with a total cost of more than 181 billion FCFA. The main objectives of the programme are as follows:

- the construction of a dam with a capacity of 1,050 million m3 of water;
- the building of a hydroelectric power plant with an annual output of 16 GWh;
- recalibrating riverbed as a feeder channel for irrigation, fisheries and river transport;
- irrigation of 21,000 ha of land, of which 1,500 ha in the fist phase of the programme;
- development of fisheries and aquaculture with an annual output of 1,100 tonnes from small-scale fishing;
- creation of an agro-industrial village to process and conserve agricultural and fisheries products;
- implementation of an environmental and social management plan.

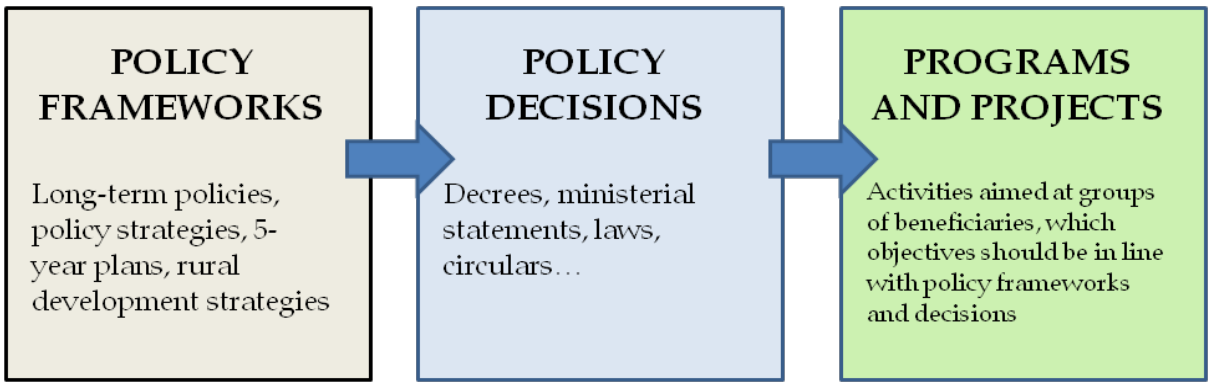
Elsewhere, the «growth pole» approach is being pursued, with the Bagré Growth Pole project (in the *Centre Est* region of Burkina Faso). The project has three parts and will cost about 67 billion FCFA. It plans to attract at least three major investors who will each operate on 500 ha of land, alongside small and medium enterprises and small-scale producers who will have the use of 6,000 of land developed with irrigation etc. There are also plans to develop 15,000 ha of uplands, 3,000 ha of lowlands and 3,000 ha of gravity-fed irrigation, all for private investors. Other plans include the construction of an industrial estate, an abattoir, a livestock market, a fish market, 150 km of paved or repaired roads and a 140 km electricity grid to connect production areas. In the long term, the programme envisages the creation of at least 30,000 jobs, a total of 20,000 direct beneficiaries, 30 percent of them being women, and 250,000 indirect beneficiaries. It is estimated that agricultural output should increase by about 157,000 tonnes to 450,000 tonnes and be flanked by an annual 1,250 tonnes of fisheries products and 2,400 tonnes of livestock feed.

It should be observed that for this programme to be successful, there will need to be a climate of peace and political stability. The events of recent years have shown that elections are often a cause of instability (one could cite the cases of Cote d'Ivoire, Senegal, Guinea etc.). There are uncertainties surrounding the progress and outcome of the next presidential election planned for 2015. These various sources of instability often affect the timing or the performance of such programmes and projects and can even be the cause of reluctance or withdrawal on the part of some donors.

Decisions across the sector and specific products

During the period 2005-2010, the government of Burkina Faso took a series of policy measures and decisions that directly affect the country's main agricultural products and sectors that are under consideration by the MAFAP/SPAAA project. The policy measures and decisions are defined here as «decrees or ministerial announcements on specific aspects of policy framework» (FAPDA, 2010). They coincide with an implementation phase of these strategic frameworks, but retain a legal status which differentiates them from projects and programmes.

Figure 27. Simplified illustration of process for decision-making and implementation of agricultural policies



Source: FAPDA, 2010

In this section, we will examine government decisions and measures likely to have a direct impact on incentives to production (such as taxes, or, conversely, subsidies) or an indirect impact (activities to strengthen capacities, investments in public goods, for example improvements in services or transport networks). We have chosen to present the various decisions and measures by dividing them into 4 categories: those of a cross-cutting nature that affect all product groups, those that target export products, those that target imported products and those concerning products that are not traded internationally.

It should be remembered that this study covers a sample of ten agricultural products, the result of a selection process carried out in agreement with national project partners (see Part II, section on product selection, page 79)

Cross-cutting policy decisions

Suspension of customs duties. In response to the 2007-2008 food crisis, the government took emergency measures between 2008 and 2011, with the particular goal of strengthening food access for the most vulnerable consumers. The principle measure was to suspend customs duties on

imports of certain food products whose prices had increased significantly, or which were consumed by vulnerable groups. These included rice, oil, salt, dairy products and food preparations for children. The measures taken were counter to regional agreements.

Price capping. The government has entered into negotiations with wholesalers and importers with the aim of agreeing on a series of fixed prices, so as to limit the impact of international prices on consumers.

Distribution and subsidies for inputs. The government also took the decision to support cereal production by distributing improved seed and subsidizing fertilizer for farmers. For the 2008-2009 season, a quantity of 7,214 tonnes of seed was distributed at a total cost (including logistics) of 3,084 million FCFA. In 2009-2010, the quantity increased to 7,263 tonnes, at a total cost of 3,942 million FCFA. Regarding fertilizer, a 50 percent subsidy was provided to farmers for their purchase. The cash sales price was 250 FCFA/kg for NPK and 270 FCFA/kg for urea. For credit sales, prices were fixed at 290 FCFA/kg for NPK and 270 FCFA/kg for urea. For the 2008-2009 season, for a total cost (including logistics) of 5,269 million FCFA, the total quantity sold was 202 tonnes of NPK and 219 tonnes of urea for plots sown with cowpeas and maize, compared with 6,798 tonnes of NPK and 2,781 tonnes of urea for plots sown with rice. For the 2009-2010 season, the total cost was 4,034 million FCFA, for a total quantity of 11, 253.5 tonnes, of which 6,340 tonnes were NPK and 4,913.5 tonnes were urea.

Stock building. In addition, the government tried to rebuild national food security stocks for the 2008-2009 and 2009-2010 seasons, buying cereal production at guaranteed floor prices. These stocks were made up of 35,000 tonnes of cereals (millet, maize, sorghum) and rice was added in 2008. The stocks can only be mobilized if national production falls at least 5 percent below national cereal requirements. They are managed by a series of instruments, in particular the Food Security Support Fund (FASA), which comes under SONAGESS.

As well as physical stock, there are also financial reserves built up by government partners, with a counter value of about 25,000 tonnes of cereals. These will be mobilized if national production falls at least 7 percent below national cereal requirements.

Registering market operators. Another cross-cutting policy measure which acts as an incentive to wholesalers, involves setting up standards for certain cereals, including rice, millet, maize, sorghum, durum wheat semolina and packaging of husked rice and cereals. These various norms give status to rice dealers (wholesale and retail), thereby facilitating their business activities. Having some form of industry status remains important and also facilitates the targeting of government interventions. A review of the framework for action for agricultural investment in Burkina Faso showed that producers have problems obtaining loans from banks due to the fact that they have no status.

Exports restrictions. Exports for staple crops such as sorghum and maize have been restricted since the 2007-2008 food crisis, with the intention to keep these productions within Burkina Faso so as to avoid acute famine. The restrictions take the form of red tape.

Imported products: rice, oil and cotton

Rice. This commodity holds an important place in Burkina Faso's general strategic frameworks (SDR, PNSR). It also has its own National Rice Development Strategy (SNDR), launched in 2009. The overall

goal of the SNDR is to contribute to a sustainable increase in national rice production, in terms of both quantity and quality, so as to satisfy consumer needs and demands.

Following the 2008 food crisis, the government introduced emergency measures to ensure the country's food security, focusing on rice in particular. Customs duties for rice imports were suspended and the government set a floor price for paddy rice at 128 FCFA/kg in 2009.

As well as these support measures, specific initiatives were taken to increase rice production. In particular, these involved stepping up training for farmers cultivating rice on the irrigated plains and lowlands and a government plan to purchase rice from producers. The government also offered significant input subsidies to rice farmers, with an average estimate of 16,301 FCFA/tonne in 2008, 7,649 FCFA in 2009 and 10,472FCFA/tonne in 2010 (DIMA/DGPV 2012). These various measures were pursued up until June 2012.

Table 26: Input subsidies for rice production from 2008 to 2010

Year	2008	2009	2010
Value of improved seed in billions of FCFA	3.10	3.90	3.7
Quantity of improved seed (in tonnes)	9,244	14,166	11,601
Quantity of improved rice seed (in tonnes)	3,500,00	3,001,11	3, 250,56
Percentage of budget allocation for improved seed (mineral fertilizer)	38 %	21 %	30 %
Rice production in tonnes	195,102	218,804	270,658
Rice seed subsidy in FCFA/per tonne	6,015.85	3,776.06	4,035.93
Value of mineral fertilizer in billions of FCFA	5.3	4.0	5.9
Total quantity of mineral fertilizer in tonnes	7,054	7,270	9,087
Quantity of fertilizer for rice, in tonnes	2,671	1,540	2,683
Percentage of budget allocation for mineral fertilizer	38 %	21 %	30 %
Mineral fertilizer subsidy in FCFA/tonne	10 285,16	3 872,88	6 435,68

Source: data obtained from DIMA/DGPV, 2012

In 2008, the government proposed distributing profit margins among the various stakeholders, as follows:

- ✓ 30 FCFA/kg for the farmer, a relatively substantial profit margin,
- ✓ 15 FCFA/kg for the processor[5],
- ✓ 10 FCFA/kg for the wholesaler and
- ✓ 15 FCFA/kg for the retailer.

These margins were fixed on the basis of the «large area of pump irrigated land» Sourou production system, which has the highest costs. Whatever production system is used, rice cultivation is financially viable for most farmers, especially when compared with millet or sorghum cultivation, currently the chief cereal crops. Even with the «Large Area of Irrigated Land» Sourou system (a pump-based production system), the sale of husked rice would enable value chain actors to repay loans and expenses for the farming season, which amount to a total annual average of 346,167 FCFA per ha.

For the Bagré case (a gravity-fed production system) which is the production area considered in this study, the profit margins obtained after deductions for production costs, are in the order of 82,000 to 125,000 FCFA.

Cottonseed oil. Of all the policy measures put in place to boost the agriculture sector and the industrial fabric, there was no specific measure for cottonseed oil for the period studied (2005-2010). All the policies adopted for the cotton sector, even those that went beyond the simple production of cottonseed, were limited to cotton fibre, without making any explicit reference to crushing the seed. Cottonseed oil production was largely ignored and faces competition from imported vegetable oils, mainly palm oil. The trade measures concerning palm oil that were taken by the government to respond to the 2008 crisis therefore have a direct link with production of cottonseed oil. The oil was one of the products to benefit from a suspension of import duties. It was also included on the list of products for which the government negotiated with wholesalers and importers to limit prices, in spite of international price increases.

Export products: cotton, gum arabic, livestock and sesame

Cotton. An early measure involved fixing the price of cottonseed. A price smoothing fund system was launched in 2006, with support from the French Development Agency, which aimed to respond to the volatility of cotton prices on global markets and guarantee a minimum price to producers for the purchase of cottonseed. The price of cotton is fixed at the start of the season by the cotton companies, using the Cotlook A index. A floor price (95 percent of the benchmark price) and a ceiling price (101 percent of the benchmark price) is determined. At the end of the season, the benchmark price is recalculated on the basis of developments in the Cotlook A index. The difference between the benchmark price at the close of the season and the floor and ceiling prices is therefore determined:

- if the benchmark price is higher than the floor price, the cotton companies pay the floor price, together with the dividend, which is the ceiling price minus the floor price, and a super dividend, or price supplement, to producers. This price supplement is a fraction of the difference between the

[5] With the cost of husking put at 45 FCFA/kg.

benchmark price and the ceiling price, the rest being paid into the price smoothing fund, known as the compensation fund. The amount that each company must pay into the fund is calculated on the basis of volumes sold;

- if the benchmark price is included in the «tunnel» (between the ceiling and floor prices), the cotton companies simply pay the difference between the benchmark price and the floor price in the form of dividends to producers.

- if the benchmark price is lower than the floor price, the cotton companies pay this price, drawing the difference from the price smoothing fund. The amount that each company has to pay into the fund is calculated on the basis of volumes sold;

In view of the high level of integration of the cotton sector into the economy, and given the problems encountered by this sector, the government has also decided to offer support to cotton companies, starting with the 2004 season:

- debt security for SOFITEX, using the banking system, to a value of 44 billion FCFA, rescheduled over 5 years.

- Recapitalization of SOFITEX to a value of 38 billion FCFA in 2006 and payment of the share of producers in three cotton companies, with budget support from the European Union;

- government security on credit arrears incurred by SOFITEX has made it possible, on the one hand, to limit a deterioration in banks' loans portfolio, given the decline in viability and, on the other hand, to protect the balance sheets of the cotton companies so as to make it easier for them to negotiate seasonal loans;

The government has also set up a semi-permanent subsidy for agricultural inputs, so as to cushion price shocks for these items following firstly the crisis in Cote d'Ivoire, and subsequently the oil crisis. The subsidy offered by government and the cotton companies in 2007 (of, respectively, 3 billion FCFA and 2.33 billion FCFA), made it possible to bring down the price increase of urea and NPK, respectively, from 24 percent to 6 percent and from 34 percent to 15 percent, compared with prices charged in 2005/2006. This had the direct impact of reducing the scissor effect that threatened producers, with the historic fall in the floor price of cottonseed to 145 FCFA a kilo. In 2007, the subsidy agreed by the government was 3 billion FCFA; in 2008, it was 6.5 billion FCFA and in 2009 it was 11 billion FCFA.

Lastly, in an attempt to ease pressure on the cash flow of cotton companies, the government reduced payment deadlines for VAT credit, with arrears payments owed by cotton companies totalling more than 11 billion FCFA as of 31st of December 2006. .

Gum arabic. Regarding policy frameworks, 2008 saw the launch of the Agency for the Promotion of Non Timber Forest Products (APFNL). Its mission was, amongst others, to develop, coordinate and implement strategies for promoting value enhancement for Non Timber Forest Products (NTFP) and support the development of NTFP sectors, including that of gum arabic. In 2010, Burkina Faso also adopted a sectoral strategy for gum arabic.

There were no specific policy measures for gum arabic between 2005 and 2010. However, various subsidy projects made grants of around 25 percent available to producers for the purchase of material to extract gum from trees, create infrastructures (warehouses/gum outlets) and credit lines were made available to the principle collectors. A case in point was the Support Project for Agricultural Development in Burkina Faso – Phase 2.

Cattle. A number of strategic frameworks have been developed to manage the livestock sector in general during the past fifteen years. The government adopted a steering brief on the action plan for Livestock Development Policy in 1997. The steering brief was accompanied by a Document for Strategic Guidelines in 1998, and an implementation plan, the Action Plan and Investment Programme for the Livestock Sector in Burkina Faso (PAPISE) in 2010. By 2012, PAPISE should have given direction to government action for the livestock sector. The government's wish to make livestock a priority was confirmed in SCADD 2011-2015, as well as through the adoption of a National Policy for Livestock Development 2010-2015. This strategy reaffirms the government's priorities for the livestock sector: strengthening capacities, more secure land tenure, sustainable management of pastoral resources, growth in productivity and production, improvement in competitivity and marketing.

However, aside from these frameworks, projects and programmes, no precise policy decision or measure (subsidy, taxes, and quotas) was recorded during the period studied (2005-2010).

Sesame. The sesame system is marked by a remarkable lack of policy decisions or measures. Sesame cultivation is certainly supported by a series of projects and programmes, but the government did not take any decision, during the period 2005-2010, aimed at supporting the production, processing or marketing of this crop.

Thinly or non-traded products: maize, sorghum, groundnuts and onions

Maize. Maize is part of the group of cereals covered by contingency measures in response to the food crisis of 2008.

As part of a policy to distribute improved seed, the government supplied 2,655 tonnes of maize seeds in 2008 (or 36 percent of the total volume of seed distributed) and 3,341 tonnes (or 46 percent of the total volume of seed distributed) in 2009. As in the case of other cereals, fertilizer was subsidized to the tune of 50 percent. In 2008-2009, 202 tonnes of NPK and 219 tonnes of urea were applied to plots of cowpeas and maize, representing a quantity of NPK 30 times lower than that applied to rice plots and, in the case of urea, 10 times lower. The value of input subsidies for maize are estimated at an annual average of nearly 1.3 billion FCFA since 2008.

Sorghum. Sorghum benefited from policy measures in place for cereals, but to a lesser extent than rice or maize, both of which were particularly targeted by agricultural policies, in an effort to boost production following the food crisis of 2008. In common with other cereals, initiatives to distribute improved seed (with an offer of 25kg kits in exchange for 1,000 FCFA) and 50 percent fertilizer subsidies were launched to help sorghum producers. Concerns about food security also prompted the government to take measures to build up security reserves designed to be sold at a low price in the event of shortages.

Groundnuts. During the past decade, there have been no significant projects that specifically targeted the groundnut sector in Burkina Faso. A plan of action for the development of the oilseed sectors was drawn up in 2003, but it was never implemented. After the food crisis of 2008, the government's food security objectives mainly focused on local cereals, and, as needed, on maize and rice. The oilseed sectors, which did not respond to the food security requirements at the time, have not therefore been paid any particular attention to date.

Onions. Policy decisions and measures for the onion sector remain embryonic. The onion sector is a reality, a sub-sector of the fruit and vegetables sector which is not regulated by specific legislation. The sector's institutional framework is characterized by a high number of public or private structures intervening directly or indirectly in the production, organization and marketing of onions. Regarding research, there are several structures that support the sector. The main one is the National Centre for Scientific and Technological Research (CNRST), which conducts research into varieties, parasites and the issue of conservation. Data is unavailable on amounts of public finance for the onion sector, but the benchmark situation outlined in the Support Project for Agro-Sylvo-Pastoral Sectors (PAFASP) shows that producers are financed through informal lending to the tune of 77 percent.

Part 2. THE EFFECTS OF FOOD AND AGRICULTURAL POLICIES, PUBLIC SPENDING AND DEVELOPMENT AID

To attain specific development objectives, governments use policies to change the rules governing the economy as a whole (macro-economic policy), or those governing a particular economic sector (sector policies), in order to guide and modify the behavior and decisions of agents operating in the economy. This can either be done by establishing a legal framework by which economic agents must abide (e.g. food quality or safety norms, property rights) or run the risk of legal prosecution or fines. Another approach is institutional reform or providing incentives or disincentives to certain types of behavior via price and trade policies, input and output marketing policies, social policies (income transfers, safety nets, social security schemes) and finance policies.

Public expenditure, on the other hand, can be used to make goods and services available to the food and agriculture sector, to support the implementation of government policies and to facilitate the achievement of development objectives. This expenditure may, for example, include the provision of public goods through public investment in infrastructure, or provide private benefits, such as subsidies or income transfers.

To monitor government actions and ensure that these are consistent and contribute adequately to development objectives, it is therefore essential that the authorities be fully informed regarding the incentives or disincentives that the packages of policies they implement may provide to the economy, and regarding the consistency, efficacy and adequacy of the way in which they spend their public resources.

Some of the key questions that governments need to consider include the following:

- Do policies in place provide incentives for production, processing and marketing in key food and agricultural value chains, or do they penalize them?
- Who, in the most strategic value chains, benefits from the policies in place? Producers, processors, traders or consumers?
- Which policies should be changed so that the incentive structure in the food and agriculture sector comes closer into line with government objectives?
- Is public expenditure spent in a way that addresses the key issues faced by the food and agriculture sector? (i.e. what is the most efficient way to improve farmer incomes -- an input subsidy or investment in a road?). Is public investment focusing on key investment needs?
- Are policy incentives and public expenditure coherent or do they in some cases provide contradictory signals to the economy, resulting in wastage of precious public resources?
- Are public resources spent efficiently, or is an excessive share of it used for administrative costs?

MAFAP adopts a three-pronged approach to assess the effects of food and agricultural policies on the agricultural sector : through price, public expenditure, and policy coherence analysis.

Price analysis

This first approach is at the core of the MAFAP project. The MAFAP project assesses the effects of policy decisions that affect prices for the main commodities representing at least 65 percent of the

production value in the country : bans, quotas, taxes... This evaluation allows to understand whether producers receive, or not, production incentives through high prices for each of these commodities, and to determine the causes of these (dis)incentives : trade policies, market structure, value chain efficiency...

The methodology behind this analysis relies on the law of one price, assuming that in an efficient market, all identical goods must have only one price. A benchmark price is therefore used for each commodity analyzed, that is either the international or the regional price. This price is then adjusted with access costs from the point of export or import (transport, handling, margins...), and accounts for quality and quantity differences if necessary, to make it comparable to the domestic wholesale and producer prices. It is then called ''a reference price'', while the actual prices in the country are called ''observed prices''. The difference between the reference price and the observed price (price gap) provides a quantitative assessment of price incentives to wholesalers and producers. It is also called market price support. If the price gap is positive, production is encouraged, on the contrary a negative gap means producers are not supported through prices. This gap is also converted into a relative indicator (in percent), to allow comparisons with other commodities and across countries : this indicator is called Nominal Rate of Protection(NRP). The NRP reflects the policy support to producers and wholesalers through prices.

Additionally, budgetary transfers specifically directed to the commodity can be added to the calculation of the market price support to estimate the Nominal Rate of Assistance (NRA).

Public expenditure analysis

Second, the project offers a disaggregated public expenditure analysis in support of food and agriculture in the country, in order to have a broader understanding of the effects of public policies. MAFAP looks at the composition of public expenditure, by commodity and nature of activities supported, budgeted and spent, supported by donors or nationally-funded. The public expenditure analysis thus complements the price incentive analysis and helps policy-makers and donors understand if public expenditure addresses the development gaps of the country's agricultural sector.

The MAFAP public expenditure classification and analysis methodology builds upon the OECD's typology. It classifies all public expenditure (programmes, projects, governmental initiatives) into two main categories : agricultural-specific and agricultural-supportive. The first one relates to expenditure that goes either directly to agents working in agriculture (producers, traders...), or indirectly (research, training, extension...). The second one relates to expenditure supporting rural development as a whole and indirectly benefiting agants in the agriculture sector: rural education, energy, infrastructure. All initiatives, programmes, and project activities are individually classified within one of the several sub-categories existing, while administrative costs are also considered. Additional filters include classification by commodity and institution in charge of the activity.

Policy coherence analysis

The third dimension combines the public expenditure and price incentive analysis. Comparing expenditure allocation with structural gaps and price incentives identified for each commodity, and for the sector as a whole, reveals if the government has a consistent agricultural policy set. For instance, the government may have spent a significant share of public expenditure to support production of one commodity, while not creating a policy environment allowing producers to benefit from high prices for the same commodities : low expenditure on roads and markets, low-sale prices...The policy coherence analysis also allows for assessing consistency between stated government policy objectives and effect of the policy measures as revealed by the MAFAP analysis of public expenditure and price incentives.

5. Incentives, disincentives and market development gaps

Abstract

Box 1: Summary of results by group of commodities analyzed

Disincentives for producers, and to a less extent for wholesalers, were observed for seven out of ten commodities analyzed. Such disincentives are particularly significant for the livestock and onion sectors; the cotton, seedcotton oil and rice sectors receive incentives for production.

- Imported commodities: the results of the analysis indicate incentives for actors involved with imported goods as a whole. In the case of rice, the government's objective of increasing outputs appears to be well on the way to being achieved, since production is increasing due to a support system that offers various incentives to farmers. As a result, these actors receive prices that are higher than the reference prices. In the case of cottonseed oil, despite the lack of specific policies for the sector, actors are being given incentives and are also receiving prices that are higher than the reference prices. It should, however, be observed that these commodities risk becoming uncompetitive since local actors face external competition.
- Exported commodities: aside from cotton, for which the actors, and especially the producers, received incentives throughout the period studied, actors in other sectors were subjected to disincentives. Policies implemented in the cotton sector have effectively supported cotton production. However, this has been at the expense of the cotton companies, which have been subjected to disincentives, although the situation has improved since the introduction of a new price mechanism in 2007. Gum arabic and sesame suffer the effects of lack of organization for these sectors and quality that is unsuited to international market standards. This suggests an urgent need to strengthen capacities for production techniques, sorting and product packaging. Disincentives for actors in the livestock sector are largely due to poor infrastructure and low levels of intensification in production systems.
- Thinly traded commodities: among the thinly traded products, there are commodities largely produced for self-consumption (maize, sorghum), but also commodities traded on the domestic market (groundnuts, onions). Although they are mainly destined for local consumption, these commodities are also exported to neighbouring countries in very small quantities. Overall, producers have received disincentives to production, due to the fact that they received prices that were lower than the reference prices. Such disincentives are partly explained by the poor linkage between farmers and local and sub-regional markets, and partly by pressing cash flow problems which force producers to sell off products cheaply at the end of harvests. It has to be noted however that this disincentives are compensated by incentives for sorghum, the main staple and thinly-traded commodity in the country.

Commodity selection

Agricultural products were chosen for analysis based on three key criteria.

First, the products selected must represent about 70 percent of agricultural output in Burkina Faso (see table below).

Table 27: commodities selected on the basis of production share in value terms in Burkina Faso, in thousands of USD

	Average share (2005-2009)	Cumulative average share
Meat (domestic beef)	16.5%	16.5%
Cotton fibre	14.7%	31.1%
Sorghum	11.1%	42.3%
Millet	9.2%	51.5%
Unshelled groundnuts	5.6%	57.0%
Dried cowpeas	5.4%	62.4%
Maize	5.3%	67.7%
Cottonseed	4.6%	**72.3%**

Source: FAOSTAT, 2012

Second, the selected products must also be representative of different categories of products in terms of the extent to which they are imported, exported, traded, or non-traded, as well as their relevance to food security. Indeed, the chosen products should represent at least 65 percent of total caloric intake in the country. Where applicable, products with high potential for use in promising or emerging value chains should also be taken into account, as per identified in national policy frameworks. To ensure the relevance of indicators across the African continent, agricultural products representing a significant share of the total agricultural production value within their respective region or within Africa as a whole were identified for analysis in each country. In cases where domestic production exists, six of these regionally significant products were analyzed in all countries where the MAFAP project is implemented. These commodities include rice, maize, groundnuts, beef, cassava, and plantain.

Table 28: Commodities selected on the basis of value of exports and imports for Burkina Faso, in thousands of USD

Average imports (2004-2008)		Average exports (2004-2008)	
Milled rice	44,074	Cotton fibre	22,9876
Refined sugar	13,230	Sesame	11,073
Dried whole milk	13,214	Mangoes, mangosteens and guavas	5,530
Wheat flour	11,865		
Palm oil	11,031		
Wheat	9,535		
Broken rice	8,068		

Source: FAOSTAT, 2012

Third, the national partner, as well as national development stakeholders, were consulted to determine other relevant products for analysis.

Based on these three criteria, 13 commodities were identified : beef, cotton (fibre and seed), sorghum, millet, groundnuts, cowpeas, maize, rice, sugar, milk, wheat, palm oil – which is imported and is the substitution commodity for cottonseed oil produced in Burkina Faso – and sesame. Gum arabic, fish, onions and jatropha were added in accordance with the 3rd criterion. Given constraints in terms of time and data availability, the study of certain commodities was delayed to a subsequent phase of the project. This is the case for fish, sugar, milk, millet, cowpeas and jatropha.

In conclusion, this report includes the study of the following products: cattle, in place of beef meat, cottonseed oil (in place of palm oil, for which cottonseed oil is a substitution product), rice, maize, cotton fibre (studied simultaneously with seedcotton), sesame, sorghum, gum arabic, groundnuts and onions.

Highlights of the methodology

This section gives a brief account of the methodology used to calculate the indicators for measuring incentives and disincentives at farm gate and wholesale level (see Box 1). A detailed methodology is available from the MAFAP project site at www.fao.org / mafap-documents.

Box 2: Methodology and MAFAP indicators

The Nominal Rates of Protection

The MAFAP project analysis uses four measures of market incentives and disincentives. First, there are two observed nominal rates of protection – one at the wholesale level and one at the farm level – which compare domestic market prices to reference prices free from domestic policy interventions.

Reference prices are calculated from a benchmark price, such as an import or export price expressed in local currency, which is brought to the wholesale and farm levels by adjusting for quality, shrinkage, loss, and market access costs.

First, the *Nominal Rates of Protection - observed (NRPo)* are the price gap between the domestic market price and the reference price divided by the reference price at both the farm and wholesale levels:

$$NRPo_{fg}=(P_{fg}-RPo_{fg})/RPo_{fg}; \quad NRPo_{wh}=(P_{wh}-RPo_{wh})/RPo_{wh};$$

$NRPo_{fg}$ capture all trade and domestic policies, inefficiencies along the product's value chain and other factors affecting incentives or disincentives for the farmer. $NRPo_{wh}$ help identify where incentives and disincentives may be distributed in the commodity market chain.

Second, there are two *Nominal Rates of Protection - adjusted (NRPa)* – one at the wholesale level and one at the farm level – in which the reference prices are adjusted to eliminate any distortions found in the market supply chain (e.g. extraordinarily high transport costs, taxes/levies or excessive profit margins of economic agents). The equations to estimate the adjusted rates of protection, however, follow the same general pattern as those used to calculate the observed rates of protection:

$$NRPa_{fg}=(P_{fg}-RPa_{fg})/RPa_{fg}; \quad NRPa_{wh}=(P_{wh}-RPa_{wh})/RPa_{wh};$$

Distorsions caused by market power, exchange rate misalignments, and excessive market access costs, which, are quantified and used to adjust the *NRPo* and generate the *NRPa* indicators. A comparison of those rates of protection identifies where market development gaps can be found and reduced.

The Nominal Rate of Assistance

The nominal rate of assistance takes into account one additional dimension in the analysis: budgetary transfers to producers and wholesalers in the value chains. It is built for each value chain from the NRPa and public expenditure towards the analyzed value chain. This rate will be developed in the forthcoming MAFAP reports. It is not however presented here because of insufficient accuracy of the data available on public expenditure for most of the value chains that were analyzed.

The Market Development Gap (MDG)

"*Excessive*" access costs within the value chain are the first sort of distortion captured with the market development gap indicator. These costs stem from factors such as poor infrastructure, high processing costs due to obsolete technology and high costs due to excessive post-harvest losses. These "*excessive*" access costs can be regarded as implicit disincentives to the extent that they could be reduced through suitable investments or better governance, thus allowing increasing prices received by farmers.

A second set of distortions taken into account is the impact of exchange rate misalignment, imperfect functioning and non-competitive pricing in international markets and monopoly power on prices paid and

received in the value chain[6].

A major methodological question is to what extent can these components be disentangled in order to calculate the total market development gap.

From a methodology implementation standpoint, it is argued that once we have clarified the relationship between the different MDGs, it is possible to propose the measurement of all "market development gaps". As suggested above, the total market development gap cannot be measured quantitatively without a subjective evaluation of the proportion of the observed price gap which is not trade and market price support related. However, it is possible to provide an indicator for the total MDG, which is value chain specific and includes elements related to the excessive access costs in the value chain, international markets and exchange rate policy.

In order to provide a relative indicator of the market development gap value, we can relate the gap to the farm gate price (fg) or the wholesale price (wh) as follows:

$$MDG_{fg} = \frac{(IMG + ERPG + ACG_{wh} - ACG_{fg})}{P_{dfg}}$$

IMPORTED GOODS

$$MDG_{wh} = \frac{(IMG + ERPG + ACG_{wh})}{P_{dwh}}$$

$$MDG_{fg} = \frac{(IMG + ERPG - ACG_{wh} - ACG_{fg})}{P_{dfg}}$$

EXPORTED GOODS

$$MDG_{wh} = \frac{(IMG + ERPG - ACG_{wh})}{P_{dwh}}$$

Marketing channel

For all products analyzed, it was necessary to identify the point of competition and a production area in order to obtain a representative wholesale and producer price. To this end, it was important to produce a detailed analysis of the marketing structure of each product studied. For some commodities (rice, maize, millet, sorghum, cotton, cattle, etc.) several production areas exist, involving different marketing corridors. For the purpose of the study in this first phase of MAFAP, we selected a single production area and a representative point of competition (wholesale). Details on the marketing corridors selected and analyzed are available in the technical notes written for each of the products studied and consulted on the project site MAFAP at www.fao.org / mafap-documents .

[6] Ideally, it would also be possible to calculate the gaps resulting from uncorrected externalities in production and consumption, but as this would be extremely difficult to do across countries it is not yet proposed as part of the project's core methodology.

Observed prices and reference prices

Prices for producers were determined from various sources for different commodities. The producer prices for rice, maize and sesame were obtained from the database of the Permanent Agriculture Survey for DGPER. These prices correspond to the prices charged by producers located in the respective production zones identified, so as to reflect as closely as possible the farmgate prices. Producer prices for livestock were drawn from the database of the Market Information System at the General Directorate for Livestock Forecasts and Statistics (DGPSE). Data assembled from collectors of gum arabic made it possible to complete figures on producer prices obtained from the Ministry of the Environment for 2009. For cotton and seedcotton oil, sets of producer prices were obtained, respectively, from the operating accounts of SOFITEX and directly from SN CITEC.

The reference prices refer to the CIF prices for imported goods and the FOB price for exported goods. They are either drawn from external trade data (this is the case for rice and seedcotton oil) or are calculated from wholesale prices in markets where products are directly exported (such as livestock) or from a market where imports arrive (such as maize) (see Annex 1.)

Access costs between the producer and point of competition

Access costs observed between the farm and wholesale market are calculated as the sum of the access costs collected by the national technical team for the MAFAP/SPAAA project. When data is insufficient, these access costs can be calculated as the difference between the wholesale and producer prices. The difference between these two prices supposedly reflects the real functioning of the sector, once all explicit taxes have been deducted. In other words, this value is an expression of the development level of infrastructure, the competitivity of actors and the conditions of market power that are available for influencing access costs.

Access costs observed therefore include all costs, that is to say, transportation costs, various fees for services such as handling charges, the gross margin, expenses and illegal passage along existing corridors.

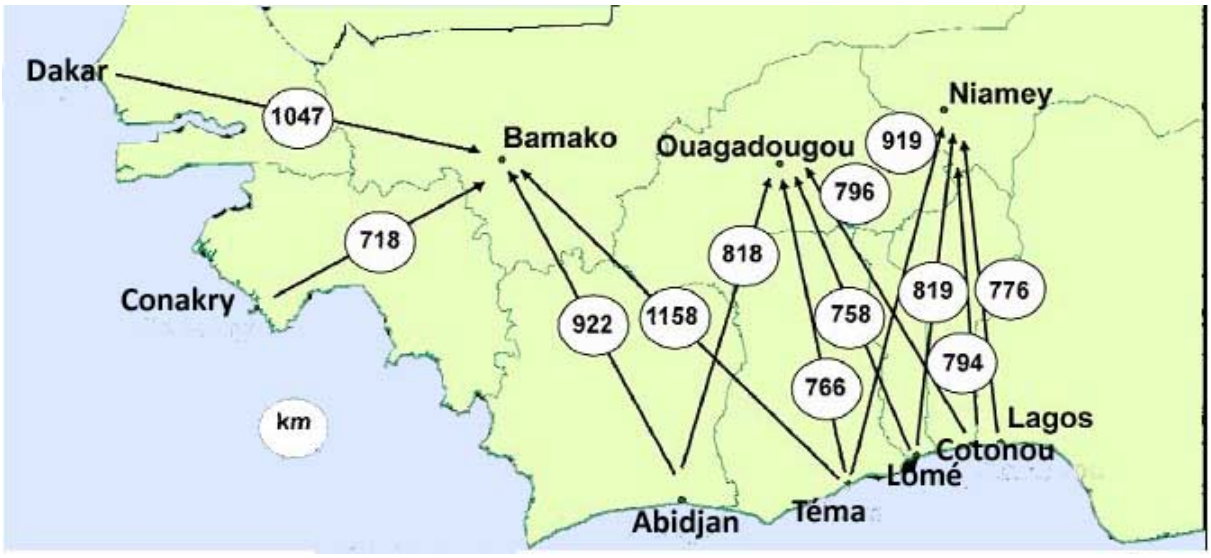
Access costs between the point of competition and the border

In the case of a landlocked country such as Burkina Faso, two situations are considered to determine access costs between the point of competition and the border.

- ✓ If the provenance of imports and the destination of exports are beyond the sub-region: the border is represented by the port, which constitutes the origin of imports or the destination of exports. Depending on the commodity studied, all costs are therefore related to the port of departure or arrival. In general, these are the following ports: Tema in Ghana, Abidjan in Côte d'ivoire, Lomé in Togo, and Cotonou in Bénin. Figure 28, below, presents the main trade corridors. Each number signifies the distances between the port and the national capital of Mali, Burkina Faso and Niger.

- ✓ For commodities traded within the sub-region, it has sometimes been decided to use border towns or, failing these, the areas closest to the border with Burkina Faso as the point of competition, in order to provide a more accurate picture of trade that is mainly transborder.

Figure 28: Trade corridors servicing landlocked countries Mali, Burkina Faso, Niger



Source: Diallo and Steeve, 2009.

Adjusted access costs

For all commodities analyzed, adjusted data were considered for the access costs to the point of competition and access costs to the producer.

To determine access costs reflecting efficient value chains, the following adjustments have been made:

- estimates of actual transportation costs and reasonable profit margins have been provided by adjusting the cost of transport and trade margins systematically choosing the lowest cost for each section.
- illegal taxes on roads from production areas to competition points and competition points to ports for export / import have been systematically deducted.

Because of the lack of reliable data, values used in the observed field were not changed for certain access cost dimensions such as efficiency resulting from a better functioning of the sector and increased competition or reduced waiting times in crossing boundaries.

Adjusted costs therefore tend to be overestimates, that is to say, they are higher than they should be in a perfectly efficient market situation.

It follows that reference prices reported to producers that are calculated from the estimation of these access costs are lower than those that would reflect a market of perfect competition

Indicators for effects of incentive and disincentive policies

The proposed analysis is based on the price comparison between domestic prices at producer and wholesale level and the reference price on the international market related to producer and wholesaler levels. The reference prices are those that producers and wholesalers could obtain in the absence of domestic policies affecting price levels.

With this method, the analysis takes as its starting point the economic theory of the law of one price, which stipulates that on a competitive market, each good has one price, and one only. This law does not hold for homogeneous commodities, if the information is perfect (and hence free), and if the transaction costs are zero. The analysis for the present study will be carried out for perfectly homogeneous commodities (or commodities that can be perfectly substituted on the local market) in terms of quality, or, failing this, for commodities that are simply comparable. An analysis of incentives and disincentives by price, makes it possible, using indicators calculated from reference prices and observed prices, to see if the prices act in favour, or to the detriment, of the various actors in the sector.

The indicators needed to estimate incentives and disincentives to production (NPT, TNA), as well as market development gaps (MDG) are calculated from data presented here in a simplified manner. It should be noted that the term “market development gap» does not wholly reflect the taking into account of gaps in some aspects linked to processing technologies, but also to sector organization (including the issue of scattered production, organization for collecting commodities and lack of organization among producers). Such factors should be borne in mind when interpreting the results.

The detailed calculations, the values used for each variable and all indicators calculated for each product are available in Table 29 and in Table 30 of the report. Furthermore, additional information is also available in the technical notes written for each of the products studied and consulted on the MAFAP project site at www.fao.org / mafap-documents .

Table 29 and in Table 30 show the two sets of indicators that the MAFAP project can generate: differences and ratios:

- The gaps obtained from observed prices and observed costs give an absolute representation of the effects of policy initiatives.
- The gaps obtained from the adjusted prices and adjusted costs take into account several other sources of price distortions such as market power in international markets, the effects of exchange rate policies, and access costs including the market development gaps. These gaps give a more precise representation of policy effects on price incentives and disincentives.
- The ratios, providing for the same variables a percentage that can be compared across countries and products.

Thus, indicators of the ‘’observed field" consider whether government price policies had the desired effect in terms of incentives; for instance if an import tariff of 20 percent has induced 20 percent price incentives to producers. The ’’adjusted field’’ indicators integrate other less explicit variables to the analysis related to the policy environment (exchange rate, inefficiencies in transport costs) which give more explanations to understand the gap between the reference price producers should get and the price they actually receive.

Caveats and limitations

Uncertainties on the quality of data represent the first limitation of our analysis. All efforts have been made to check data collected with local experts, so as to reduce errors.

Additional efforts have been made to verify the quality of data and explain to national partners that investing in reliable statistics systems offers significant benefits to making informed policy decisions. Indeed, more accurate updating of the RESIMAO database, an extremely valuable source of regional wholesale prices, would be highly advantageous for a long-term study such as the one we are proposing.

One of the main difficulties encountered has been that of estimating access costs, but this could be resolved in coming years by setting up an information system for agricultural markets, as part of the Agricultural Productivity and Food Security Improvement Project (PAPSA). Strengthening of customs controls by limiting the declaration system would also make it possible to obtain more reliable figures on the volume and value of external trade, in order to to determine price standards (CIF or FOB). In addition, it should be observed that in Burkina Faso, for strongly traded commodities, importers and exporters systematically underestimate trade volumes so as to pay lower taxes. The issue of reliability of customs data casts uncertainty on the analysis, for it directly affects the methodology, which is based on a comparison between domestic and international prices.

Secondly, our results are based on specific production zones. These are, for example, the zone of N'Dorola (province of Kénédougou) for maize, the zone of Bagré in the province of Boulgou for rice, the western cotton producing zone in the province of Houet for cotton. These represent the main production zones in Burkina Faso for these commodities, but other zones facing different situations in terms of access costs or linkage to market information, for example, could produce different results.

Thirdly, the fact that our methodology offers set comparisons based on annual averages means that we cannot present and explain price variations from one year to another or seasonal effects, nor price variations due to variations in commodity quality during the production season.

Table 29: Observed and adjusted price gaps, in FCFA/TON, 2005-2010

Products	Indicators:	*Unit*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*
Rice	Observed price gap at wholesale	FCFA / TON	16,572	20,875	45,962	50,485	46,903	53,159
	Adjusted price gap at wholesale	FCFA / TON	106,056	64,246	51,376	48,035	110,747	58,034
	Observed price gap at farm gate	FCFA / TON	32,842	16,084	33,796	40,637	19,048	30,094
	Adjusted price gap at farm gate	FCFA / TON	71,846	28,184	21,603	21,495	41,471	16,631
Maize	Observed price gap at wholesale	FCFA / TON	2,774	2,597	34,765	(1,052)	4,326	2,714
	Adjusted price gap at wholesale	FCFA / TON	(12,519)	(13,019)	42,276	(19,278)	(12,634)	(14,745)
	Observed price gap at farm gate	FCFA / TON	(19,070)	(41,804)	(12,763)	(24,430)	(16,472)	(30,113)
	Adjusted price gap at farm gate	FCFA / TON	(43,745)	(67,636)	(11,467)	(59,999)	(45,661)	(61,542)
Cotton	Observed price gap at wholesale	FCFA / TON	(32,629)	(25,180)	(8,917)	(6,788)	(1,499)	(9,589)
	Adjusted price gap at wholesale	FCFA / TON	43,979	(25,717)	(214,118)	(287,051)	(268,791)	(409,690)
	Observed price gap at farm gate	FCFA / TON	1,098	10,071	45,145	51,861	63,838	83,078
	Adjusted price gap at farm gate	FCFA / TON	34,882	9,835	(45,349)	(71,735)	(55,817)	(96,030)
Cottonseed	Observed price gap at wholesale	FCFA / TON	293,935	175,061	184,469	359,336	152,360	215,731
	Adjusted price gap at wholesale	FCFA / TON	300,089	181,211	114,041	285,441	62,479	134,000
	Observed price gap at farm gate	FCFA / TON	71,652	77,839	123,641	226,008	110,763	160,016
	Adjusted price gap at farm gate	FCFA / TON	71,019	77,066	46,291	144,444	13,010	70,412
Sorghum	Observed price gap at wholesale	FCFA / TON	25,632	40,357	34,793	35,474	35,347	49,445
	Adjusted price gap at wholesale	FCFA / TON	8,227	25,125	20,173	18,177	16,826	31,059
	Observed price gap at farm gate	FCFA / TON	170	30,287	25,163	3,113	(20,912)	17,083
	Adjusted price gap at farm gate	FCFA / TON	(30,628)	3,413	(443)	(26,601)	(51,959)	(14,722)
Sesame	Observed price gap at wholesale	FCFA / TON	26,236	49,466	(28,593)	(43,419)	(1,008)	(7,398)
	Adjusted price gap at wholesale	FCFA / TON	11,687	34,960	(110,634)	(172,431)	(113,010)	(120,678)
	Observed price gap at farm gate	FCFA / TON	60,509	43,048	(37,117)	(127,510)	(47,800)	(29,610)
	Adjusted price gap at farm gate	FCFA / TON	28,155	12,057	(135,908)	(277,804)	(181,200)	(165,635)
Cattle	Observed price gap at wholesale	FCFA / TON	(56,850)	(34,967)	37,082	21,468	(42,635)	(37,311)
	Adjusted price gap at wholesale	FCFA / TON	(71,116)	(50,528)	(50,060)	(73,300)	(143,933)	(141,749)
	Observed price gap at farm gate	FCFA / TON	(91,776)	(123,806)	(96,660)	(91,206)	(92,245)	(102,387)
	Adjusted price gap at farm gate	FCFA / TON	(109,813)	(143,065)	(188,379)	(191,474)	(199,900)	(213,229)
Groundnut	Observed price gap at wholesale	FCFA / TON	(6,551)	(96,817)	(3,373)	(35,720)	(38,955)	(57,522)
	Adjusted price gap at wholesale	FCFA / TON	(22,642)	(111,161)	(81,587)	(133,887)	(122,595)	(154,866)
	Observed price gap at farm gate	FCFA / TON	22,857	19,380	(21,343)	(88,202)	45,912	(9,407)
	Adjusted price gap at farm gate	FCFA / TON	9,524	7,128	(75,110)	(155,240)	(11,765)	(75,991)

Onion	Observed price gap at wholesale	FCFA / TON	(128,228)	(23,792)	(23,792)	(26,586)	(27,498)	(135,315)
	Adjusted price gap at wholesale	FCFA / TON	(110,020)	(40,815)	(40,815)	(45,393)	(46,979)	(112,633)
	Observed price gap at farm gate	FCFA / TON	(228,666)	(75,329)	(14,499)	(97,098)	(99,887)	(207,674)
	Adjusted price gap at farm gate	FCFA / TON	(213,759)	(95,719)	(34,889)	(119,635)	(123,197)	(188,821)
Gum arabic	Observed price gap at wholesale	FCFA / TON	(118,835)	(108,312)	(108,312)	(98,964)	(78,234)	8,090
	Adjusted price gap at wholesale	FCFA / TON	(210,663)	(200,420)	(347,361)	(338,750)	(324,586)	(240,997)
	Observed price gap at farm gate	FCFA / TON	(158,758)	(148,726)	(128,047)	(98,503)	(114,527)	(107,308)
	Adjusted price gap at farm gate	FCFA / TON	(265,065)	(255,599)	(382,811)	(354,506)	(377,594)	(374,061)

Table 30. Observed and adjusted Nominal Rates of Protection (NRPs), in %, 2005-2010

Products	**Indicators:**	***Unit***	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***
Rice	Observed NRP to wholesaler	%	7%	9%	23%	19%	18%	23%
	Adjusted NRP to wholesaler	%	73%	34%	26%	18%	55%	25%
	Observed NRP to producer	%	31%	15%	38%	34%	15%	29%
	Adjusted NRP to producer	%	105%	29%	22%	16%	41%	14%
Maize	Observed NRP to wholesaler	%	2%	2%	33%	-1%	3%	2%
	Adjusted NRP to wholesaler	%	-8%	-8%	43%	-10%	-8%	-8%
	Observed NRP to producer	%	-16%	-35%	-16%	-16%	-14%	-23%
	Adjusted NRP to producer	%	-31%	-46%	-14%	-32%	-31%	-38%
Cotton	Observed NRP to wholesaler	%	-5%	-4%	-2%	-1%	0%	-2%
	Adjusted NRP to wholesaler	%	8%	-5%	-32%	-37%	-36%	-44%
	Observed NRP to producer	%	1%	7%	41%	46%	61%	65%
	Adjusted NRP to producer	%	25%	6%	-23%	-30%	-25%	-31%
Cottonseed	Observed NRP to wholesaler	%	67%	40%	41%	75%	27%	40%
	Adjusted NRP to wholesaler	%	69%	42%	22%	52%	9%	21%
	Observed NRP to producer	%	19%	21%	32%	57%	22%	35%
	Adjusted NRP to producer	%	19%	20%	10%	30%	2%	13%
Sorghum	Observed NRP to wholesaler	%	16%	42%	39%	28%	24%	38%
	Adjusted NRP to wholesaler	%	5%	22%	19%	13%	10%	21%
	Observed NRP to producer	%	0%	40%	36%	3%	-16%	16%
	Adjusted NRP to producer	%	-18%	3%	0%	-20%	-33%	-11%
Sesame	Observed NRP to wholesaler	%	11%	22%	-10%	-9%	0%	-2%
	Adjusted NRP to wholesaler	%	4%	15%	-30%	-29%	-23%	-24%
	Observed NRP to producer	%	32%	26%	-16%	-32%	-15%	-9%

	Adjusted NRP to producer	%	13%	6%	-41%	-51%	-40%	-36%
Cattle	Observed NRP to wholesaler	%	-24%	-13%	13%	7%	-12%	-10%
	Adjusted NRP to wholesaler	%	-28%	-18%	-14%	-18%	-32%	-30%
	Observed NRP to producer	%	-41%	-49%	-37%	-31%	-28%	-30%
	Adjusted NRP to producer	%	-45%	-53%	-53%	-49%	-46%	-47%
Groundnut	Observed NRP to wholesaler	%	-3%	-34%	-1%	-11%	-14%	-17%
	Adjusted NRP to wholesaler	%	-9%	-37%	-25%	-31%	-34%	-36%
	Observed NRP to producer	%	20%	13%	-16%	-48%	33%	-5%
	Adjusted NRP to producer	%	7%	4%	-40%	-61%	-6%	-31%
Onion	Observed NRP to wholesaler	%	-42%	-12%	-12%	-12%	-12%	-40%
	Adjusted NRP to wholesaler	%	-39%	-19%	-19%	-19%	-19%	-36%
	Observed NRP to producer	%	-79%	-41%	-8%	-47%	-47%	-65%
	Adjusted NRP to producer	%	-78%	-47%	-18%	-53%	-53%	-63%
Gum arabic	Observed NRP to wholesaler	%	**-21%**	**-19%**	**-19%**	**-18%**	**-14%**	**1%**
	Adjusted NRP to wholesaler	%	**-32%**	**-31%**	**-44%**	**-43%**	**-39%**	**-29%**
	Observed NRP to producer	%	**-36%**	**-34%**	**-29%**	**-23%**	**-26%**	**-23%**
	Adjusted NRP to producer	%	**-48%**	**-47%**	**-55%**	**-52%**	**-53%**	**-52%**

MAFAP indicators and interpretation

Flagship indicators of MAFAP project

It is important to emphasize several preliminary points:

A significant part of the period analyzed (2005-2010) was particularly turbulent, with market fundamentals that have been challenged and price trends that have experienced drastic changes. This has made the analysis more difficult and made it harder to determine the causes of incentives and disincentives.

Moreover, the interpretations referring to the agricultural sector as a whole actually refer only to the product group studied, representing 85 percent of the value of average production (2005-2009)[7].

These indicators are aggregated by sector and product group. This aggregation is weighted to reflect the importance of each product relative to total production value, calculated as weight times reference prices. Each commodity indicator therefore will be presented with its weighted equivalent when commenting aggregated indicators, hence slightly different from the averages that could be computed from Table 29 and Table 30.

[7] Value of average production 2005-2009, 1000 constant dollars 1999-2001.

The flagship indicators selected are:

- the nominal rate of protection for imported products (NRP_{imp});
- the nominal rate of protection for exported products (NRP_{exp});
- the nominal rate of protection for thinly traded (NRP_{not});
- the nominal rate of protection for products essential to food security (NRA_{fs}) as defined in the selection of products (see p. 79).
- market development gaps for all three product categories and for the agricultural sector as a whole (MDG_{imp}, MDG_{exp}, MDG_{not}, and $MDGs_{ag}$) although in fact it only refers to the eight products analyzed.

Agricultural Sector Indicators

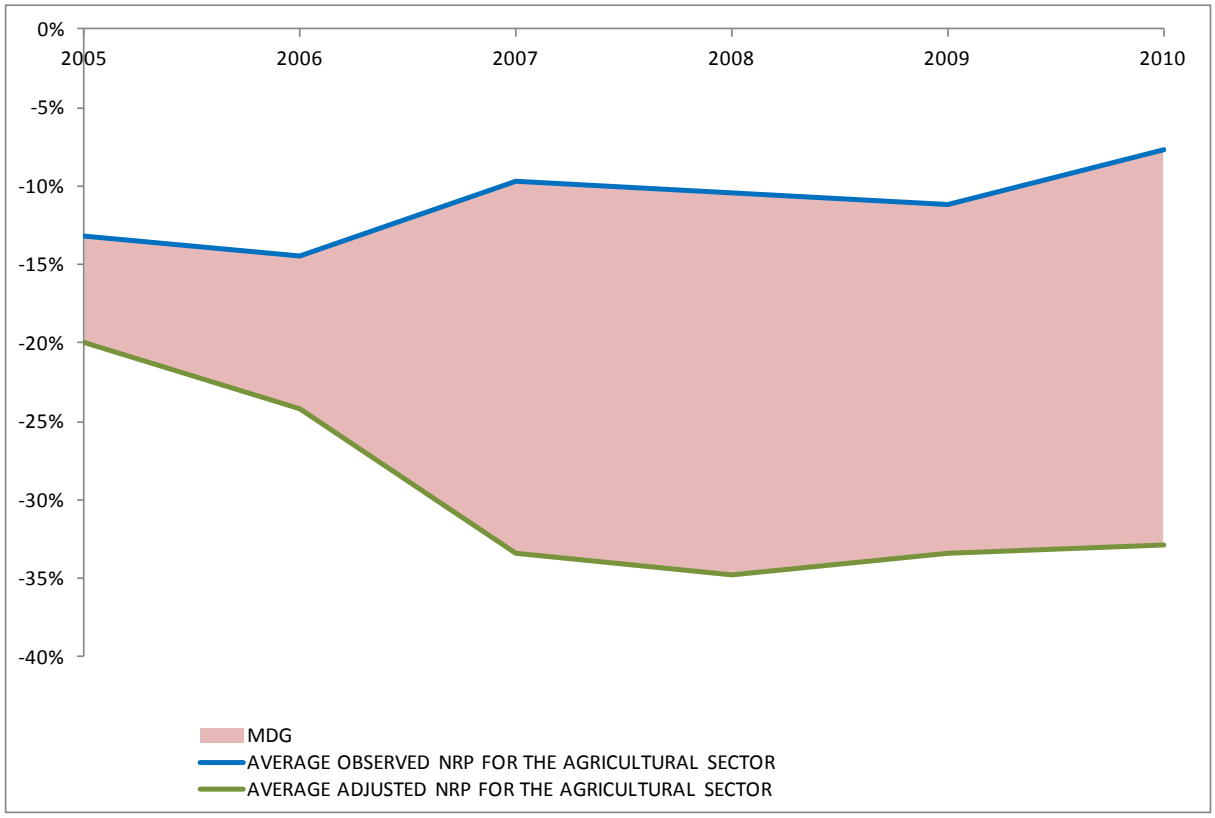
Indicators for the whole agricultural sector are generated by aggregating results on price incentives and disincentives for the ten products analysed - cattle, cottonseed oil, rice, maize, cotton fibre, sesame, sorghum, gum arabic, groundnuts and onions - weighted according to the value of production for each commodity. All together the ten products analysed account for 62 per cent of the total agricultural production.

As explained above the ten commodities are categorized according to their trade status during the period of analysis:

- Imported commodities: rice and cottonseed oil;
- Exported commodities: cotton, gum arabic, livestock, sesame;
- Thinly or non-traded commodities: maize, sorghum, groundnuts, onions;

The agricultural sector as a whole gets strong disincentives in Burkina Faso with average NRPs of -11 percent in the observed domain and -31 percent in the adjusted domain (Figure 29). The sector experiences an upward trend in the observed domain, going from -13 percent to -8 percent, while the same trend goes downward in the adjusted domain, from -20 percent to -33 percent.

Figure 29. Nominal rates of protection for the agricultural sector, in %, 2005-2010



Source: authors

The comparison between the adjusted nominal rate of protection (NRPa) with the observed nominal rate of protection (NRPo) reveals that the agricultural sector gets even stronger disincentives when inefficiencies such as overvalued exchange rate, excessive margins and illicit taxes are taken into account. In fact, the NRPa for the sector is negative for the entire period with 20 percent more disincentives on average than the NRPo. Moreover, starting from 2007 through to 2010, the NRPa has worsened and stabilized at an average value of -33 percent. The trend of NRPo and NRPa is mainly influenced by exported products which in turn are particularly affected by negative incentives for cattle. Positive incentives for cotton also tend to smoothen disincentives for the rest of export products.

In the observed domain the significant level of disincentives among exported products, excluding cotton, is essentially due to the absence of policies targeting cattle, gum arabic or sesame during the period under analysis. The Action Plan and Investment Programme for the Livestock Sector in Burkina Faso (PAPISE) was approved only in 2010 as well as the adoption of a National Policy for Livestock Development 2010-2015. Only in 2010, Burkina Faso adopted a sectoral strategy for gum arabic while no policy measure or development strategy was endorsed for sesame. The dearth of policy interventions to boost the development of export commodities other than cotton is one of the determinants of low farm gate prices which are below the export parity for cattle, sesame and gum arabic.

It is worth mentioning that despite domestic farm gate prices are below the export parity these show a significant degree of correlation with international prices. This means that market signals are

somehow transmitted to producers even if they receive non competitive prices because of the high access costs between producing areas and the border.

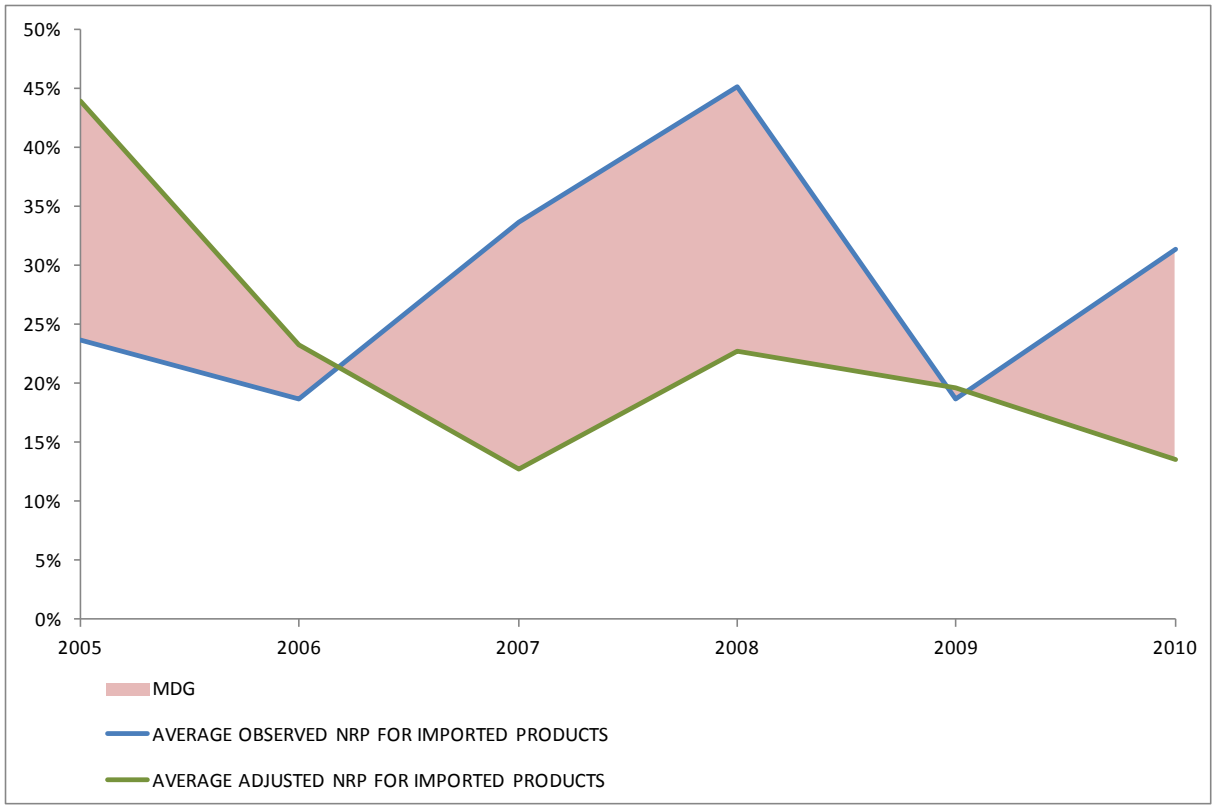
The adjusted domain shows the overaching impact that an overvalued exchange rate, which between 2007 and 2010 was overvalued by 20 per cent, in combination with excessive margins and illicit taxes played in generating disincentives for the agricultural sector in Burkina Faso with exported products playing a major role.

Indicators for imported products

Imported products (rice and cotton seed oil, with palm oil as a substitute) have received incentives overall during the 2005-2010 period. The average observed NRP for import products is 29 percent. The incentives are extremely variable, from 24 percent in 2005 to 45 percent in 2008 in the observed domain, plummeting after this to 19 percent in 2009, and going up again to 31 percent in 2010. The trend is upwards overall.

From 2008 onwards the Government of Burkina Faso suspended import duties for rice and palm oil (which substitute is cottonseed oil) to make the two products more affordable for consumers during the food crisis. These policy measures did not affect producers and wholesalers whose incentives remained high.

Figure 30. Observed nominal rate of protection for imported products, in %, 2005-2010



Source: authors

Adjusted NRPs got lower than observed NRPs from 2007 onwards as a result of the 20 percent overvalued exchange rate that was taken into account in the analysis. This means that if the exchange rate was not overvalued, import prices would be higher, hence increasing in our analysis the price gap between observed producer prices and adjusted reference prices. Adjusted NRPs experience an overall downwards trend from 2005 to 2010, going from 44 percent to 14 percent over the period. They show how the overvaluation of the exchange rate did not allow producers to take full advantage from increasing world prices from 2007-2008 for both rice and palm oil.

MDGs are alternatively positive (2005, 2006 and 2009) and negative (2007, 2008 and 2010), with an average of -6 percent.

Rice

The rice sector attracts special attention from policy makers in Burkina Faso. That is partly due to the significant role played by rice in national food security, and partly due to its importance in terms of trade and foreign exchange balance.

Production. Rice production in Burkina Faso is carried out in three very separate ways: irrigated rice, which accounts for 53 percent of national production, lowland (42 percent) and strictly rainfed (5 percent). Despite strong variations from one year to another, linked to erratic rainfall, rice production in Burkina Faso saw a net increase from 2008 onwards, with strong growth of about 200 percent between 2008 and 2009, due to government support. The production went from 113 000 tons in 2005 to 270 000 in 2010. However, the increase in production has far from satisfied the policy objective of achieving self-sufficiency in rice, although the self-sufficiency ratio increased from 43 percent to 52 percent during the period 2008 to 2010.

Consumption/Utilization. in Burkina Faso, as in many other West African countries, rice is a cause of increasing focus both for producers and consumers. Annual rice consumption has reached more than 200,000 tonnes and is increasing at a rate of 7.9 percent, which is faster than the annual rate of population growth. Rice plays a key role in the diets of urban households.

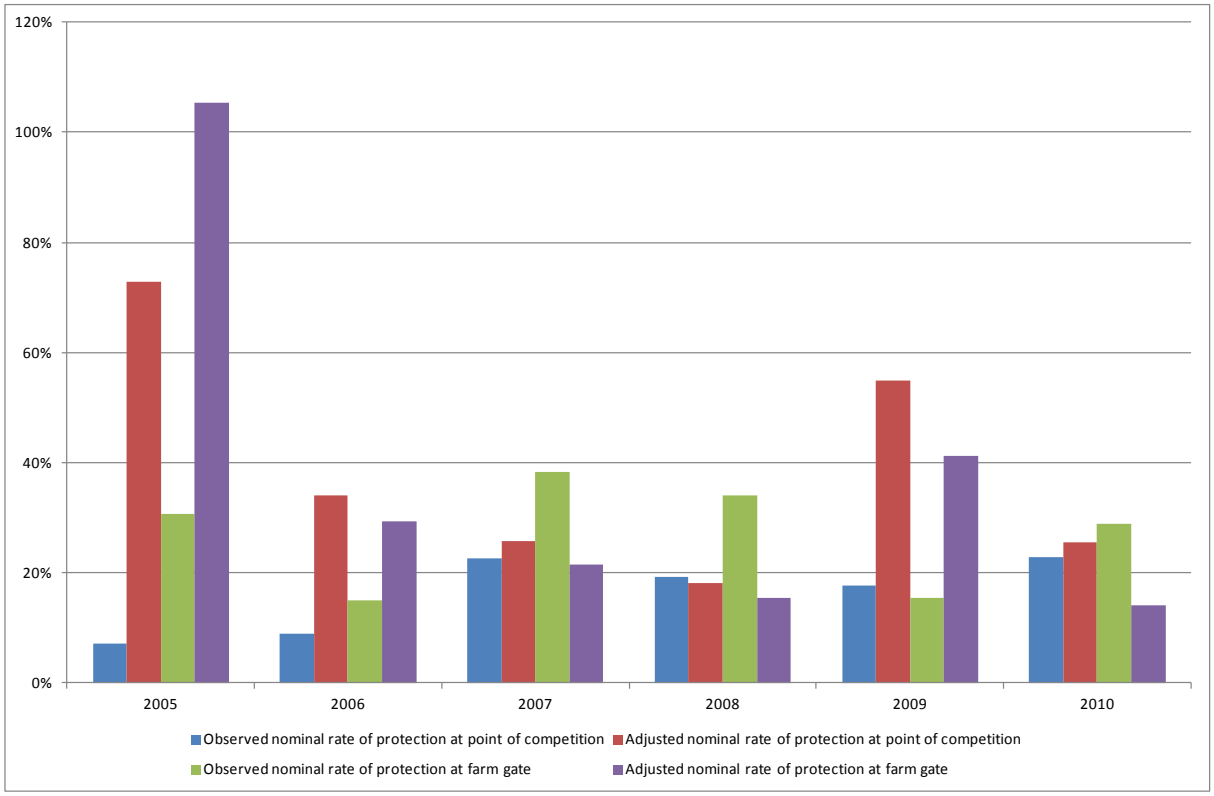
Demand for rice is inflexible compared with the relative price of other cereals. Indeed, 53 percent of Burkina Faso's demand for rice is covered by imports. If demand continues to follow this trend (an annual increase in rice consumption of 7.9 percent), it could reach a volume of 495,000 tonnes in 2015 and 600,000 tonnes in 2025 (AfricaRice, 2010).

Trade and Marketing. Rice imports increased significantly in the period 1990 to 2009. They fluctuated between 69,000 and more than 267,000 tonnes respectively in 1990 and 2009, with an average varying between 250,000 and 300,000 tonnes during the past decade. Thailand, India, Pakistan and Vietnam are the principle sources of rice imports for Burkina Faso, accounting for, respectively, 27 percent, 23 percent, 15 percent and 11 percent of the total. Even though the volume of imports has increased significantly, the increase in the value of imports is also partly explained by the rise in rice prices on the international market in recent years. The suppression of import taxes for rice importers has certainly played a key role in the development of imports.

Value Chain Performance. The rice sector is globally well structured, both upstream and downstream. Given the importance of rice for food security and urban consumption, the government and donors support each level of the value chain through various projects and programs. Civil society (associations and the interprofession) also intervene to improve the performance of the rice value chaine, from input supply to retail.

MAFAP Indicators and Interpretation. The MAFAP/SPAAA analysis reveals that overall during the period studied, both national producers and wholesalers received incentives to production and marketing, since they obtained prices higher than the reference prices that would prevail in a scenario where markets were entirely open and competitive. Producers and wholesalers have therefore benefited from effective forms of protection.

Figure 31. Nominal rate of protection observed and adjusted for rice at wholesale and producer level



Source : authors

At wholesale level, there were growing levels of protection during the overall period, up until 2007 when it reached a peak. In 2008, a slight decrease of the protection level can be observed. Nevertheless and despite the food crisis, the level remains higher than those reached in 2005 and 2006. This situation is explained by various policy measures taken during the major food price crisis of 2008. The main goal of these measures was to guarantee affordable prices for consumers (for example, by removing customs tariffs in 2008, exempting imported food products from taxes and facilitating imports of food products). Given the volumes imported, it would seem that these measures succeeded in facilitating, or at least maintaining, food imports at a time when the international rice market was extremely tense.

Producers benefited from greater incentives than wholesalers for the years 2005, 2006, 2007, 2008 and 2010. It can therefore be concluded that the government emergency measures taken from 2008 onwards, essentially to moderate retail prices and revive production through input subsidies, were more beneficial to producers, while they had a sort of scissor effect on wholesalers.

Part of the government's support, from 2008 onwards was due to trade policy, since rice imports carried a tariff of 13.5 percent. This rate is quite close to the NRP adjusted for wholesale level (see Figure 31). The result indicates significant support to national rice production, which can also be attributed to price controls that ended in a fixed floor rate for paddy rice of 128 FCFA/kg in 2009, and input subsidies for farmers (more than 3 billion FCFA for rice) in response to the food crisis from 2008 onwards. This approach was even more clearly reflected in nominal rates of assistance (NRA) during the same years. There was also an increase in NRPs for the period 2008-2010 at producer level, compared with previous years. It should be remembered that while domestic prices remained high, despite imports, that is also due to the fact that imports to landlocked Burkina Faso are handled by

just two importers. These are in a position to exercise considerable market influence, maintaining high prices at both wholesale and retail levels so as to increase their own trade margins. It is clear that the type of structure characterized by the rice market, which effectively isolates Burkina Faso from real international market signals, ends up supporting wholesalers and producers through high domestic prices, and strongly penalizes consumers, who are unable to benefit from price competitivity of imports.

Weak levels of transmission of global prices to the market in Burkina Faso is well illustrated by changes in world prices between 2009 and 2010 (+16 percent), which corresponded to a parallel stagnation in local producer prices at 165 FCFA/kg during the same years (national average).

Main message. Both producers and wholesalers received incentives during the period 2005-2010, to an average level of 27 percent for producers and 16 percent for wholesalers. Government policies aimed at ensuring affordable prices for consumers, from 2008 onwards, did not significantly affect the incentive situation within the sector; prices to both producers and wholesalers remained high despite the facilitation of imports. This can be explained by input subsidies and the floor price put in place by government from 2008 onwards, both of which clearly had a beneficial effect on the sector, since these measures favoured producers. The fact that two major rice importers in Burkina Faso control imports contributes to market isolation from international prices and enables this duopoly to maintain high local prices. Lastly, price control at local level, supported by the sale of cereals at a social price, helps to ensure access to consumers. Overall, the measures have proved favourable to consumers, producers and wholesalers.

Palm oil (as a substitute for cottonseed oil)

Edible vegetable oil, especially palm oil, is largely imported in Burkina Faso, and the local production of cottonseed oil is very far from meeting the demand. Palm oil is considered as a perfect substitute for cotton oil in the country, and is therefore used to analyze the cottonseed oil production in our analysis.

Production. In Burkina Faso, edible vegetable oil is dominated by palm oil, which is imported. Given that it is not produced in Burkina Faso, this oil offers strong competition to locally produced cottonseed oil, and can be easily substituted for it. Local production of cottonseed oil (obtained by crushing cottonseed) is mainly carried out by a single production unit. This is the *Société Nouvelle Huilerie et Savonnerie* (SN CITEC), whose output corresponds to less than 1 percent of the palm oil imported by Burkina Faso, except in 2009, when the figure rose to nearly 4 percent.

Table 31: Ratio production/import of edible vegetable oil between 2006 and 2010

	2006	2007	2008	2009	2010
Cottonseed oil production (tonnes)	19.23	16.07	13.51	13.61	13.34
Palm oil imports (tonnes)	16,907.10	18,667.50	9,211.17	362.86	30,894.04
Ratio production/imports	0.11%	0.09%	0.15%	3.75%	0.04%

Source: SN CITEC and FAOSTAT, 2012

There are various explanations for the weak share of cottonseed oil production on the local market: firstly, cottonseed, which is the primary input for cottonseed oil production, is expensive for the company (about 65 percent of cost price), which has no opportunity of adjusting the price of this input. Next, even when the company is in a position to purchase seedcotton, it cannot always get hold of the quantity it needs, due to strong market demand. For seedcotton is also in demand with producers of cattle feed, of which there are a considerable number (less than 10 percent of livestock rearing households use agro-industrial by-products, RGA[8] 2006-2010). A third reason for the weak market share of SN CITEC is the oil content of cottonseed, which is about 22 percent, of which only 17 percent is extractable, meaning that processing is a relatively low-profit activity.

Consumption/Utilization. Since the quantity of cottonseed oil produced falls a long way short of demand, accounting for less than 1 percent of the amount of palm oil imported, it could be assumed that this oil is entirely used for local consumption. It could also be assumed that the entire amount of imported palm oil is used for human consumption. According to the Burkina Faso Survey on Household Living Conditions, carried out in 2003, consumption of edible oils and fats accounts for nearly 3 percent of the country's food expenditure..

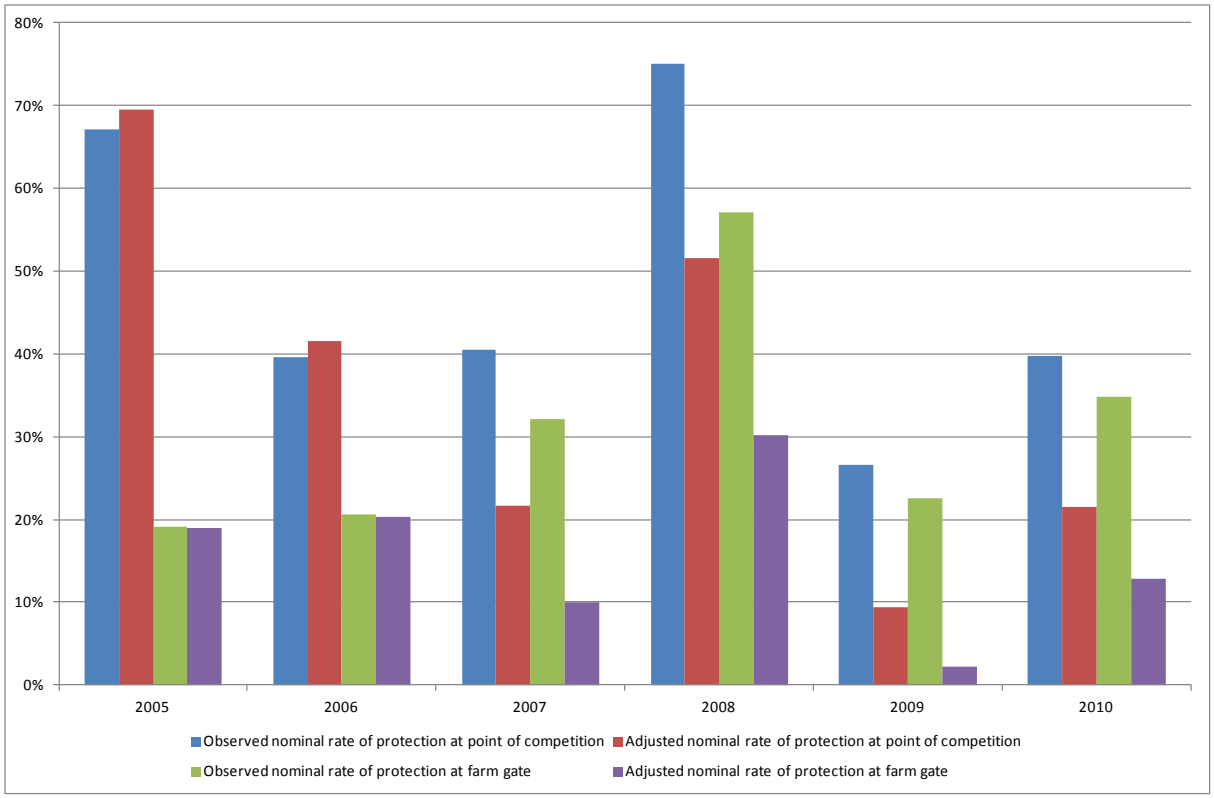
Trade and Marketing. Burkina Faso imports fluctuating quantities of palm oil, ranging over the 1999-2010 period from almost none (2003) to 30 000 tons (2010). The main partners for imports of palm oil, in substitution for local cottonseed oil, are Côte d'Ivoire (more than 1,000 tonnes in 2005 and 2007) and, to a lesser extent, some Asian countries.

Value chain performance. In Burkina Faso, the cotton value chain is mainly organized around the production of cotton seed and the ginning of the seed into fibre. The production is marketed by the three main cotton companies of the country (Faso Cotton, SOCOMA and SOFITEX), which transform and separate the grain from the fibre. The cotton fibre is then exported or sold to textile industries. The seed is mainly sold to processing units (small and industrial). The two main actors of the oil sector are SOFITEX and SN CITEC, the latter being the main cotton oil factory, both located in the Bobo Dioulasso area. There is also a small artisanal production of cotton oil, usually non-refined, as processors prefer to produce animal feed with cotton seeds.

[8] RGA: General Agriculture Census

MAFAP Indicators and Interpretation. The MAFAP/SPAAA analysis compares locally produced cottonseed oil with imported palm oil. This comparison is mainly motivated by the fact that local cottonseed oil is a substitute product for imported oil (mainly palm oil). These two products are used indiscriminately for the same purpose by households and have identical consumer prices. They are therefore considered to be perfectly interchangeable. Furthermore, the world market for cottonseed oil is very limited.

Figure 32. Nominal rate of protection observed and adjusted for cottonseed oil at wholesale and producer level in Burkina Faso from 2006 to 2010



Source: authors

Over the period as a whole, the prices set acted as an incentive to both producers and wholesalers, with greater protection for the wholesalers than for producers. The positive nominal rate in 2005-2007 may be attributed to a 20 percent tariff on refined palm oil and the application of VAT on top of this tariff, as a protection measure. However, it is also clear that the positive values of indicators observed throughout the period may also be attributable to the failure of the system for controlling the value of imported goods. Indeed, payment of all fiscal and customs dues relies on the declaration of the importer, who may have an interest in underestimating the value of his goods in order to pay fewer taxes. By way of comparison, the unit values of imports (used to estimate the CAF price) for Mali are higher than those for Burkina Faso for the period (2005-2009), with the exception of 2007.

In 2008, incentives were particularly high, compared with the period as a whole. The particular situation observed for this year was partly due to the average exchange rate, which was lower than in other years. It should also be noted that the period 2007-2008 was one of global food crisis that caused food prices to soar. It was in response to this crisis that the government of Burkina Faso, at

the beginning of 2008, put in place measures[9] aimed at reducing consumer prices for products. Paradoxically, although these measures were intended to lower prices, and therefore penalize producers and wholesalers, they had the effect of serving as incentives for both groups. This means that in terms of consumer support, the 2008 measure was ineffective, since local prices of palm oil underwent a sharp rise, in spite of everything. However, government measures to reduce product prices by facilitating imports progressively contributed to lowering incentives to wholesalers, up until 2010. Prices for palm oil in Burkina Faso fell from 2008 onwards, even though world prices rose in 2009 and remained high in 2010.

It should be noted, however, that wholesalers received more incentives than producers during the course of the period studied. This was due to the weakness of the local market for cottonseed oil. Cottonseed is expensive for producers[10] and the oil is produced in small quantities. However, there are real incentives to its production for actors in this sector, given the relatively high price of local cottonseed oil. Low production levels of cottonseed oil can be explained by the fact that cotton farmers have even greater incentives to produce cotton fibre (see below).

Main message. Both producers and wholesalers received strong incentives during the period 2005-2010, with an average level of 31 percent for producers and 48 percent for wholesalers. Paradoxically, in 2008, the incentives were very strong, even though the government took measures aimed at facilitating palm oil imports, which logically led to lower prices. This indicates a failure of support to consumers for that year. Overall, it appears that incentives exist for the production of cottonseed oil, but that they may be short circuited by even stronger incentives to cotton fibre production, and also by the very widespread use of seed to produce cattle feed.

Indicators for exported products

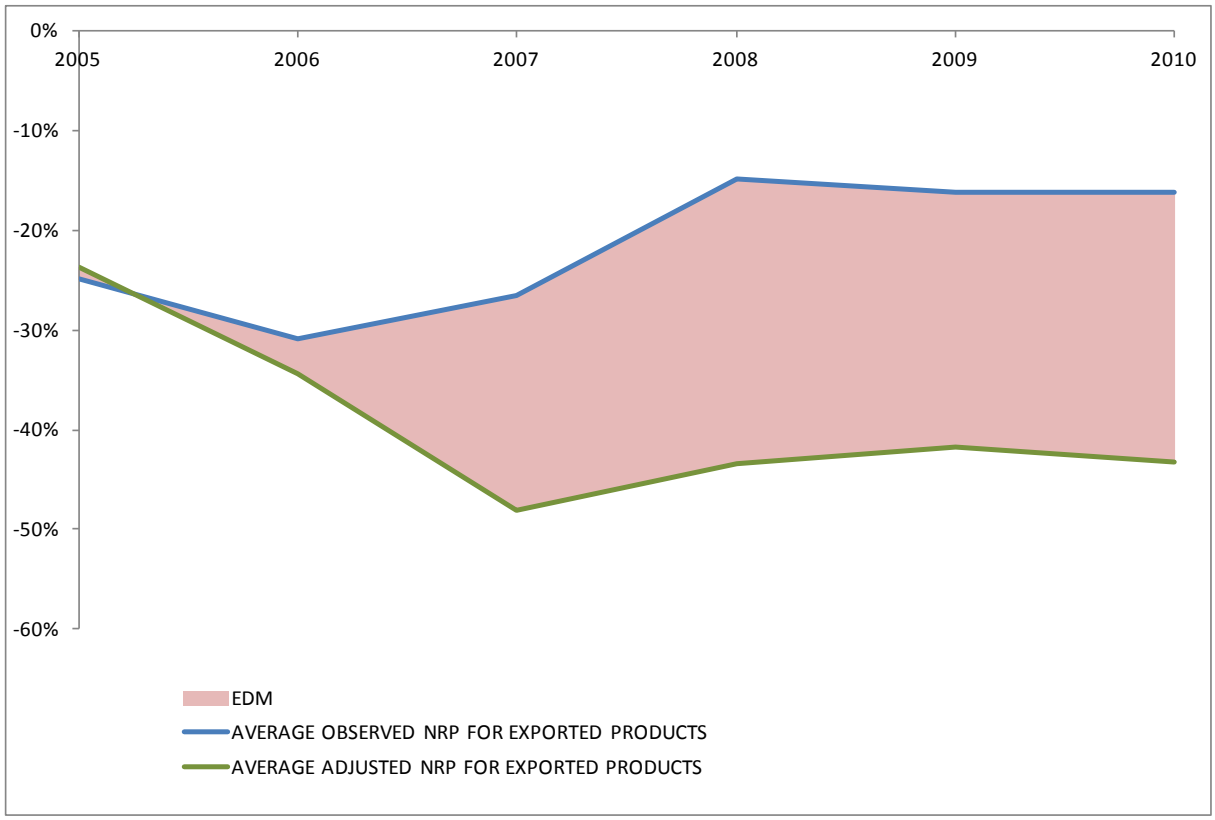
Exported products receive disincentives overall, with an upward trend from 2006 to 2008, and a stable level around -15 percent from 2008 to 2010. The overall disincentive level for the period is -21 percent in the observed domain, however it has to be taken into account that cotton has a strong impact on this figure, with average incentives reaching 33 percent, while sesame, gum arabic and cattle get disincentives, respectively -9 percent, -29 percent and -36 percent. This suggests that the Burkina Faso government heavily focuses its policy support to one export crop, cotton, while not providing a supportive policy environment for other export crops. When indicators are aggregated, the weight of seed cotton production and its low price is not sufficient to create incentives to the sector compared to the weight of bovine and sesame production altogether.

The adjusted domain, taking into account overvalue exchange rate, excessive margins and illicit taxes, shows that such inefficiencies generate an additional disincentive for the export sector in each and every year except 2005. The main component is the overvalued exchange rate after 2007, which lowers the price received by cotton producers and hence brings down the adjusted NRP.

[9] See the point on emergency measures taken by the government and PTF to tackle food crises.

[10] On this point, it is important to note that subsidies for cotton fibre do not affect the level of processing.

Figure 33. Nominal rates of protection and market development gaps for exported products in Burkina Faso, in %, 2005-2010



Source: authors

Exports reveal important negative market development gaps at -25 percent, fourfold that of imports. Cotton has the biggest negative MDG of all exported products, with an average MDG of -34 percent over the period. Cattle and sesame have respective average MDGs of -20 percent and -23 percent. Cotton's important negative MDG, despite it receiving strong incentives, shows that incentives do not necessarily mean there are no market inefficiencies. In the case of cotton, it is clear that governmental policies give incentives to producers even though the value chain itself is inefficient. It can also be noted that cotton and cattle both experience negative in MDGs, despite having opposite situations in terms of incentives and disincentives. This means that MDGs are not, as might be expected, correlated to the effects of direct value chain support policies and affect all categories of products regardless of their status in terms of incentives and disincentives.

Cotton

Cotton is one of the main engines for development of the rural economy in western Burkina Faso. Cotton cultivation, which is exclusively rainfed, is carried out on over 250,000 farms by more than 350,000 producers. The popularity of cotton cultivation is explained by the fact that cotton is Burkina Faso's prime cash crop, with a contribution to cash revenues of agricultural households of about 12 percent (RGA 2006-2010)..

Production. Cotton production in Burkina Faso followed three main trends between 1995 and 2011:

- 1995-2000, with a production peak of 334,106 tonnes in 1997;
- 2001-2006, characterized by an accelerated growth in production;

- 2007-2011, characterized by a decline and fluctuations from one year to the next. This period coincided with the effective liberalization of the cotton sector.

Today, Burkina Faso has seen spectacular development in cotton production, enabling it to become the leading cotton producer in Africa and the twelfth at global level, even though in 2007, output fell by 50.33 percent, dropping from 759,858 in 2006 to 377,364 tonnes. The upward trend in production during the period studied was more the result of an increase in the amount of land under cultivation than to an improvement in yields, which have stagnated overall.

Cotton production and trade in Burkina Faso is handled by three major cotton companies situated in three distinct areas of the country. These are SOFITEX in the west, Faso Coton in the centre and SOCOMA in the est. SOFITEX, which is easily the largest of the three companies, is the key player in the sector, with more than 90 percent of cultivated land and about 80 percent of national production in 2009.

In terms of innovation for cotton production, Burkina Faso does not lag behind. It was the third African country to authorize the cultivation of transgenic cotton (Bt cotton), with the aim of reducing production costs by lowering the number of treatments (2 instead of 6).

Consumption/Utilization. Almost all of cotton seed production is processed into cotton lint, however there is also a marginal utilization of cotton seed as animal feed, and to produce cotton oil. Being essentially an export crop (99 percent of production), local consumption of cotton is negligible and is accounted for by processors. In fact, only 1 percent of local production is processed for yarn production, which is mainly re-exported in the sub-region. The by-products, notably seeds, are sold to local oil manufacturers to extract oil and make soap and livestock feed.

Trade and marketing. In Burkina Faso, cotton marketing is ensured by the cotton societies in each production area. According to the automatized prevision instrument (AIP), the country exported, in 2010, 175.000 tonnes of cotton fiber. During the last years, the main partners for cotton exports are South-east Asia and the Middle-East (62 percent), Europe (17 percent), North and South America (13.7 percent) and Africa and Indian Ocean (7.1 percent).

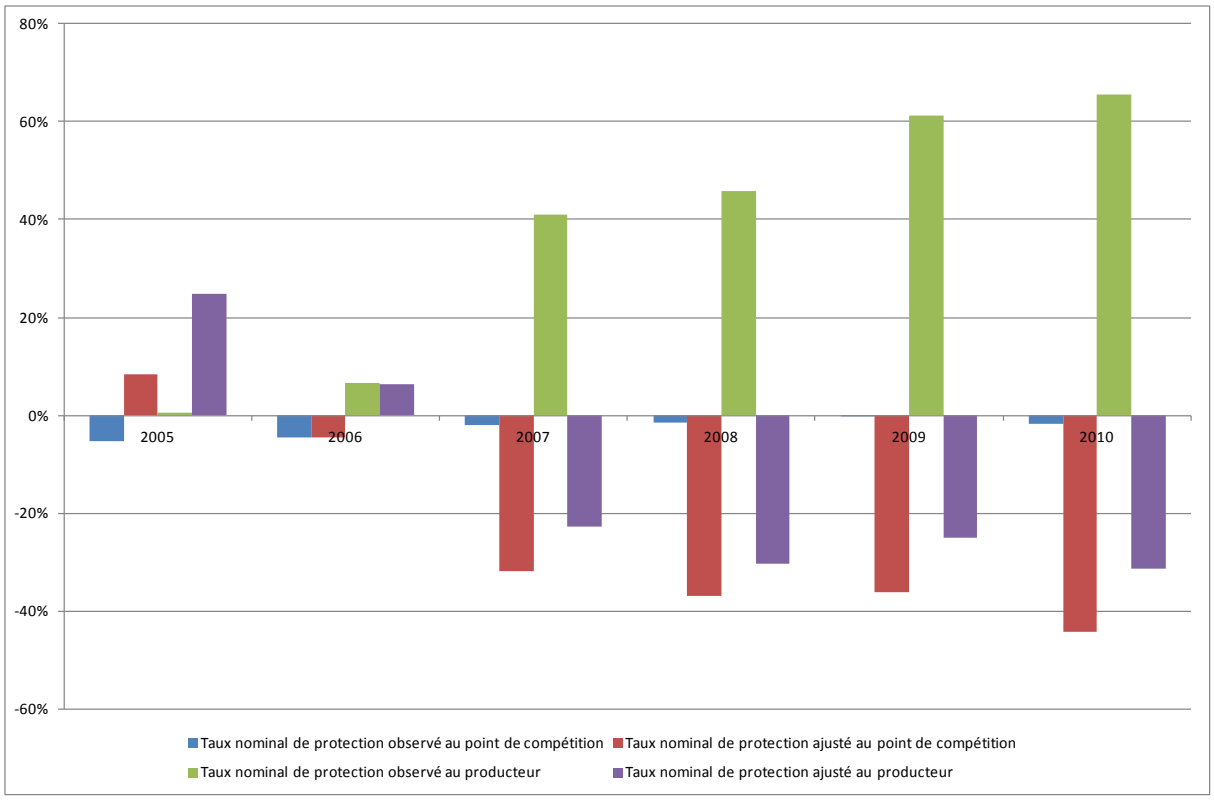
From 2000 to 2006, exports followed an upward trend, due to a constant increase of the production, in spite of the fact that the international cotton fiber prices are highly volatile.

Value chain performance. From 2003 onwards, with the World Bank pushing strongly for it, the cotton sector in Burkina was liberalized to end with the buying and marketing monopoly of SOFITEX. This liberalization was finalized by the creation, in February 2006, of the Cotton Interprofessional Association of Burkina (AICB), to coordinate the sector without strong implication of the State. The AICB regroups leaders two producers organizations, the UNPBC and the new Association of Cotton Industries (ASC). The main actors of the value chain are the producers, the cotton industries, the cotton research institutes, banks, other private actors (transporters, input suppliers, oil actors, etc.), and the Burkina State which also participates in the sector, with functions from input supply to cotton fibre and processed cotton marketing.

MAFAP Indicators and Interpretation. Firstly, to the best of our knowledge, there is no explicit trade policy in the form of a tax or even a grant on, for example, cotton exports. Given this situation, the analysis should logically record a zero protection rate. However, the particular organization of this sector, in which SOFITEX, SOCOMA and Faso Coton play a central role, makes the analysis more complex. These companies are in a position of monopsony in each of the three production regions of Burkina Faso, and they also play the role of intermediaries with both the major international operators (Dagris or Reihnart), who control the cotton market, and in influencing government strategies and decisions.

Price movements in Burkina Faso have reflected global market trends, with low and stagnant prices, while those in the neighbouring countries of Mali and Côte d'Ivoire, for example, increased, anticipating the rise in world prices of 2010 and 2011. A comparison and calculation of differences between domestic and reference prices for the international market reveals two distinct periods and two groups of actors in terms of the structure of incentives for cotton production in Burkina Faso.

Figure 34. Nominal rate of protection observed and adjusted for producers and wholesalers of first grade cotton



Source : authors

Producers have very strong incentives, with an average of 37 percent over the period 2005-2010. On the other hand, nominal rates of protection are negative for wholesalers, with -3 percent. This suggests that producers are supported in exporting cotton, at the expense of the cotton companies, who have lost out in this system, especially in 2005 and 2006. In 2007, the government carried out a reform for the country's cotton sector, introducing a new price fixing mechanism. It appears the system had limited efficiency. Cotton companies almost received neutral incentives, while incentives to producers increased significantly, rising from 7 percent in 2006 to 41 percent in 2007, and 65

percent in 2010. The gap between producer and ginning companies incentives thus increased dramatically.

The adjusted nominal rates are lower for wholesalers, but the most important fall is for producers, who receive disincentives as the average adjusted NRP is of -13. This stronger disincentive comes from the fact that the effect is taken into account of the overvaluation of the national currency and price distortions in the reference price on the international market. These results are logical, since an overvalued currency makes exports more difficult.

In a general sense, the scenario illustrated by the indicators is that of a cotton system that favours producers at the expense of the cotton companies. Prices to producers are higher than they would be in a situation where the market was completely open and competitive, and this in spite of a lack of explicit policy to support exports. This result remains coherent with the situation in Burkina Faso, where cotton companies exercise a monopoly in the production regions and, by virtue of the price fixing mechanism for cotton, assume a *de facto* social role in supporting cotton production, and an economic one by developing the cotton sector, which is crucial for the country's economy.

In effect, the bulk of these price differences may be explained by this mechanism of fixing prices to the producer, for although they are linked to world market prices, a certain level of protection is offered by guaranteeing prices that are higher overall. . This became clear from 2007 onwards, which marked a turning point in the structure of incentives between producers and the companies. At the same time, our results suggest that the mechanism of fixing prices to the producer works in proportion to the objectives it seeks to achieve, as a tool for offering stability and developing incentives to cotton producers, since it offers greater benefits further upstream in the value chain.

Main message. Cotton producers received strong incentives during the period 2005-2010, with an average level of 37 percent, while wholesalers received disincentives to an average level of -2 percent. The policy environment offers strong support to producers at the expense of penalizing cotton processing companies, especially in 2007 and 2010. This is due to the system in Burkina Faso, where even though three cotton companies (especially SOFITEX) have a virtual monopoly, they have to offer fixed prices in accordance with the cotton price fixing mechanism. Until now, these have offered prices that were advantageous to producers, a reflection of the government's intention of supporting production. The new price fixing mechanism, introduced in 2007, coincided with an increase in incentives for producers and only slightly lower disincentives for the cotton companies.

Cattle

In Burkina Faso, livestock keeping has a very significant impact on economic growth, with a contribution to GDP that is estimated at 18 per cent (PNDEL, 2010). The share of value added of livestock keeping in the agricultural sector during the 1999-2008 period was of 27,7 percent, and livestock's value added should be growing by 2,7 percent in 2012-2014. Cattle representing the most important part of the livestock production, it is thus considered a key production for the country.

Production. The number of cattle in Burkina Faso, mainly made up of beef cattle, sheep and goats, is increasing steadily, with annual growth rates estimated at 2 percent for cattle and 3 percent for sheep and goats (Ministry of Animal Resources, 2007).

Even though it is not the most important of the three species in terms of numbers (it comes 2nd after goats), cattle production is the most profitable in financial terms (59,000 FCFA/head, compared with 15,500 FCFA/head and 11,500 FCFA/respectively for sheep and goats).

Over the period 2005-2010, there was an upward trend in the number of cattle, rising from 8 million heads to 9,8 millions. The increase of the cattle population, however, has been following the same trend since the 1950s, reflecting a purely extensive growth. The regions of Sahel, Hauts Bassins, Est, Boucle du Mouhoun and Centre-Ouest concentrate the cattle population. In the region of Centre-Nord, which is the production area used for the analysis, the extensive method of livestock keeping is practiced by around 71 percent of producer households

Consumption/utilization. Through consumption of its products, the cattle sector makes a direct contribution to food and nutrition security. Between 2005 and 2010, the volume of controlled slaughtering per head of cattle varied between 195,284 and 225,381, according to the livestock sector's statistical yearbook, marking an increase of 32 percent during that period.

The regions of *Centre* and *Hauts Bassins*, home to the country's largest urban centres (Ouagadougou and Bobo Dioulasso, respectively, for the two regions) are the biggest consumers of cattle, each accounting, respectively, for more than 80,000 and 35,000 heads.

Trade and marketing. The decision to replace a study of beef meat with one of live cattle can be explained by the fact that in Burkina Faso, the quantity of beef meat traded externally is negligible, while exports of live cattle are important.

According to the Automated Forecasting Instrument[11] for 2012, during the period 2005-2010, the share of exports of livestock products out of total export receipts varied between 9.6 percent (in 2010) and 16.3 percent (in 2008). Cattle are the third largest species exported, with an average share of about 22 percent, after sheep (26 percent) and goats (32 percent), (DGPSE, 2011). In terms of value and total export receipts, cattle are the fourth largest source of foreign exchange for Burkina Faso, behind gold, cotton and sesame (INSD, 2010).

External trade flows for livestock products, especially for cattle, are in line with the rest of the sub-region. These trade flows are destined for the Nigerian market, and the markets of coastal countries to the north of Burkina Faso.

Value chain performance. From the first level, the herders, to the consumers, there are many intermediaries with specific functions intervening along the value chain, either to sell, to buy, or to process and provide to consumers adapted products. However, one of the main characteristics of marketing in the livestock value chain, is the informal nature of relations between actors. All transactions are based on trust between actors that know each other from a long time. Generally speaking, there are two types of circuits for each animal product :

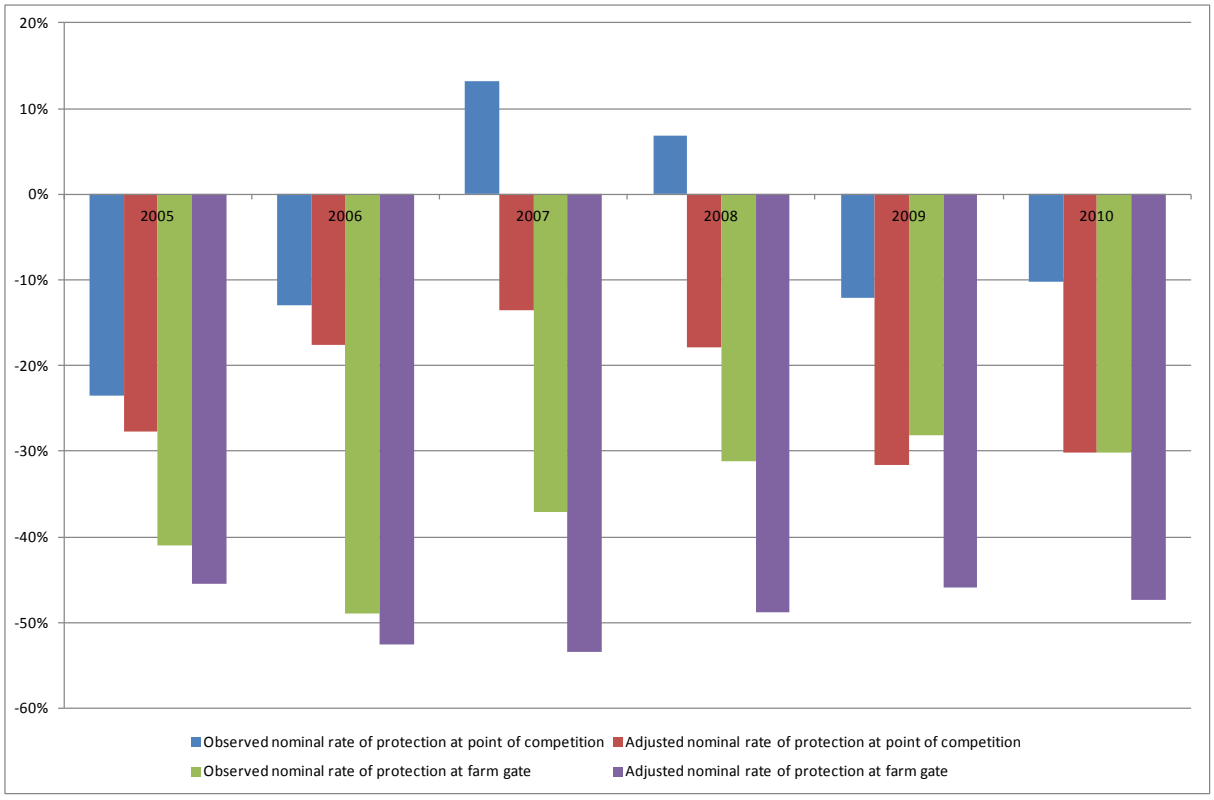
1. A short circuit : it is characterized by short distances between the herder and the marketing area, direct sell to the closest urban center, marginal exports, and even self-consumption. Short circuit actors are often not involved in sanitary controls, nor are they taxed.

[11] This is a model for projecting macroeconomic indicators in order to facilitate budget programming.

2. A long circuit : this circuit is more organized, and relates to animals sent to markets, slaughter areas, or exported. The circuit is centred around six main agents : herders, collectors, traders, processors, retailers and consumers.

MAFAP Indicators and Interpretation. Producers appear to have suffered disincentives during all the years studied. Wholesalers enjoyed slight incentives in 2007 and 2008. However, these incentives should be viewed with caution, since in the hypothetical event of an efficient sector (without overcharging by intermediaries, illegal taxes, etc.), during these years, wholesalers would actually have received lower prices than those they could have obtained. Another observation is a gradual decline in the absolute value of nominal rates of protection, for producers, between 2006 and 2009. This may be due to various projects and programmes, as well as support measures, including the results of research and development for the livestock sector.

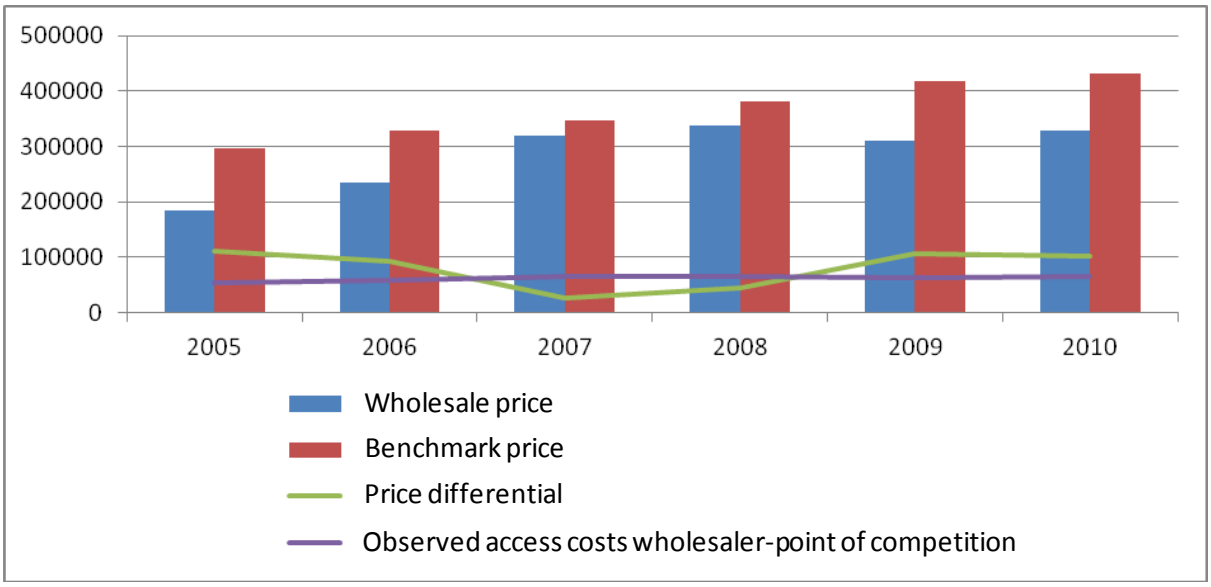
Figure 35. Nominal rate of protection observed and adjusted for producers and wholesalers of Peul zebu



Source : authors

At wholesale level, the negative nominal rates of protection during the periods 2005-2006 and 2009-2010, were partly due to the absence of trade policies for live animals. In fact, there is no monitoring of local cattle prices in relation to external prices. This leads to low wholesaler prices, by comparison with the FOB price fixed at the border, while the access costs observed remain high. This can be seen in the table below, which shows that with the exception of 2007 and 2008, years in which wholesalers were protected, the difference between wholesaler and Benchmarkprices was largely higher than access costs. This shows poor linkage between wholesalers and the external trade situation. It can be seen that the access costs were steady over the period 2005-2010, while the gap between wholesaler and benchmarkprices represented the variable for incentives and disincentives for wholesalers.

Figure 36. Difference between wholesale price and benchmark/reference price for Peul Zebu



Source : authors

Besides, in practice, livestock traders do not take full advantage of the free movement of goods and people , or the removal of customs duties, following the trade policies of UEMOA and CEDEAO. Even ignoring the external tariff applied by Nigeria on livestock (20 percent), our results show that non-tariff barriers remain, especially unofficial barriers, described as «wild taxes», or «illegal charges» between some countries in the region, and especially between the Sahel countries (net livestock exporters) and the coastal countries (net livestock importers). In addition, customs duties have increased through the imposition of other levies, which are taxes in all but name.

It is also important to mention the strong reliance of export wholesalers on means of transport belonging to third parties. Trucks used to transport livestock to Lessa in Nigeria are rented by livestock exporters to import-export traders. To absorb these costs, the wholesalers apply low prices for local markets, in the hope of being able to remain competitive on external markets, where they do not have much control.

Producers therefore suffer more disincentives than wholesalers. These strong disincentives for producers translate into a real development gap between producers and wholesalers. In effect, the cattle production system in Burkina Faso is still run on a small scale, especially in the production zone considered for this study (Yilou, located in the *Centre-Nord* region), which is significantly lacking in terms of both livestock investment and infrastructure.

A comparison between indicators for the adjusted and observed domains reveals that there are even bigger gains to be made for producers and wholesalers, were the sector to be more efficient. The adjusted difference takes into account the exchange rate and inefficiencies in access costs, such as illegal charges and excessive margins taken by wholesalers: the fact that this gap is higher leads to the conclusion that both producers and wholesalers could obtain better prices if these inefficiencies were removed.

Main message. Producers received strong disincentives during the period 2005-2010, to a level of -36 percent, while wholesalers received lesser disincentives overall, at -6 percent, with even two years of slight incentives. Wholesalers experience serious difficulties in exporting, notably due to high access costs, and they pass these difficulties onto producers, offering them low prices. Despite these problems, the government is not taking policy measures and decisions to support the sector, and is focusing on projects and support programmes for production and trade.

Sesame

Sesame is traditionally cultivated throughout the territory, from the driest areas with the poorest soils (eg: *Sahel, Nord, Centre-Nord*) to the most humid ones with the richest soils (*Cascades, Hauts Bassins, Sud-Ouest, Boucle du Mouhoun*).

Production. Burkina Faso is the world's 12th sesame producer, accounting for about 1.55 percent of global production in 2006 (SP/CPSA, 2009). Between 2005 and 2010, according to the results of the permanent agricultural surveys, sesame production increased by 2.62 percent, rising from 25,060 tonnes in 2005 to 90,649 tonnes in 2010.

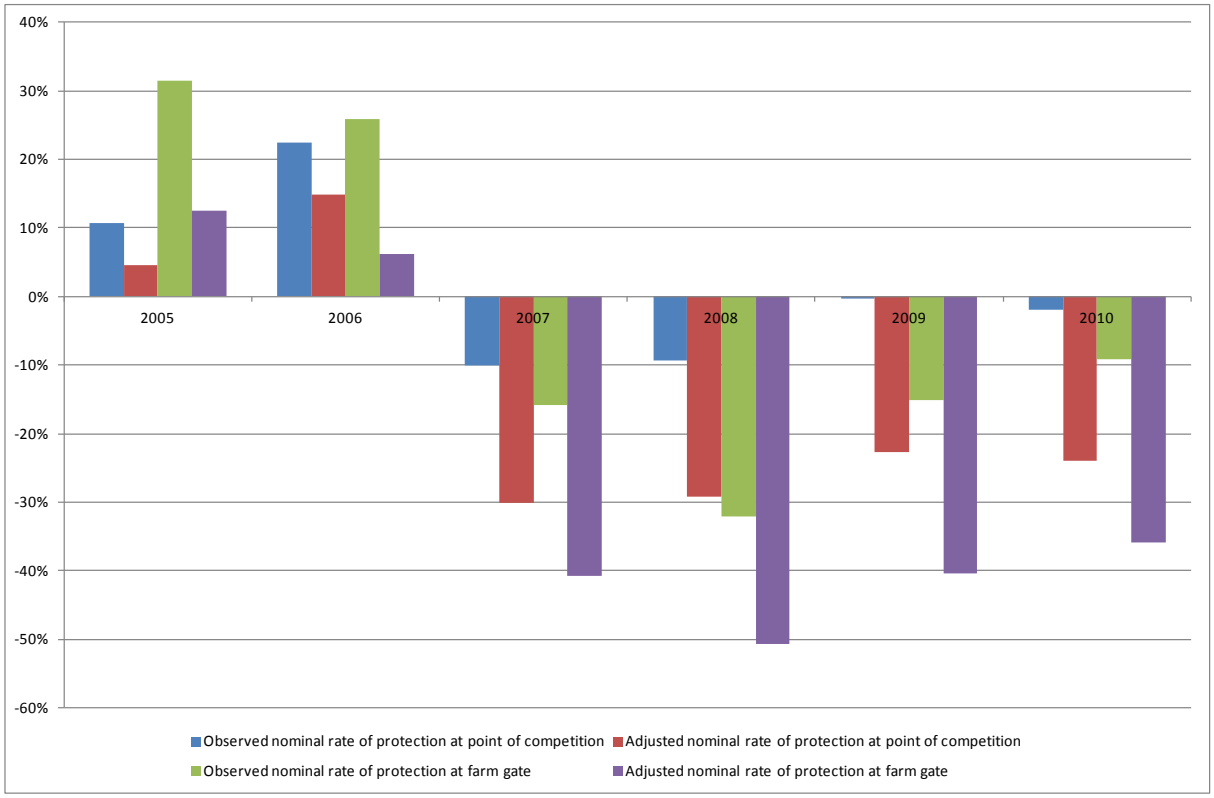
Consumption/utilization. Local processing of sesame for human consumption is marginal. It is essentially small-scale, semi-industrial and, to a lesser extent, industrial. At national level, sesame is consumed in the form of seeds, dumplings and, to a lesser degree, oil. International demand is strong, but opportunities for production from Burkina Faso are restricted by the presence of numerous quality standards, including those guaranteeing a lack of aflatoxin, salmonella and residues of pesticides. The Burkina Faso Survey on Household Living Conditions, carried out in 2003, shows that sesame's contribution to cash revenue is about 1.4 percent.

Trade and marketing. In terms of exports, the sesame produced in Burkina Faso is mainly traded with Singapore, Japan and China. Overall export figures in tonnes between 2006 and 2010 reveal that more than 50,000 tonnes of sesame were traded with Singapore, more than 10,000 tonnes with Japan and nearly 5,000 tonnes with China. According to data from the Automated Forecasting Instrument, during the period 2000 to 2010, sesame exports earned an average of more than 6 billion FCFA for the country and accounted for between 2 percent and 3 percent of crop exports.

Value chain performance. As most sectors, the sesame sector is organized around producers, processors, and traders/exporters. All of these actors receive support and services from credit institutions (banks and microfinance), extension services institutions, mainly from the State, NGOs and associations, and donor-funded projects and programmes.

MAFAP Indicators and Interpretation. In 2005 and 2006, producers and wholesalers experienced incentives, with higher prices than those they would have received had the sector been perfectly aligned with the international market. However, between 2007 and 2010, they both suffered strong disincentives and did not therefore benefit from the existing opportunities in terms of price. No specific policy measures and decisions were observed that might have supported sesame production and export in 2005 and 2006, which seems to suggest that the market is disconnected from world prices. It should be noted that producers suffered stronger disincentives than wholesalers, and that there are considerable gains to be made, due to inefficiencies in the sector: especially transport costs and excessive margins.

Figure 37. Nominal rate of protection observed and adjusted for sesame, at wholesaler and producer level.



Source : authors

Main message. The value chain seems to be disconnected to the world markets. The operators have experimented both incentives (2006, 2007) and disincentives (2008 to 2012) during the period studied, with more disincentives for producer than for wholesalers. This situation derives from the fact that no supportive measure to the value chain has been implemented between 2005 and 2010 and there is therefore a considerable lack of market efficiency (high access costs and excessive traders'margins).

Gum arabic

Gum Arabic is a forestry product. It is considered a strategic value chain in Burkina Faso, with good market opportunities regionally and even internationally. Indeed, there is a true demand for gum Arabic, used in the food industry, but also pharmaceutics and cosmetic. In Burkina, the potential for Gum Arabic production is estimated between 1500 and 4500 tons per year (Nikiema et al, 1997).

Production. National production of gum arabic remains modest, and fluctuates significantly from one year to the next, without ever exceeding the one hundred tonnes per year mark. During the past five years, maximum output was reached in 2009, a year in which, according to the Ministry of Environment and Living Conditions (MECV) et al. (2009), 92.7 tonnes of gum arabic were harvested by a total number of 281 producers, making an average yield of 330 kg per producer.

However, these estimates do not take into account informal production, which is directly exported to neighbouring countries (Mali and Niger), and which is estimated at about 200 tonnes per year (Kabore, 1998; Ouedraogo, 2004).

The principle production sites for gum arabic are situated in the northern part of the country, specifically Dori, in the Sahel.

Consumption/utilization. In Burkina Faso, gum arabic is used in various forms: as a chewy treat (especially for nomadic herders in the bush), as a solidifying agent, to add lustre to textiles and as a sealant for roofs. Gum arabic is also used in medicine and to make ink for writing on tablets in certain Koranic schools.

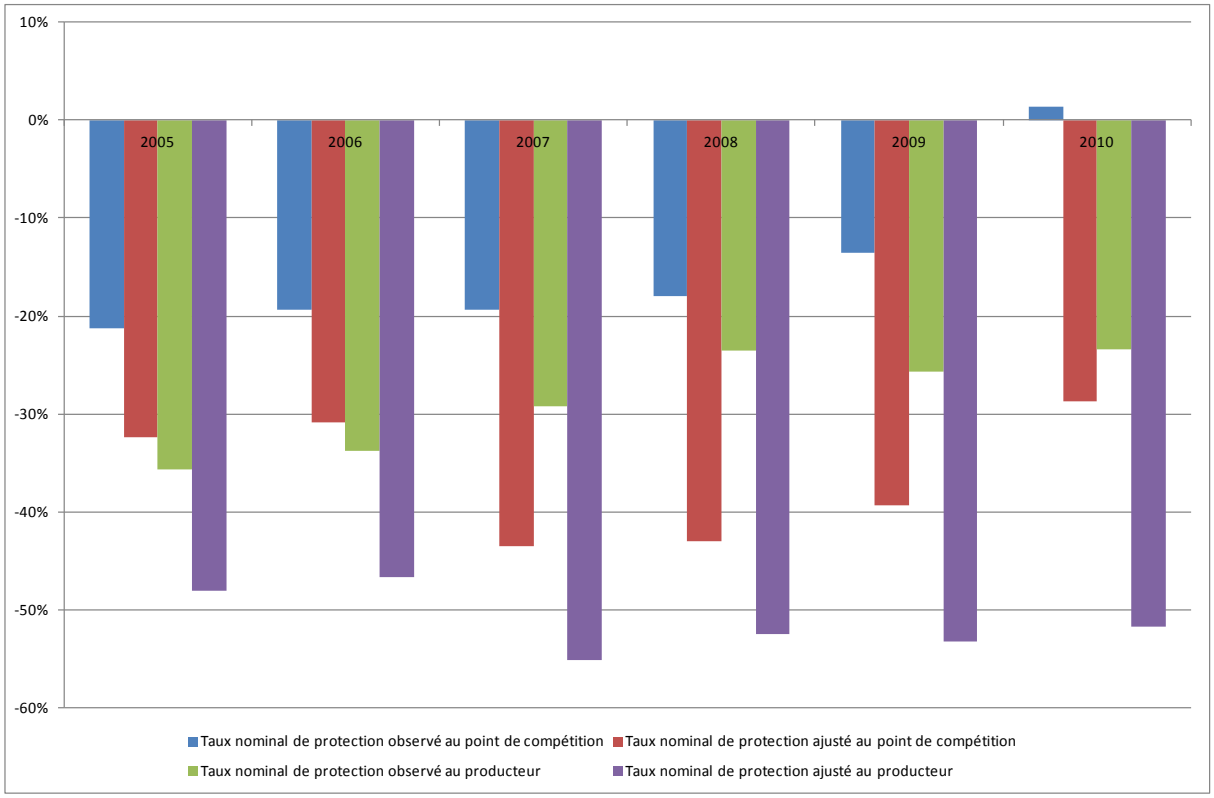
Trade and marketing. A significant share of gum arabic production in Burkina Faso would appear to be sold directly by national producers to buyers in neighbouring countries, and does not therefore feature in national statistics. According to C. Kaboré (1998), quoted by G.J. Ouedraogo. et al. (2004), the annual quantity of gum arabic traded by producers themselves with buyers in Mali and Niger is estimated at 200 tonnes. This trade is the result of the geographical proximity of the production area with these countries, but above all the attractive prices paid in these countries compared with those paid in Burkina Faso.

However, although a significant share of gum arabic is exported to neighbouring countries (Mali and Niger), these transactions are informal and are mainly handled by producers. The main destination for exports handled by wholesalers and unions of gum arabic producers' organizations is Europe (MEDD, 2010).

Value chain performance. The gum Arabic sector has the usual producer-collecter-wholesaler-exporter structure, but it is poorly organized and interactions with no clear interprofession. As a consequence, exports are not done efficiently, with high transaction costs along the value chain and export losses due to poor quality that can reach up to 15 percent.

MAFAP Indicators and Interpretation. The MAFAP/SPAAA analysis shows that during the period 2005-2009, producers and wholesalers of gum arabic obtained lower prices than those fetched on the international market.

Figure 38. Nominal rate of protection observed and adjusted for gum arabic at wholesaler and producer level



Source : authors

Producers appear to be the actors who suffer the greatest disincentives in the sector. This explains the decision of many producers from Burkina Faso, who prefer to sell their gum to neighbouring countries (Mali and Niger) where prices on the domestic markets are at least 100 FCFA/kg higher than those that a producer would obtain from a collector in Burkina Faso.

At wholesale level, the effect of disincentives declined gradually up until 2009, changing in 2010, when slight incentives were seen. This may have been due to the fact that the various projects, programmes and policy initiatives implemented by the government in recent years in an attempt to boost the sector, were more beneficial to wholesalers than to producers, although the level of disincentives for this latter group has declined slightly over the period.

It may also be concluded that support measures for the sector (mainly projects and programmes) have not produced real incentives to production through price. Economic actors, especially producers, do not benefit from the attractive world prices for gum arabic. In a general sense, there is a notable lack of policy decisions or measures designed to improve the working of Burkina Faso's market for gum arabic.

Main message. Both producers and wholesalers received strong disincentives during the period 2005-2010, with an average level of -29 percent for producers and -15 percent for wholesalers. Producers did not benefit from higher prices in neighbouring countries (Mali and Niger). In the absence of specific support measures, aside from some projects and programmes, the sector suffered from disincentives overall during the period studied.

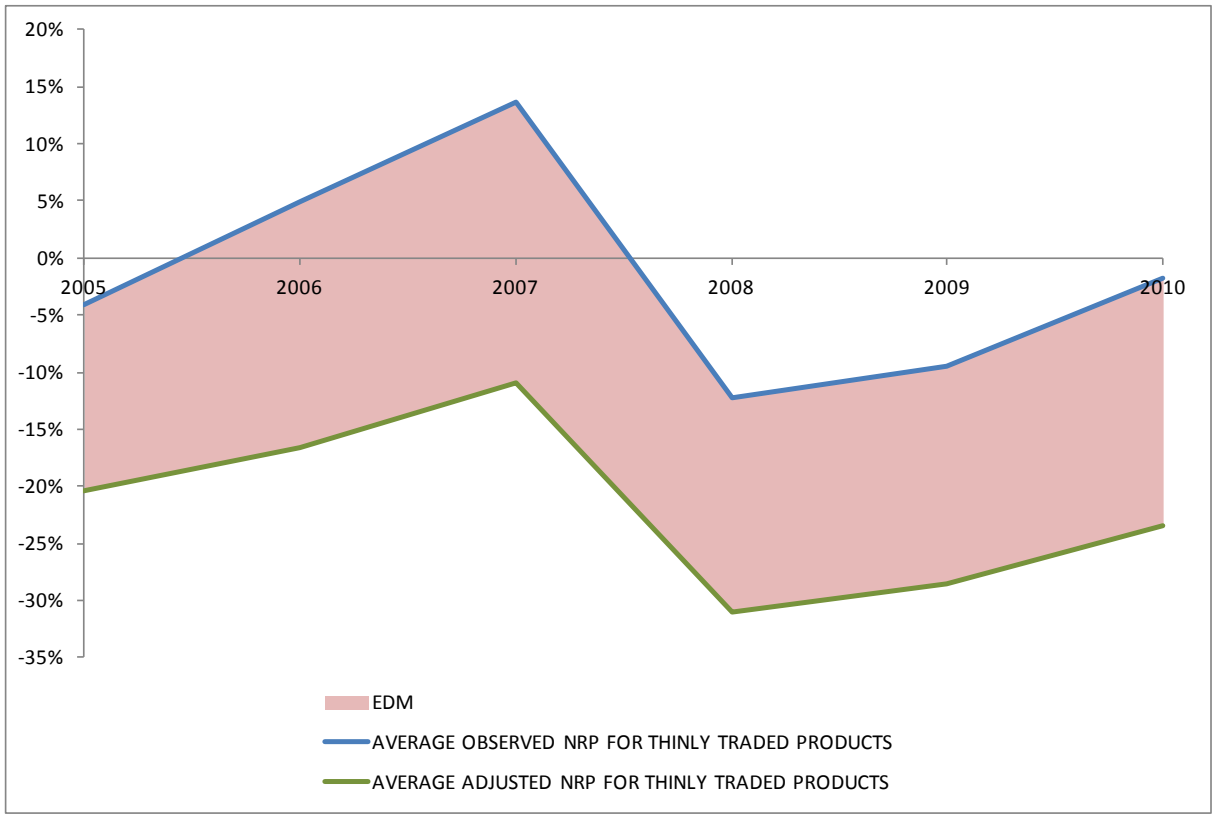
Indicators for thinly traded products

The average observed NRP for thinly traded products is slightly negative, at -3 percent. NRPs follow an upwards trend from 2005 to 2007 with incentives in 2006 and 2007, reaching 14 percent, with a dip in 2008, at -12 percent. It then goes upwards again until 2010, reaching -2 percent that year. The importance of sorghum and maize in this trend is to be stressed, the production of these crops being by far superior to groundnuts and onions. The thinly traded products graph, weighted by production volume, is therefore mainly a reflection of NRPs for sorghum and maize, both treated as export commodities in the analysis. Three out of the four crops get disincentives over the period, but sorghum gets incentives at 13 percent on average in the observed domain.

Adjusted NRPs are negative averaging -23 percent over the whole period, dropping to -31 percent in 2008 to then slightly increase in the following years. Indeed, in 2008 the adjusted NRP for sorghum turns negative to -20 percent while maize adjusted NRP, which is negative for the whole period, further decreases to -32 percent in the same year. The effect of netting out the overvaluation of the exchange rate by 20 percent starting from year 2007 is evident.Negative NRPs are also attributable to price dynamics as observed farm gate prices for maize and sorghum for selected years are below the adjusted reference price also showing a lack of price transmission and hence a poor market integration and efficiency. The fact that NRPs went down after 2007 reflects that producers were disconnected from regional price surge and hence received further disincentives to produce.

The high level of inefficiency in the value chains is captured by the market development gaps (MDG) for thinly traded products which are characterized by an average of -21 percent. Sorghum shows a particularly high MDG at -23 percent.

Figure 39. Nominal rates of protection and market development gaps for thinly traded products in Burkina Faso, in %, 2005-2010



Source: authors

Sorghum

Sorghum is a key commodity in Burkina Faso, being the most important staple in the country, especially in rural areas. Sorghum, the most produced cereal in the country, is heavily self-consumed and is thus considered strategic by the government for its decisive role as a food security crop. Its marketing and trade however is not very strongly encouraged.

Production. With more than 1,050,000 tonnes harvested in 2011, sorghum grain is among the leading cereals in Burkina Faso. Well adapted to the country's climate conditions (dry and hot), production is highest in the *Boucle du Mouhoun* region, which accounts for an average 20 percent of domestic output (DGPER, Report of the food outlook forecasting committee, 2011). Since implementation of an action plan for cereals (2002), there have been two distinct phases: the first, which coincided with the period of the action plan (2003-2006), shows increasing sorghum yields, while the second phase (2007-2010), characterized by a decline, was followed by stagnation. According to results of the first phase of the general agriculture survey, more than 71 percent of farming households practise sorghum cultivation during the rainy season. Cultivation mainly follows an extensive production system, which does not allow the country to achieve self-sufficiency[12]. The exception was in 2008, when the season was relatively successful.

[12] Defined as coverage of food requirements by national production

Consumption/utilization. Sorghum is largely used for self-consumption. The contribution of sorghum to satisfying calorie requirements is estimated at an average of 19 percent. In terms of food expenditure, almost 38 percent of household expenditure went on sorghum in 1994 and 36 percent in 2003 (INSD, 2003). This decline could partly be attributed to a diversification of the eating habits of local communities, who tend to substitute the use of cereals with different ones, or with other products, and partly to the effect of prices, which have seen an upward trend.

Aside from human food consumption, sorghum grains are used to prepare an alcoholic drink commonly known as *dolo*, and is also used for animal feed. *Dolo* is made on a small scale, and statistics are unavailable for the amount of sorghum used in its preparation. As regards animal feed, the share of sorghum demand for this purpose remains low, although it is rising: from less than 1 percent in 2007, it increased to 4 percent in 2008.

Trade and marketing. Sorghum is mainly a subsistence crop. Only surplus amounts are sold at rural markets in production areas or between neighbouring households, depending on surpluses and shortfalls in production. The level of sorghum placed on the market is about 9 percent. Trading channels are relatively informal between producers and major urban centres. This is partly due to the irregular supply, weak demand in urban centres, long distances between producer regions and urban centres and the cost of transport.

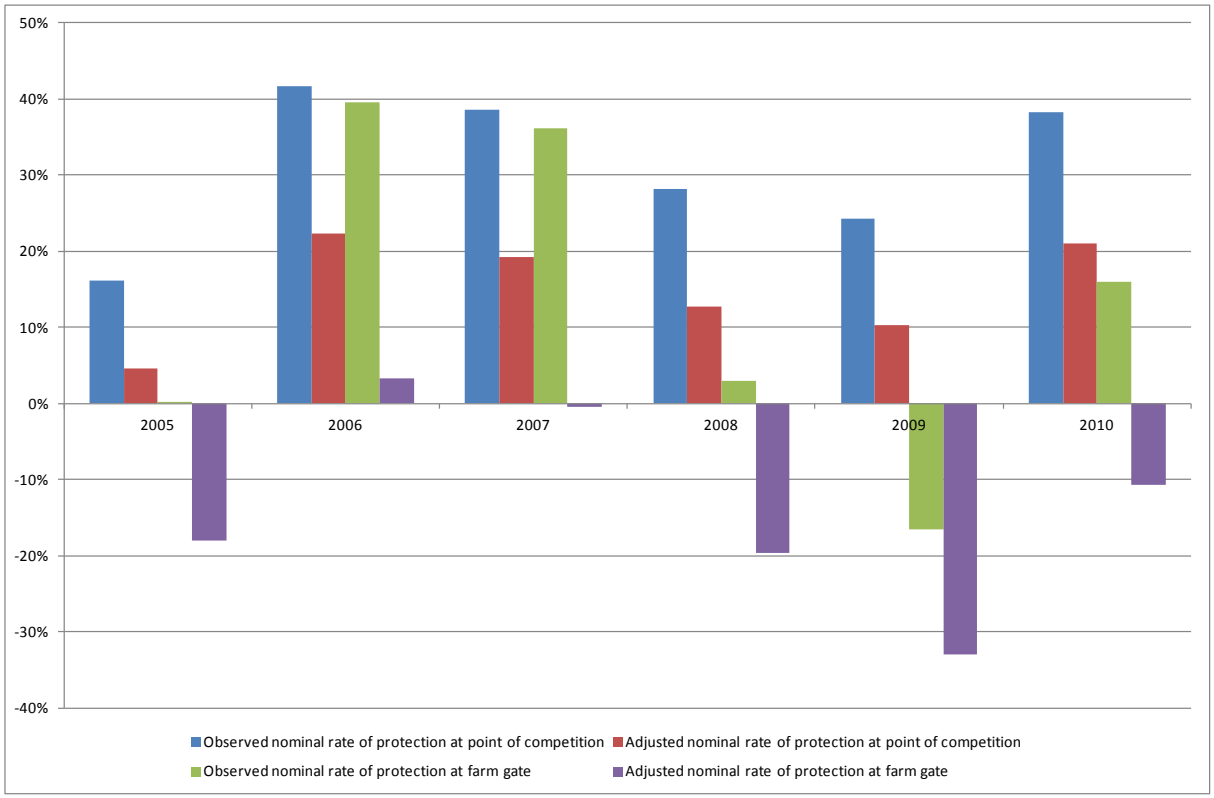
External trade of sorghum is not highly developed and is mainly limited to transborder trade with neighbouring countries.

The quantities traded, according to the customs authorities (2006-2010) and COMTRADE (2005), are minimal: they were in the order of 1,189 tonnes in 2008 for exports (minimum quantity observed for the period) and 466.43 tonnes in 2006 for imports (maximum quantity observed for the period). The country is therefore principally an exporter of sorghum, although the average proportion of exports compared with total production between 2005 and 2010 was about 0.04 percent.

Value chain performance. The different actors of the sorghum value chain can be separated in direct and indirect actors. Direct actors are producers (only smallholders), collectors (market, village and rural roads collectors), wholesalers, semi-wholesalers and retailers, transporters and processors. Direct actors of the value chain are also grouped as an interprofessional association (CIC-B). Among indirect actors are State extension services, considered to have insufficient staff at 1 agent per 100 villages, the SONAGESS (National Company for Security Stock Management), which handles a food emergency national stock. NGOs also intervene to provide support to producers, as well as micro finance institutions, which finance collectors.

MAFAP Indicators and Interpretation. An analysis of indicators for incentives and disincentives for prices in the sorghum sector shows that for several years during the period studied, wholesalers and producers got incentives to produce, although they did not benefit in a similar manner from the market prices and policies in place.

Figure 40. Nominal rate of protection observed and adjusted at wholesaler and producer level for sorghum between 2005 and 2010



Source : authors

Indeed, producers received an average incentive of 16 percent while wholesalers received incentives of 31 percent on average. Producers even received disincentives in 2009, at -16 percent, while wholesalers only experienced incentives throughout the period. The difference is all the more striking in the adjusted domain, where producers received -11 percent disincentives compared to 15 percent incentives for wholesalers.

Producers' incentives can be explained by the fact that sorghum is transformed into a local drink traditionally named "dolo". This beverage, which is strongly appreciated by consumers, needs an important quantity of sorghum to be produced. The direct consequence is the increasing of sorghum demand and therefore its price. The process is thus important for the value chain, not only because of the added value it brings but also because of the more incentives prices comparing to other food products.

Figure 41. Comparison of sorghum prices and access costs between border and wholesale market

Source : authors

Wholesale traders received incentives throughout the period, with higher observed prices than reference prices. The incentives observed for wholesalers were closely linked to two factors. On the one hand, there is the fact that wholesalers can exert downward pressure on producer prices, so as to improve their own margins, at the expense of producers. On the other hand, there is the fact that the prices set at the border, and used to estimate the reference price at wholesale level, are relatively low, and the access costs at the frontier for wholesalers are far higher than the difference between these two prices, making the wholesaler reference prices lower than the observed prices This caused a price gap with the prices observed that were favourable to wholesalers. In addition, wholesale traders, unlike producers, have a better knowledge of prices practised, not only on local markets, but also on the sub-regional market.

Main message. The trade and policy environment for the sorghum sector appears to be favourable to sorghum producers and wholesalers overall more favourable to wholesalers than to producers. Particularly high incentives to wholesalers were due to the fact that they received relatively high prices compared with the Benchmarkprice established at the border (Kantchari) and the producer price. Lower incentives and even disincentives to producers were also attributable to low prices. For financial reasons, producers sell their products at low prices. Another factor is asymmetry of information, to the detriment of producers and the advantage of wholesalers, who have a better knowledge of trade channels and prices in force at different markets.

Maize

Maize is the third most important cereal in the country. It is highly produced and consumed, especially in the South of Burkina Faso. Maize is however not heavily traded, as it is mostly self-consumed and marketed for domestic demand requirements. It is considered as a crop with high potential as it gives good yields and is increasingly consumed.

Production. Maize production in Burkina Faso is mainly used for meeting national food requirements. It is practised by 78.6 percent of agricultural households during the rainy season and 0.8 percent of agricultural households during the dry season. The quantity of maize produced rose from 9 percent to more than 17 percent of total cereal production between 1985 and the present day, though the sector continues to face various challenges, including low productivity, reliance on rainfall and many others. Growth in maize production is largely due to an increase in the quantity of land cultivated. The average annual growth rate was a consistent 60 percent between 2003 and 2010. Current production is over one million tonnes, with average yields of 3.7 tonnes/ha for irrigated land and 1.5 tonnes/ha for rainfed cultivation.

Consumption/utilization. Consumption of cereal products in Burkina Faso accounts for more than 60 percent of the population's calorie requirements (DGPER food balance sheet, 2012). The contribution of maize in satisfying these calorie requirements is estimated as an average of 19 percent. Maize cultivation satisfies trading needs, but also, to a large extent, consumption needs. Production areas are also consumption areas. However, the urban centres of Burkina Faso, such as Bobo-Dioulasso and Ouagadougou, differ from this national profile.

In terms of food expenditure, the Burkina Faso Survey on Household Living Conditions (EBCVM), carried out in 2003, shows widely varying consumption patterns, depending on the origin of households. Urban households devote 31 percent of food expenditure to cereals, with a strong predominance of rice (47 percent) and maize (30 percent). Maize is therefore an important urban consumer product, which should, logically, be used to play an increasingly significant role in the diet of people in Burkina Faso.

Trade and marketing. Maize is a cereal whose trading status varies from one year to the next. Between 1995 and 2009, it was fairly widely exported. However, it is not traded at international level and exports are confined to the sub-region. Maize is the leading dry cereal exported by the country (EPA, DGPER), while it holds third place in terms of imports. Trade flows for maize depart principally from production areas (*Cascades*, *Hauts Bassins*, *Boucle du Mouhoun*, part of *Centre-Est*), sold to other parts of the country experiencing an average or extreme shortage. External trade flows for maize follow three routes, all leaving from the wholesale market of Bobo Dioulasso in the *Hauts Bassins* region. Maize coming from the regions *of Centre Ouest* and *Cascades* heads, respectively, to Ghana and Côte d'Ivoire. However, the route with the largest volumes is that which goes to Niger, via the border zone of the *Est* region, passing through the markets of Ouagadougou, Mogtédo and Pouytenga

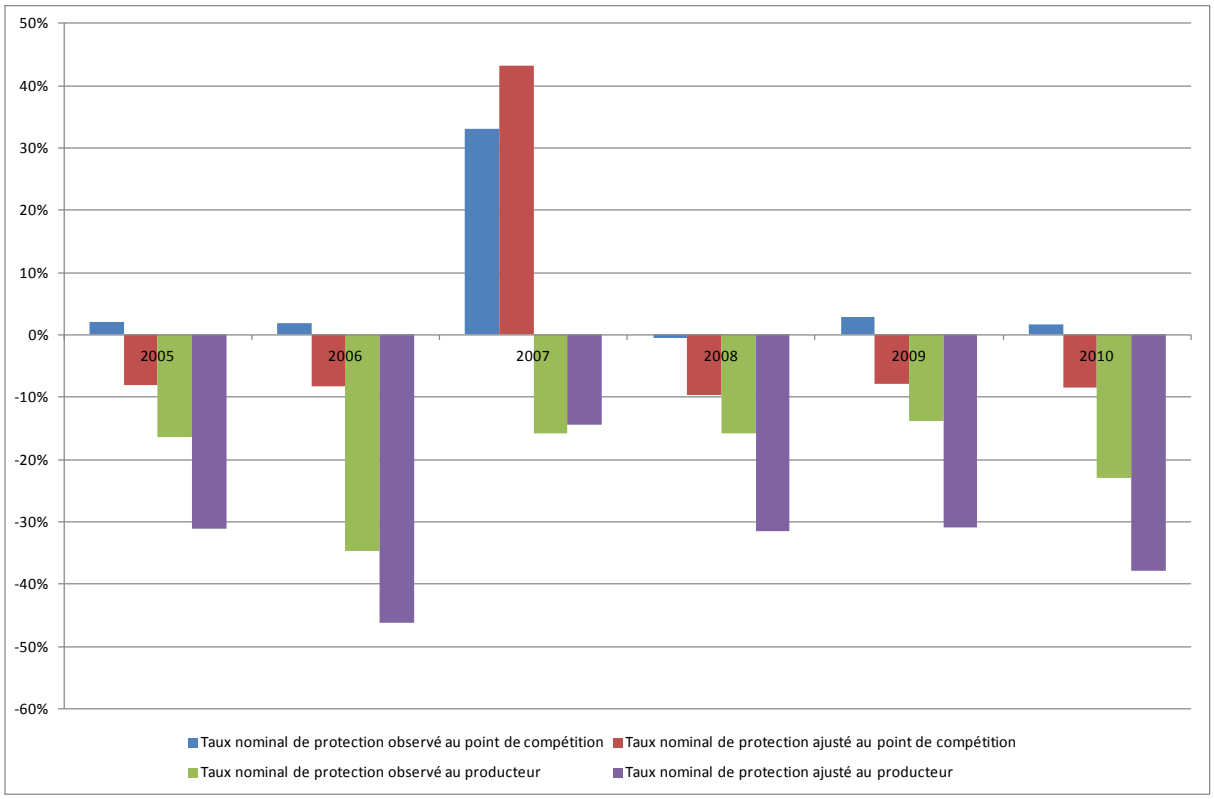
Value chain performance. In Burkina Faso, the maize value chain is organized as are all other grain value chains. Agents directly intervening in the maize value chain are producers, collectors, semi-wholesalers, retailers and processors. The production side is characterized by four production systems : traditional, where manual labour is predominant, the semi-modern system, using animal labour, the modern system, with engine use, and the irrigated system, in which crops are carefully prepared before sowing.

MAFAP Indicators and Interpretation. Maize is a very thinly traded commodity in Burkina Faso, with annual trade volumes accounting for less than 2 percent of production. However, it was lightly exported in the sub-region each year, during the period 2005 to 2010, with the exception of 2007.

The results of the analysis show that for each of these years of export, producers suffered clear disincentives, while wholesalers suffered very slight disincentives. This result appears surprising. Although the volumes traded were low, exports did, nevertheless, take place, with the main destination being Niger, though the actors saw no price incentive. One explanation could lie in the fact that consumer prices are systematically higher in Niger, especially in Niamey, than they are in Burkina Faso, especially in Bobo Dioulasso. However, the cost of transporting maize from Burkina Faso ended up penalizing operators in the sector.

In 2007, the country became a net importer of maize for the first time since 2003. That was due to a 38 percent fall in production compared with 2006 levels, with yields falling from 1,922 kg/ha in 2006 to 1,122 kg/ha in 2007. Prices to producers were some of the lowest of the decade, while consumer prices were at their second lowest level since 2004. Despite this, low world prices have resulted in slight penalties for producers. Unlike producers, wholesalers benefited greatly from this situation. The nominal protection rate (NRP) observed at wholesale level (33 percent) was therefore higher than the tax applied on maize in Burkina Faso, that is to say 8.5 percent in total.

Figure 42. Nominal rate of protection observed and adjusted for maize at wholesaler and producer level



Source : authors

During the exporting years, the nominal rates of protection for wholesalers were low (an average -2 though this does not mean that the export sector had a structural deficit. We only observed that access costs between wholesalers in Burkina Faso and Niger were slightly lower than the difference between prices in Burkina Faso and Niger, and actors from the Burkina Faso sector did not obtain more advantageous prices on the market in Niger. Besides, the price differences between wholesalers in the two countries were very slim, constituting a risk factor. These low price differences may have been compensated by wholesalers in Burkina Faso at producer level. Wholesalers would take excessive margins, which would translate into access costs for producers

that were higher than their level of efficiency, and would therefore penalize this group due to prices that were too low. This would explain the fact that disincentives were significantly higher for producers.

As well as having to pay access costs, producers may be penalized by false prices due to the practice of approximating quantities sold. Producers use 108 kg sacks purchased at the price for 100 kg by traders: so producers lose about 800 FCFA per sack. The difference is distributed between various intermediaries along the export corridor.

In addition, the government has set in place measures to discourage maize exports, since the crop is considered key to national food security. A large share of exports is therefore conducted in an informal manner, which penalizes producers and incitates wholesalers to a lesser extent. The gap between the observed and adjusted nominal rate of protection also reveals that the two types of actors could obtain even better prices if inefficiencies in access costs, such as illegal charges, were corrected.

Finally, it appears that producers in the maize sector have been rather discouraged by the overall policy initiatives put in place. In a completely open and competitive market situation, actors in the sector would probably have received slightly higher prices, linked to those of international markets. But there is no guarantee that producers situated in a landlocked country like Burkina Faso and penalized by structurally elevated access costs (which offer natural protection against imports, but also pose an implicit tax on exports) would have been able to take advantage of these prices. We also show the discouraging effect that excessive access costs produce, especially illegal charges. This means that the government would have an interest in strengthening competition in the sector, especially for transport, and in promoting more effective mechanisms for governance.

Main message. Producers experienced disincentives during the period 2005-2010, while wholesalers received incentives throughout the periode, especially in 2007 when they profited from low output levels that year. From 2005 to 2006 and from 2008 to 2010, wholesalers experienced very slight incentives, probably due to the small difference between prices in Burkina Faso and Niger. This tension between the two markets appears to have been compensated for by wholesalers, at the expense of producers. The wholesalers apply excessive margins, which penalize producers even further. The government policy of preventing maize exports, including those to the sub-region, because of the crop's vital importance to food security, seems to have penalized producers more than wholesalers.

Onions

Onion is seen as a sector with growin importance in Burkina Faso, due to the fact that it is easy to cultivate, has a high price value, and is very demanded due to the fact that it is easy to cook, nutritious and the base for many of the food recipes in Burkina Faso and in the region.

Production. In Burkina Faso, onion in the main horticulture crop, both in terms of production and area cultivated, with respective shares of 32,4 percent and 41,4 percent. The total onion production in 2009 was estimated at 242 258 tons, concentrated in the north region of the country, at around 27 percent of national production).

Consumption/utilization. There are two different onion products When onion is produced with the objective to reap leaves, it is called leaf onion, however when producers wait longer in order to get bulbs, it is called bulb onion. Onion bulbs are mainly destined for domestic marketing, as they are increasingly demanded by the population. Purple onion of Galmi (''violet de Galmi'') is the population's preferred type. The higher demand for onion bulbs is linked to the diversification of eating habits of Burkinabes, which creates market opportunities for domestic producers.

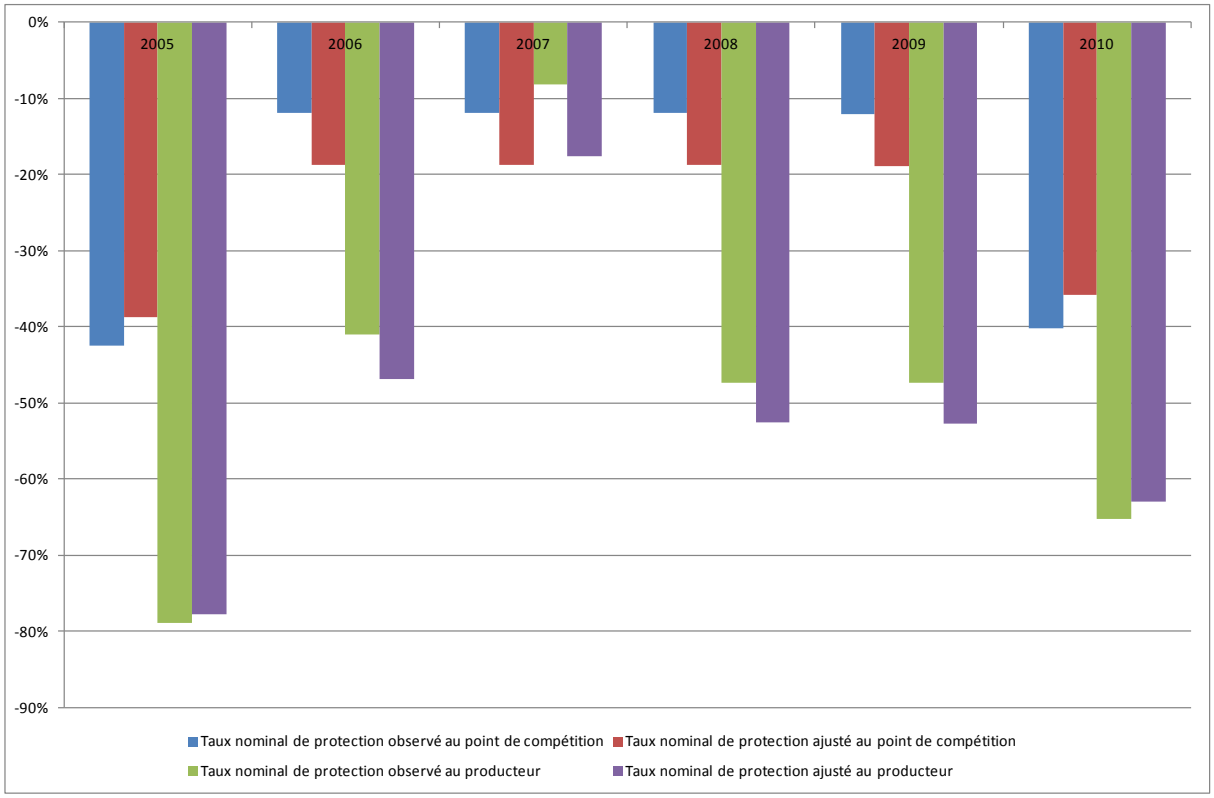
Trade and marketing. Onion bulbs are vigorously traded throughout the country, with a trading rate that varies from 35 percent in the *Sahel* region to 96.5 percent in the *Centre* region (DGPER, 2010), much of it concentrated over the period January-March of each year, according to the ATP survey (2010). At national level, the total turnover for onions is about 24.87 billion FCFA, accounting for 30 percent of the total sale of horticulture products (RGA, 2006-2010). The *Nord* region accounts for nearly 30 percent of total turnover for onions, compared with 1 percent for the *Cascades* region.

External trade flows for onions do not extend beyond the sub-region. Since the country is not specialized in mass production of this product, it sometimes produces a surplus, during which time it is a net exporter, while in other years it has a shortage and becomes a net importer. Exports of onion bulbs are mainly destined for Côte d'Ivoire (an average of 58 percent of exports between 2003 and 2010), while a large share of imports come from Niger (an average of 80 percent of imports between 2003 and 2010).

Value chain performance. The onion sector is rapidly evolving in Burkina Faso, and an interprofession was created in 2011. There are three types of producers : individual smallholders, small producer groups, and cooperatives. Other actors intervene in the value chain to market, transport, finance, provide technical assistance or research. Research institutes in Burkina are also integrated at sub-regional level as they take part to the Western and Central Regional Observatory of Onion (ORO-AOC).

MAFAP Indicators and Interpretation. The years 2005 and 2010, during which onions were imported to Burkina Faso, were particularly unfavourable to both producers and wholesalers. Both groups registered the worst levels of disincentive over the period studied, with a greater level of disincentive for producers than for wholesalers. The period 2006-2009 was one of export for onions from Burkina Faso, and was less unfavourable to actors, with lower levels of disincentives. From this it could be concluded that agricultural policies for onions in Burkina Faso are more favourable to exports than to imports.

Figure 43. Nominal rate of protection observed and adjusted for onions at wholesaler and producer level



Source : authors

The overall disincentives observed for actors in the onion sector were mainly due to inadequate infrastructures for conserving onions during peak periods. This prompts producers to sell off their output at harvest, thereby reducing their profit margins (producer prices are very low between January and March). On the other hand, export and import traders are disconnected from the regional market and apply fairly low wholesale prices, with the idea of being more competitive on the Côte d'Ivoire onion market where onions from Niger are very competitively priced.

Main message. In Burkina Faso, onions are the main horticulture crop grown during the dry season. The sector is held to be promising since it produces substantial revenues for both producers and traders. The popularity of onion cultivation is also explained by a raft of measures taken to support the fruit and vegetable sectors, though these are not specifically designed to support onions. Results of indicators show the effects of disincentives on actors throughout the period, with the strongest disincentives recorded in 2005 and 2010 (import years), compared with the years 2006 to 2009 (export years). This indicates that the trade and agricultural policy environment in Burkina Faso is very unfavourable to imports of this crop It also indicates that producers face more disincentives than wholesalers, due their poor knowledge of conservation techniques, coupled with inadequate storage infrastructure, making them vulnerable to price swings.

Groundnuts

The country's premier cash crop during the 1960s, groundnuts have gradually become a subsistence crop, due to lower profitability of the crop and a more intense focus on cotton as the main export crop of the country. This situation lead the parastatal company in charge of the production and marketing of groundnuts to default in 1999 after ten years of malfunctioning. The groundnuts value

chain is currently functioning with several private individual actors, but is experiencing renewed interest from the decision makers.

Production. Since 2005, the annual output of groundnuts is about 130,000 tonnes (unshelled). Following a decline in the 1997 season, compared with the 1996 season, the amount of land cultivated with groundnuts increased from 211,552 ha in 1996 to 409,922 ha in 2010, with an annual output that rose from about 220,534 tonnes to 340,166 tonnes between 1996 and 2010 (DGPER, 2011). Efforts to bring about this growth in production have focused more on extending the land cultivated with groundnuts than on improving yields, which remained stagnant over the entire period studied.

Consumption/utilization. Groundnuts are cultivated for their seeds (groundnuts for oil), as raw material for oil extraction, for cooking and soap manufacture. There are also a number of other ways of consuming groundnuts: they can be eaten raw or grilled, or in varying degrees of preparation for the snack and confectionery market, in the form of butter, paste and flour, among others. Groundnut by-products have various uses for humans and animals, as well as for agriculture in the form of fertilizer.

According to results of the Burkina Faso Survey on Household Living Conditions (EBCVM), carried out in 2003, consumption of groundnuts and groundnut paste accounted for more than 2.5 percent of average household expenditure at national level[13]. However, household access to this commodity is proving increasingly difficult, due to the fact that consumer prices have risen steadily since 2004 (242 FCFA/Kg), reaching a level of around 553 FCFA per kilo in 2011, making an increase of 128 percent.

Trade and marketing. At the moment, internal trade flows of groundnuts are not always easy to track, due to the lack of a well structured sector that links the various actors. Indeed, all the trading and processing operations for groundnuts are carried out on a small scale, by individuals or people grouped into associations. However, on the basis of information from literature available (MAHRH, 2010), it emerges that an average 40 percent of production is not traded (self-consumption, seeds and gifts) and that 60 percent reaches the marketplace.

External flows of groundnuts are destined for the sub-regional market, mainly Ghana, Senegal and Niger. These are the countries to which the largest volumes of groundnuts were exported, on average, between 2003 and 2010 (with, respectively, an average of 4,387 tonnes, 2,590 tonnes and 965 tonnes). If groundnuts produced in Burkina Faso are not exported beyond the borders of the sub-region, that is because within that area, the varieties used are destined for making oil. These are small-grained varieties, rich in oil (50 percent), while the most highly sought after variety on the world market is the larger groundnut, which has several segments (APROMA, 1996), and whose uses include peanut butter, a snack with drinks, confectionery and bird food.

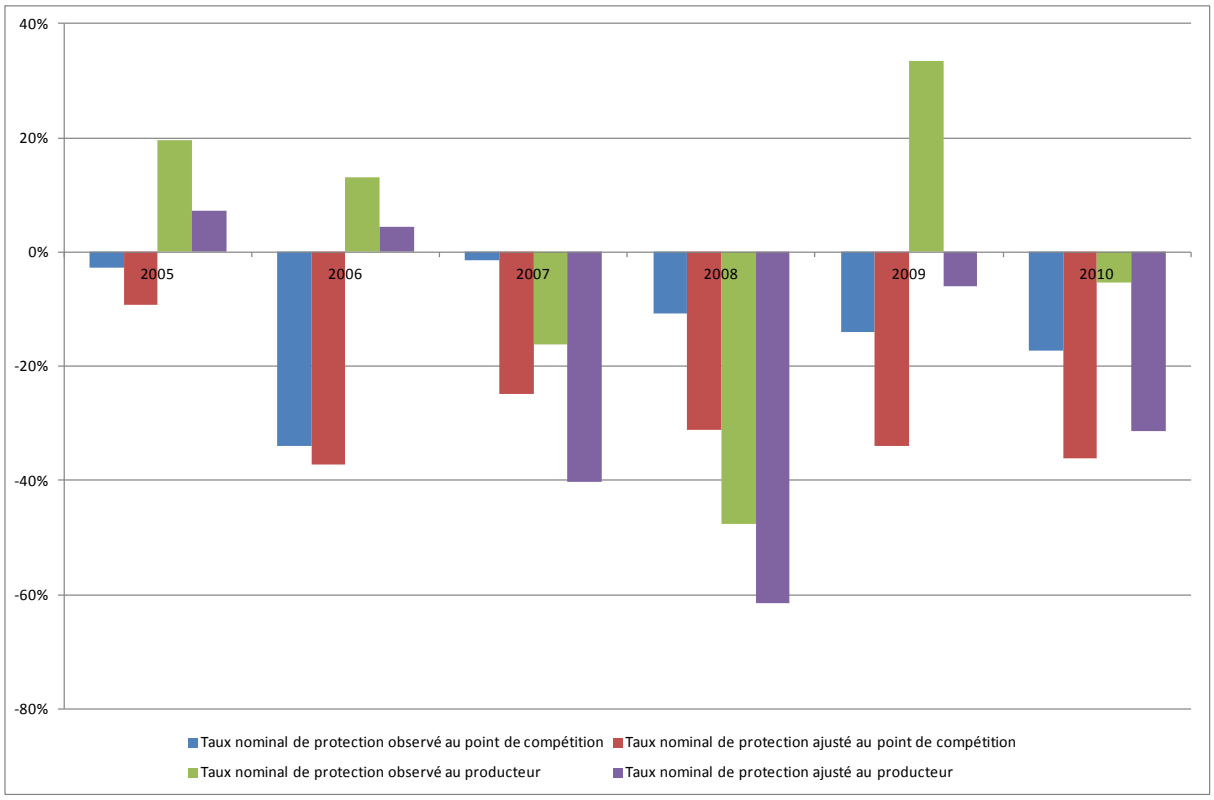
Value chain performance. Also it is not well organized, the groundnut sector regroups the usual actors : producers, collectors, wholesalers, retailers. Collectors usually gather important quantities of groundnuts from producers, that are usually sold to regional wholesalers, who then sell important volumes of groundnuts to the central wholesalers located in the main cities. Small groundnut

[13] Without taking into account consumption of groundnut oil.

processing units sometimes buy from wholesalers. These small units usually produce peanut paste, which is growingly used by Burkinabés, notably the urban population. Groundnut processing at industrial scale used to exist, mainly through the New Company for Oil and Soap (SN CITEC). However this activity has been abandoned due to the high price of groundnuts'seeds.

MAFAP indicators and interpretation. The principal indicators for price incentives and disincentives for shelled groundnuts show that wholesalers receive disincentives throughout the whole period, while producers experience alternate incentives and disincentives.

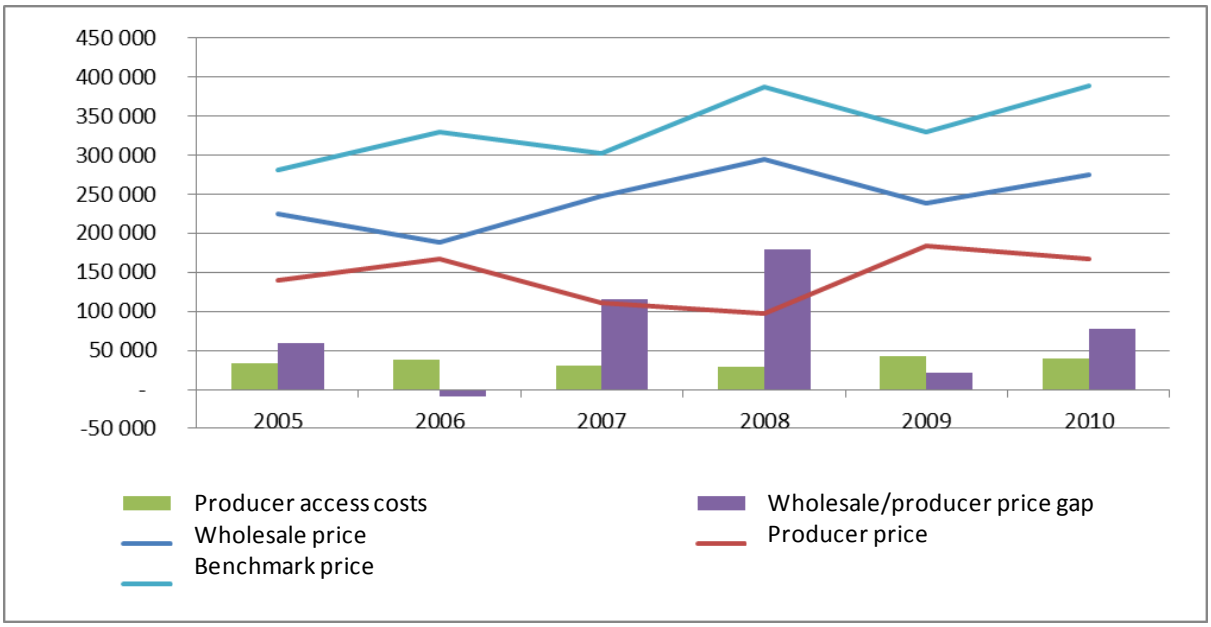
Figure 44. Nominal rate of protection observed and adjusted at wholesale and producer level between 2005 and 2010



Source : authors

Differences in trends between producer and wholesale price highlight low domestic market. Such disconnexion is also observed between benchmark and wholesale prices, which follow opposite trends as well.

Figure 45. Reference, wholesale and producer prices and comparison of access costs to producers and gap between wholesale and producer prices for groundnuts, Burkina Faso, 2005-2010



Source : authors

Further analysis reveals that in 2006, there was no difference between producer and wholesale price, implying that for the same product, the wholesale price was lower than the producers'[14]. Wholesale price formation does not seem to fully integrate processing costs from shelled groundnuts to unshelled groundnuts.

In the whole, it can be said that groundnuts value chain actors experienced disincentives, which is mainly due to the prices they received, rather than the access costs. The groundnut marketing system is therefore failing and leads to disincentive prices for wholesalers. Indeed since SOFIVAR, the parastatal company, defaulted, groundnut marketing is carried out by several disorganized private actors, who insufficiently take into account processing costs in the price formation. Besides, wholesale prices are strongly disconnected from the relatively low benchmark prices. It thus emerges that the main handicap for Burkina Faso's groundnut sector is lack of organization, which leads to market disconnection between the various links in the value chain : export, wholesale and production.

Conclusions

Coherence between policy objectives and impacts

Rice. The policy objective for increasing rice production in Burkina Faso, which is part of the National Rice Development Strategy, seems to have produced positive financial repercussions for actors and for the sector itself. The impact of implementation of this policy was more apparent on producers in 2008, with the launch of support initiatives for rice production. In addition, the fiscal measures

[14] The producer price of unshelled groundnut has been brought back to producer price of shelled groundnut by applying a coefficient (1.19), corresponding to the average ratio between wholesale unshelled groundnut price and wholesale shelled groundnut price, from 2006 to 2010.

introduced for imports of high volume consumer products during the 2008 food crisis, benefited traders most of all, helping them to obtain prices that were higher than the reference prices. However, these measures did not have the expected effects on consumers, since domestic prices were higher than expected. In particular the 2008 decision to remove import taxes on rice did not lead to parity between domestic prices and reference prices. To sum up, the government policies implemented were supported by price policies, and these benefited all actors in the value chain, to the detriment of consumers.

Cotton. Since it is the principal source of foreign exchange (after gold), and a crop that provides a livelihood to millions of people, cotton is the focus of strong government attention. A range of policies, including facilitation for credit access, input subsidies and fixed prices for cottonseed, combine to provide production incentives for farmers, at the expense of the companies. However, this level of disincentives for cotton companies would appear to have declined somewhat following the implementation of a new price fixing mechanism in 2007. There has therefore been a redistribution towards producers, which would appear to be in line with government wishes to support production, although the viability of the system may be called into doubt given the possibility that the cotton companies could experience difficulties in balancing their accounts. However, at this current stage of the analysis, it may be somewhat hasty to conclude that policy impacts are coherent with their objectives. First, there needs to be an overall analysis, including that of downstream cotton production activities (production of cottonseed cake and oil) since it has been determined that 5 percent of cotton output is processed.

Seedcotton oil. Regarding seedcotton oil (a local product in substitution for imported palm oil), it would appear that the sector does not benefit from any specific policy measures, although imported palm oil is subject to import duties in the order of 13.5 percent. However, this product's main input, cottonseed, is strongly supported by the country's agricultural policies. This has an impact on the oilseed segment of the sector, even though production could be further supported if the policy objective of boosting cottonseed oil were to be pursued. Promotion of cottonseed oil production could be encouraged, starting by supplying seedcotton. Such a strategy would bring added value to the cotton ginning and extraction industries and lower the country's import bill for oil.

Cattle. As mentioned earlier, the livestock sector was studied in place of the beef meat sector, given the negligible quantity of meat exports from Burkina Faso. The effect of price policies for this sector are independent of the objectives for policies implemented, since aside from the drawing up of documents for programmes and action strategies, the livestock sector did not benefit from any concrete policies during the period studied. The main incoherence observed was the lack of interest shown in a sector that is of such importance, both to food security and in economic, social and cultural terms, to a country like Burkina Faso. This incoherence assumes even greater proportions given the absence of measures for reviving beef exports, which would increase the sector's value added component.

Gum arabic. For the Burkina Faso's gum arabic sector, the policies implemented would not appear to be totally satisfactory in terms of achieving their objectives. The creation of APFNL in 2008 (whose goal was to promote and add value to non timber forest products, including gum arabic), as well as the granting of subsidies to buy extraction equipment for producers, through various projects and programmes, did not have significant effects on the disincentives recorded by these actors. It can

therefore be concluded that there was incoherence between policies implemented and their impact on producers, who suffered greater disincentives in 2009 and 2010 than in 2008, in contrast with wholesalers, for whom disincentive levels gradually diminished.

Sesame. For sesame, the impact of prices obtained appears to have been independent of any policies in favour of the sector. It was observed that there were no specific policies to support sesame during the period covered by the study (2005-2010). Given that this crop holds second place for the country's plant-based exports, after cotton, it seems surprising that no concrete policies have been implemented to strengthen the sector. However, the government and its partners now seem to have acknowledged this gap and initiatives to support the sector were developed soon after the close of the period involved in the study. Notably, a plan of action for sesame was launched in 2010.

Groundnuts. Burkina Faso's groundnut sector did not benefit from any specific policies aimed at promoting production, processing or trade between 2005 and 2010. In contrast with wholesalers, who received disincentives throughout the period, producers experienced alternating years of incentives and disincentives. In a country with a structural trade deficit, with **a** strong reliance on imported edible vegetable oil, it would seem logical to consider developing concrete measures for reviving this sector, which could serve as an engine for relaunching the oilseed sector. Indeed, given the large share of oil-producing groundnuts in the range of varieties cultivated, a measure to promote groundnut production would have a significant knock-on effect for the country's oilseed sector, as well as on the livestock sector and the production of animal food products.

Maize In response to the 2008 food crisis, a range of support measures for cereal production (including maize) was adopted to revive crop production and guarantee food security. Results showing disincentives for producers and very light incentives for wholesalers, especially for maize exports, revealed that there was incoherence between policy objectives, measures implemented and the results observed. The goal of guaranteeing food security by banning cereal exports does, however, appear to be an explanation for these results observed, caused by maize's «non tradable» status. It is not therefore possible to reach a conclusion on the coherence of policies implemented, since in the present study, maize is treated as an export commodity, while the policy objectives sought to reduce exports as much as possible.

Sorghum. Policies implemented in an attempt to revive cereal production include sorghum, but to a lesser extent than maize. Regarding objectives, this is a key product for food security and it emerges that sorghum producers did not receive disincentives, on the contrary to maize. However, it would be incorrect to infer policy incoherence, whereas sorghum is treated as an export commodity, in contrast to the policy objectives.

Onions. Until now, onions have not benefited from any specifi**c meas**ures, beyond general initiatives taken for the fruit and vegetable sector. Over the period involved in the study, actors received disincentives, with a more marked effect on producers. On balance, the policies implemented in favour of the fruit and vegetable sector (and therefore, in part, onions) did not produce incentives for production, nor for the sector as a whole, even though there has been an increase in onion production, mainly due to the personal initiative of some actors.

Incentives to agricultural production

Rice. In 2008, actors in the rice sector (producers and wholesalers) experienced significant incentives due to various government initiatives in response to the food crisis. The other years covered by the study were also marked by incentives for producers and wholesalers, an indication of policy efforts to encourage production. Even though imports into the country were very substantial, and accounted for the greater share of rice consumed, prices obtained by producers remained higher than the reference price. This situation bodes well for future investments.

Maize. For maize, initiatives to promote production were taken in 2008, at the same time as measures were put in place to benefit rice cultivation. However, production continued to be penalized by producer prices that were below the reference price throughout the period, in import years as well as export years. This leads to the conclusion that the country's agricultural trading policy environment is unfavourable to maize production.

Sorghum As is the case for rice, and to a lesser extent maize, sorghum has benefited from government interventions to revive the cereal sector. The results obtained for the production link of the value chain remain seem to present a favourable environment for sorghum production with higher prices for producers than those they would receive on a totally open market. Even if production is supported by certain policy measures operating in the country, it remains true that incentives are inadequate for the share of output destined for export.

Cotton. Judging from results produced by the indicators and all the measures taken in the cotton sector to maintain its status as a generator of foreign exchange, it would appear that cotton production is strongly encouraged. This encouragement is increasingly important as producer prices appear more and more attractive as time goes on. One may wonder about the solidity of a price fixing mechanism which vigorously restricts profits for cotton companies, as a way of supporting producers, all the more given that the cotton companies are private sector entities.

Sesame and groundnuts. The policy context of sesame and groundnuts, which shows no concrete measures to support these sectors between 2005 and 2010, as well as results which give evidence of disincentives, or very slight incentives, for actors, indicates that there is no encouragement for production in these sectors. Lack of competitivity of groundnuts and sesame on the international market, coupled with low prices for producers, mean that these latter are unable to create a margin for future solid investment in their business.

Cottonseed oil. Indicators for incentives and disincentives via prices for cottonseed oil show that producers obtain higher prices than those for a benchmark situation. However, despite this apparent incentive, local oil production encounters enormous difficulties linked to the acquisition of the main input (seedcotton) and strong competition from imported palm oil[15]. Faced with difficulties linked to the acquisition of seedcotton, oil producers suggest using groundnuts, which are far richer in oil, on condition that purchase of the nuts is not too costly.

[15] Extraction companies sometimes suffer dead periods due to lack of cottonseed. Furthermore, strong competition from imported palm oil sometimes forces production to be halted because the market price would not be enough to cover production costs.

Beef. Actors in the livestock sector suffer disincentives in their various activities, according to indicators obtained from the analysis. The relatively low prices received by actors, coupled with a lack of specific infrastructures for the sector, constitute a significant handicap to intensifying production, and to subsequent investment in a vigorous revival of the sector.

Gum arabic. The indicators obtained do not show any clear evidence for incentives to gum arabic production. Despite measures taken to promote gum arabic production in the country, producers remain penalized. These disincentives for producers in Burkina Faso are essentially caused by the quality of the gum produced, which is not sufficiently high to attract the country's principal foreign partners. Measures to improve producers' capacities would help to achieve better quality for output and hence produce greater incentives for actors.

Onions. According to the results obtained, all the actors in the onion sector suffered from disincentives during the period, with the greatest disincentives experienced by producers. This means that in an open trade environment, they would obtain higher prices. Nevertheless, the sector is proving increasingly popular, due to growth in domestic demand. Incentives to production therefore do exist, though these are more the result of domestic demand, followed up by the personal initiatives of producers, rather than of any policies implemented.

Impacts on consumers

Rice and cottonseed oil. Due to the large share of imported rice and oil in the national diet, consumers benefit from the country's trade policies, notably measures to lift taxes from high volume consumer imports, a decision taken in 2008 in response to the food crisis. Though the various actors in these two sectors receive prices that are higher than reference prices. Consumption has not declined as a result, since high import flows of these commodities leads to relatively low prices.

Groundnuts. Despite lack of organization within the country's groundnut sector, there is a coherent link between producer and consumer prices, which causes both sets of prices to develop in the same way. Furthermore, the gap between these two prices is relatively small (less than 30 FCFA per kg between 2005 and 2009), but this does not indicate that disincentives for producers are beneficial to consumers, due to the constantly growing price of groundnuts, which reached a level in the order of 553 FCFA in 2011. Given the lack of specific sector policies, it appears clear that coherent policy measures aimed at reviving the sector would produce more incentives to production and greater benefits for consumers, especially since groundnuts are particularly consumed in a processed form.

Maize. Due to the importance of maize to the country's food security, government efforts to promote this sector mainly benefit consumers. Indeed, when producers have been penalized, these measures[16] have benefited consumers, who have been able to obtain relatively low prices. Gaps between producer and consumer prices were low, at an average of less than 40 FCFA/kg during the period between 2005 and 2010.

Sorghum. In common with maize, sorghum benefited, albeit to a lesser extent, from implementation of policies to revive production. As for the consumer link in the value chain, it benefited from initiatives to sell cereals at a social price, and from the constitution of safety reserves. It emerged

[16] For example, initiatives to sell cereals at a social price.

that consumption was not negatively affected by weak levels of incentives and disincentives for producers, with consumer prices that were not substantially different from producer prices.

Onions. In the case of onions, disincentives to actors in the sector did not necessarily prove advantageous to consumers. In fact, the seasonal nature of the product leads to high levels of price volatility, even in the course of the same year, since the busiest production period is from January to March. In the course of this period, production is generally sold off at low prices, which would seem to favour consumers. However, this period of the year is immediately followed by shortages, accompanied by substantial increases in price.

Impacts of exchange rate policies

Our analysis, like others before us (Lançon and Benz 2007), reveals that the increase in value of the euro against the dollar tends to increase the competitivity of imported commodities such as Asian rice and palm oil, both of which have prices quoted in dollars. This overvaluation of the euro, which causes a *de facto* overvaluation of the FCFA, is a serious problem for the future development of agricultural production regarding export products, which will be less competitive on the international market. However, this overvaluation has attenuated shocks resulting from recent price hikes on international markets, and also those of many other products, including energy.

Organization of sectors

From the analysis of incentives and disincentives to production, for the various products studied, it emerges that agricultural sectors in Burkina Faso are very poorly organized. The only exception is cotton, a strategic sector and generator of foreign exchange for the country. Inadequate structuring and organization of sectors points to a lack of correlation between prices in the various links of the value chain (production, wholesale and border) and is evidence of the noticeable disconnection between different actors. Given this lack of organization, any opportunity to obtain higher prices, especially for the production link in the chain, would appear to be lost. It therefore seems clear that any improvement in incentive levels for producers must also be matched by improved organization of the various sectors, in order to obtain better price monitoring, both at national, sub-regional and international levels. On this point, the cereal sectors have benefited from the development of a national market information system and, at regional level, from price monitoring on certain markets through the West Africa Markets Information Systems Network (RESIMAO).

As well as market disconnection, which penalizes actors from certain agricultural sectors, investments in infrastructure, both at farm and on a wider level, are often inadequate, and lead to elevated access costs and significant development gaps between actors. Improvements in rural tracks and roads along the principal communications corridors would result in reduced transport costs and hence more efficient access costs. Besides, there is much work to be done by the government to reduce illegal levies on trade routes, a factor observed for all the sectors studied, and which discourages trade of output, both for financial and psychological reasons.

Cotton would appear to be the country's most highly organized and best structured sector. However, there is room for improvement in some aspects, especially productivity, so as to increase the quality (and hence the value) of domestic cotton and its marketing. For this reason, it would be advisable to inject more clarity into the sector's organization and management, especially for the segment dealing with the marketing of cotton fibre and its by-products, so as to give clearer signals to producers. In

addition, support provided to cotton and to the structuring of the sector would have a greater impact on the country's economy if it were extended to include processing. The specific case of cottonseed oil and its tight competition with imported palm oil shows that the difficulties encountered by the extraction companies would be diminished, so long as access to cottonseed was improved. Together with seedcotton oil extraction companies, livestock producers would also gain from easier and lower cost access to animal feed based on seedcotton.

6. Public expenditure for food and agriculture

Abstract

Box 3: Summary of results of public expenditure and aid

- The share of total budget approved for agriculture in Burkina Faso increased from 170.6 billion FCFA to 187.1 billion FCFA over the period 2006-2010, marking an overall rise of 2%. However, notable declines were recorded of 6 and 7% respectively, between 2007 and 2008 and between 2009 and 2010. Disbursements increased from 144.7 billion FCFA in 2006 to 153.9 billion FCFA in 2010, representing a rise of 6%. Of this total, more than 80% of expenditure was for investments.

- The share of the overall budget allocated to agriculture underwent a constant decline during the period 2006-2010. However, it remains well above the 10% threshold recommended by the declaration of African heads of state in Maputo.

- Public expenditure on agriculture is dominated by payments to producers-input subsidies (38%), spending on infrastructure (20%), and spending on training (15%). By contrast, very small percentages are spent on marketing (3%), storage (0%), inspection (1%), extension (3%), technical assistance (1%) and agricultural research (6%).

- Public expenditure in support of agriculture was mainly dominated by spending on rural infrastructure (41%) and education (36%) for the period 2006-2010.

- Public expenditure on agriculture brought, above all, cross-cutting support to all products representing 73.2% of total spending in 2010. The share of spending to support commodity groups saw a regular increase between 2006 (8.7%) and 2009 (21.5%). Spending to support individual products reached its highest level in 2006, with a figure of 43.8%, followed by a decline in 2007 and 2009 with, respectively, shares of 18.1% and 6.6%. The share improved in 2010, when it reached 11.7%

- Development aid to the agriculture sector went from 114 to 101 million FCFA. Over the period 2006-2010, the share of external financing, made up of an average 54.2% in loans, accounted for an average of 71% of total public expenditure on agriculture.

Introduction

Government policy levers likely to influence agricultural development are not restricted to policy measures affecting prices (taxes, quotas etc.). The government disposes of a budgetary tool which allows it to allocate spending to various sectors of agricultural development. This part of the MAFAP study plans to offer a better understanding of public expenditure in Burkina Faso. The aim is to provide policy decision-makers and development stakeholders with a better knowledge of public spending, especially its breakdown, offering responses to questions that sometimes remain unanswered: development and sector activities receiving the most support, share of aid, administrative costs and actual levels of disbursement.

This innovative analysis covers the whole of government expenditure and development aid for the agriculture sector in Burkina Faso: projects and programmes, as well as administrative costs, as documented by the Directorate General for the Budget at the Ministry of Economy and Finances.

The analysis uses concepts and definitions described in the MAFAP methodology for measuring public expenditures in support of food and agriculture sector development and its terminology. Those readers who are not familiar with the methodology are invited to refer to MAFAP concept paper available at: www.fao.org/mafap. However, for readers' convenience, a few main definitions are provided in Box 2, while Annex 3 provides a brief summary of main concepts.

Box 4:Main definitions

The main definitions are provided below. For more explanation on main concepts behind measurement of public expenditures in support of food and agriculture sector development in the MAFAP projects see Annex 3.

Public expenditures for food and agriculture : all public expenditures that are undertaken in support of food and agriculture sector development, financed from the national budget, either central or regional government, regardless of the ministry that implements the policy, and external aid, provided either through local governments or specific projects conducted by international organisation or NGOs. They are composed of agriculture-specifc expenditures and agriculture-supportive expenditures.

Agriculture-specific expenditures: all public expenditure measures that generate monetary transfers to agricultural agents (producers, consumers, input suppliers, trades, processors and transporters) or the sector as a whole (e.g. in form of research, extension services etc.)

Agriculture-supportive expenditures: public expenditure measures that are not strictly specific to agriculture sector, but that have strong influence on agricultural sector development, such as rural education, rural health or rural infrastructure (energy, water and sanitation, roads etc.)

Support to individual commodities: public expenditures that directly target specific individual commodities such as rice or cotton.

Support to groups of commodities: public expenditures that directly target specific groups of commodities such as crops or livestock.

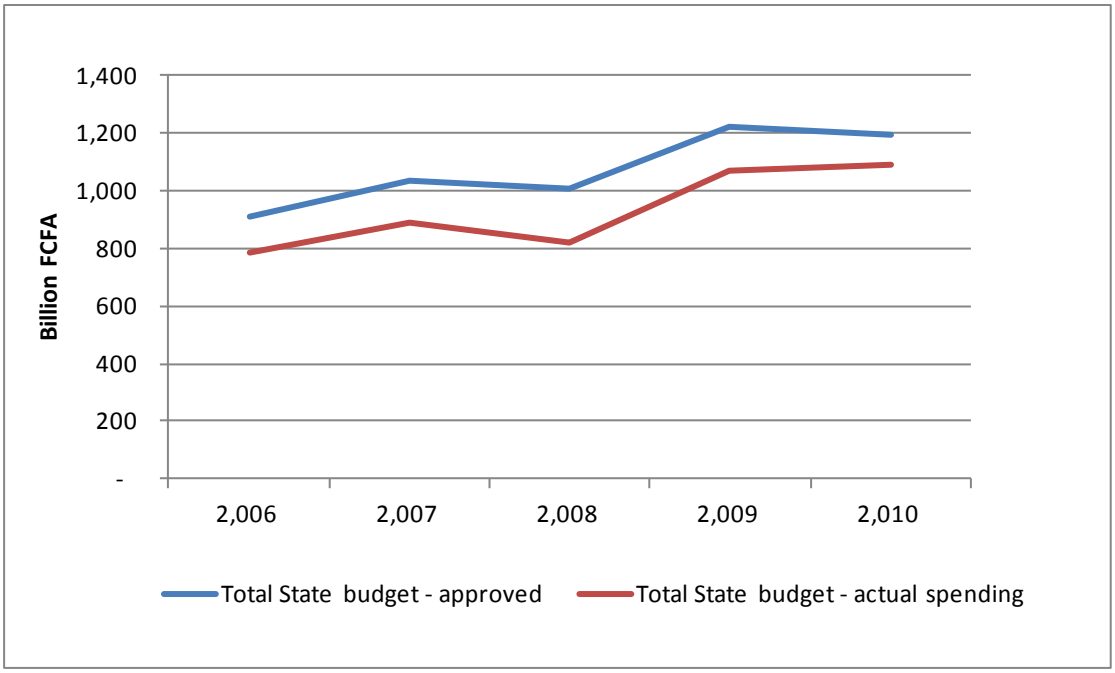
Support to all commodities: public expenditures that do not target specific individual or groups of commodities, but that benefit any food and agricultural activity.

General trends in the global budget

An analysis of the total budget approved for Burkina Faso reveals an almost constant upward trend over the period from 2006 to 2010. During this period, the country's budget saw an overall increase of 31 percent, rising from 911.96 billion FCFA in 2006 to 1,197 billion FCFA in 2010 (budget legislation 2006, 2007, 2008, 2009 and 2010). Nevertheless, there was a slight decline between 2007 and 2008, with the budget falling from 1,032.6 billion FCFA in 2007 to 1,008.7 billion FCFA in 2008.

Similar trends were observed in levels of actual disbursements, although there was a slight decline in the gap between the approved budget and actual disbursements in 2010 (91 percent).

Figure 46. Development of total budget for Burkina Faso during period 2006-2010 (in billions of FCFA)



Source: Authors, using data from DGB and DGCOOP

General trends in public expenditures for food and agriculture

During the period 2006-2010, the approved budget for food and agriculture saw an overall increase of 2 percent, while actual spending for food and agriculture underwent an overall increase of 6 percent. This marks an overall improvement in levels of disbursement, which reached 80 percent in 2006, 2009 and 2010, with an average of 79 percent over the 2006-2010 period. The development could be explained by efforts on the part of the Ministry of the Economy and Finances (MEF) to improve the efficacy of the financial circuit in recent years. In 2007, the level of disbursement was 72 percent and in 2008, it reached a low of 68 percent. The low levels of disbursement observed in 2008 were due to the measures taken in response to the food and financial crises, which led the government to defer all spending that was not considered a priority. But between 2008 and 2010, levels of disbursement improved considerably (increasing from 68 percent in 2008 to 88 percent in 2010), following support measures taken by the government to revive agricultural production in Burkina Faso.

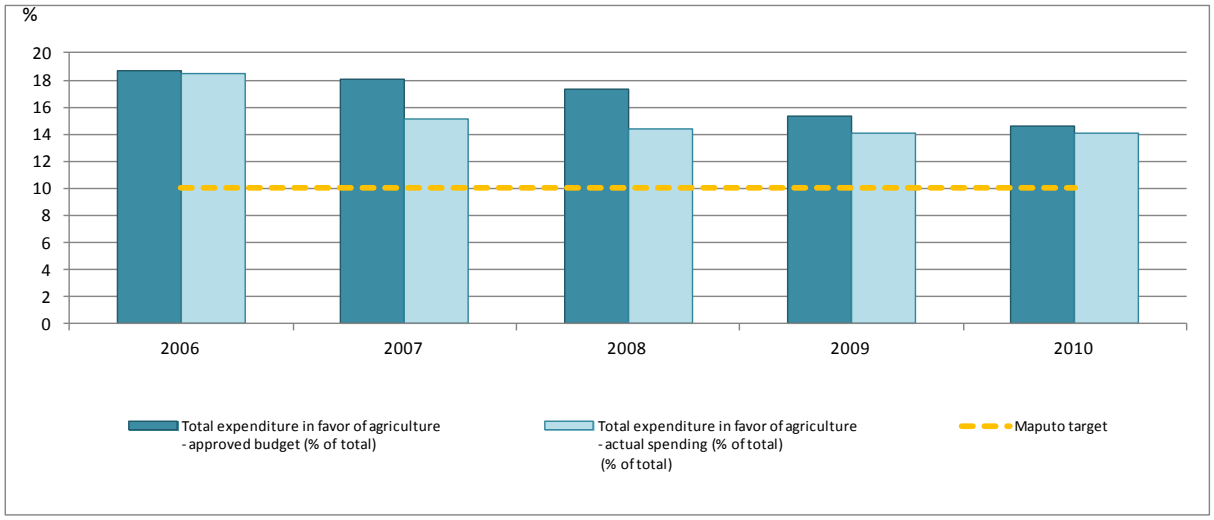
Table 32: Total budget for food and agriculture in Burkina Faso: approved budget and actual total expenditure

Types of budget	2006	2007	2008	2009	2010	% variation
	Billion FCFA					
Budget approved	170,6	186,1	174,3	187,1	174,8	2
Spending	144,7	134,6	118,5	150,4	153,9	6
Rate	**84,8**	**72,3**	**68,0**	**80,3**	**88,0**	

Source: Authors using data from DGB

An analysis of the share of total public expenditure used for the rural and agriculture sector in Burkina Faso indicates that the overall budget allocated to agriculture underwent a regular decline during the period 2006-2010. The share of actual spending on agriculture saw a decline from 2006 to 2009, falling from 18,4 percent to 14,05 percent, before starting to rise slightly, reaching 14,1 percent in 2010. It should also be noted that the Maputo Declaration of 2003, which fixed a goal of 10 percent of the budget for the rural and agriculture sector, was respected in terms of actual disbursements made during the period 2006-2010.

Figure 47. Share of public expenditure for agriculture sector in total budget: approved budget and actual disbursement



Source: Authors

Table 33: Public expenditure in support of agriculture sector (actual total expenditure)

In millions of FCFA					
	2006	**2007**	**2008**	**2009**	**2010**
I. Agriculture specific policies	61 585	48 065	48 995	63 354	76 984
I.1. Payments to agents in the food and agriculture sector	41 401	23 565	27 785	33 553	30 062
I.1.1. Payments to producers	38 807	18 068	23 100	19 444	25 296
B. Input subsidies	29 218	17 737	19 049	18 137	24 404
B1. Variable inputs	3 371	3 465	6 857	4 406	11 298
B2. Capital	24 586	12 549	10 574	12 722	11 538
B3. Farm services	1 261	1 723	1 618	1 009	1 568
C. Revenue support	8 947	0	3 776	0	0
D. Others	642	331	275	1 307	892
I.1.2. Payments to consumers	2 128	4 974	4 439	14 031	4 097
E. Food aid	1 748	1 097	990	4 757	1 525
G. School feeding programmes	296	3 652	3 450	2 411	2 572
H.Others	85	225	0	6 863	0
I.1.3. Payments to input suppliers	150	57	78	12	98
I.1.4. Payments to processors	315	465	168	67	571
I.2. General sector support	20 184	24 500	21 210	29 800	46 922
I. Agricultural research	3 178	2 422	2 923	3 111	4 608
J. Technical assistance	663	616	540	505	653
K. Training	7 659	8 006	7 732	9 337	10 156
L. Extension	926	650	642	1 081	3 936
M. Inspection (veterinary/plant)	210	430	503	816	1 029
N. Infrastructure	6 600	10 605	6 453	10 620	21 694
Roads	1 177	3 931	1 765	2 121	5 403
Irrigation infrastructure	4 897	6 140	3 395	6 620	14 698
Others	527	534	1 292	1 880	1 593
O. Storage/public storage	61	93	78	86	1 025
P. Marketing	196	764	1 966	2 838	2 841
R. Others	691	914	373	1 406	978
II. Policies in support of agriculture	64 263	73 634	51 972	75 092	63 073
S. Education in rural areas	21 958	30 587	22 240	28 064	13 333
T. Health in rural areas	4 078	3 785	3 846	5 545	7 557
U. Rural infrastructure	22 688	37 270	16 790	31 157	28 635
Roads	3 723	21 534	6 844	17 614	9 957
Water and sanitation	15 035	10 697	6 589	10 849	16 829
Energy	1 834	2 080	977	1 295	411
Others	2 095	2 959	2 380	1 399	1 437
V. Others	15 539	1 992	9 095	10 326	13 548
III. Total spending in support of agriculture sector	125 848	121 699	100 967	138 446	140 056

Source: Authors, using data from DGB and DGCOOP

Composition of public expendituresfor food and agriculture

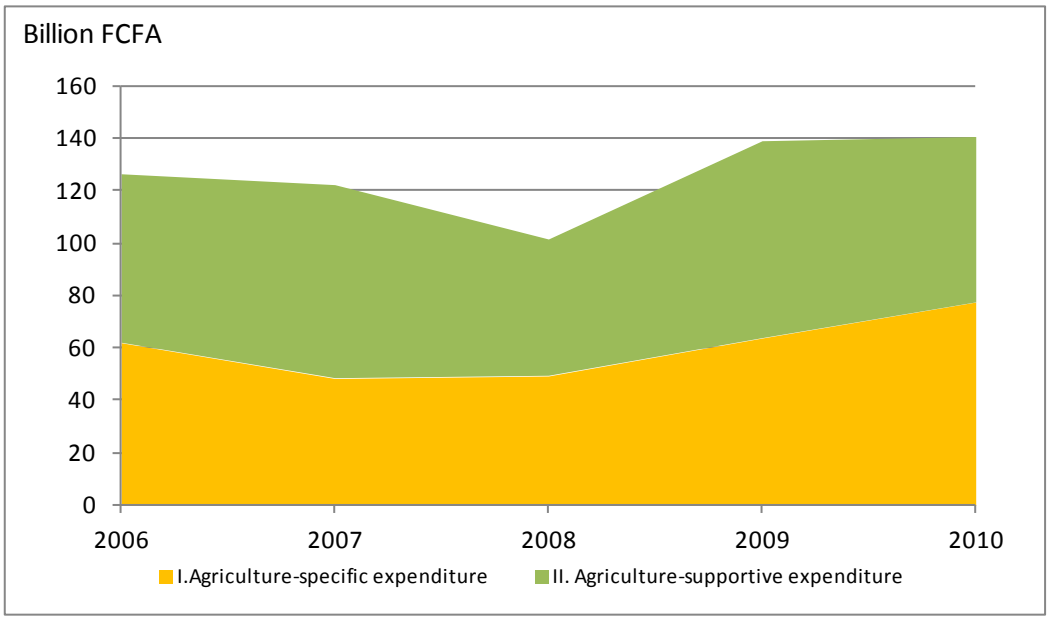
Total public spending for the food and agriculture sector saw a regular decrease in volume between 2006 and 2008, going from 125,8 billion to 100,9 billion. From 2008 to 2010, the sector recorded a rise of 38.7 percent, reaching 140 billion in 2010.. This could be explained by the low level of spending in 2008 and government support measures, especially subsidies for inputs and agricultural equipment, farmer training, the development of irrigated areas and lowlands, etc. Implementation of these measures continued until 2012.

The MAFAP typology for public expenditure for food and agriculture defines two main categories :

- ✓ Agriculture-specific expenditure, whose implementation directly influenced development of the food and agriculture sector. These mainly involved payments in favour of agents from the food and agriculture sector and spending for general support to the sector (agricultural research, technical assistance, training, extension, inspection, infrastructure, storage, marketing and others).
- ✓ Public expenditure in support of the agriculture sector when spending is not strictly linked to agriculture, with a considerable impact on development. These mainly involved spending on education, health, rural infrastructure, water and sanitation and energy in rural areas.

There was a predominance of spending on policies in support of agriculture, except in 2010. Indeed, more than 50 percent of public expenditure for the food and agriculture sector consisted of spending in support of the agriculture sector between 2006 and 2009. But agriculture-specific expenditure have been regularly increasing, to reach 53 percent of public expenditure for the food and agriculture sector in 2010.

Figure 48: Composition of public expenditure in support of the agriculture sector in Burkina Faso, 2006-2010



Source: Authors, using data from DGB

Public expenditures specific to the agricultural sector

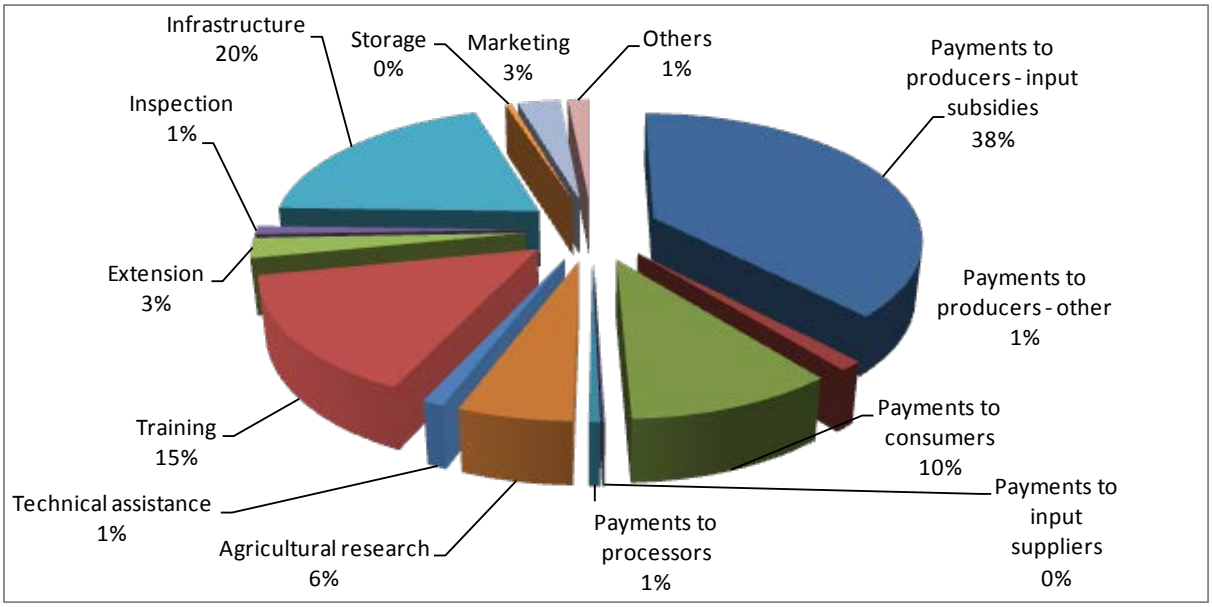
To analyze the composition of agriculture-specific public expenditure, two methods were calculated for the study period (2006-2007 and 2008-2010). During the period 2006-2007, agriculture-specific public spending was dominated by payments to operators in the agrifood sector, consisting of cash transfers to these actors on an individual basis. These were payments to producers, consumers, input suppliers, processors, traders and transporters.

In fact, over the 2006-2007 period, 56 percent of agriculture-specific public spending was allocated to payments on an individual basis to actors in the food and agriculture sector (producers, processors, etc.) and 44 percent were allocated to general support for the agriculture sector, that is to say cash transfers to operators in the agrifood sector on a collective basis (agricultural research, technical assistance, training, extension, inspection, infrastructure, storage, marketing and others).

Agriculture-specific public expenditure was mainly dominated by payments to producers – input subsidies (47 percent), spending on agriculture infrastructure (17 percent) and spending on training (15 percent) during the period 2006-2007. This is in line with certain aspects of parts 1 and 3 of the Strategic Framework for Poverty Reduction (CSLP), namely to spur equity-based growth and to enhance job opportunities and income-generating activities for the poor.

On the other hand, there was a very low level of agriculture-specific public expenditure in the field of marketing (1 percent), storage (0 percent), inspection (1 percent), extension (2 percent), technical assistance (1 percent) and agricultural research (5 percent). Public spending for these sectors fell short of requirements for part 3 of the CSLP, which had identified these as priority areas. Spending levels were low for agricultural research and extension, even though it has been demonstrated that these two spending categories generate more in terms of growth and poverty reduction through gains in productivity (Fan and Zhang, 2008).

Figure 49: Composition of agriculture-specific public spending in Burkina Faso, average 2006-2007



Source: Authors, using data from DGB

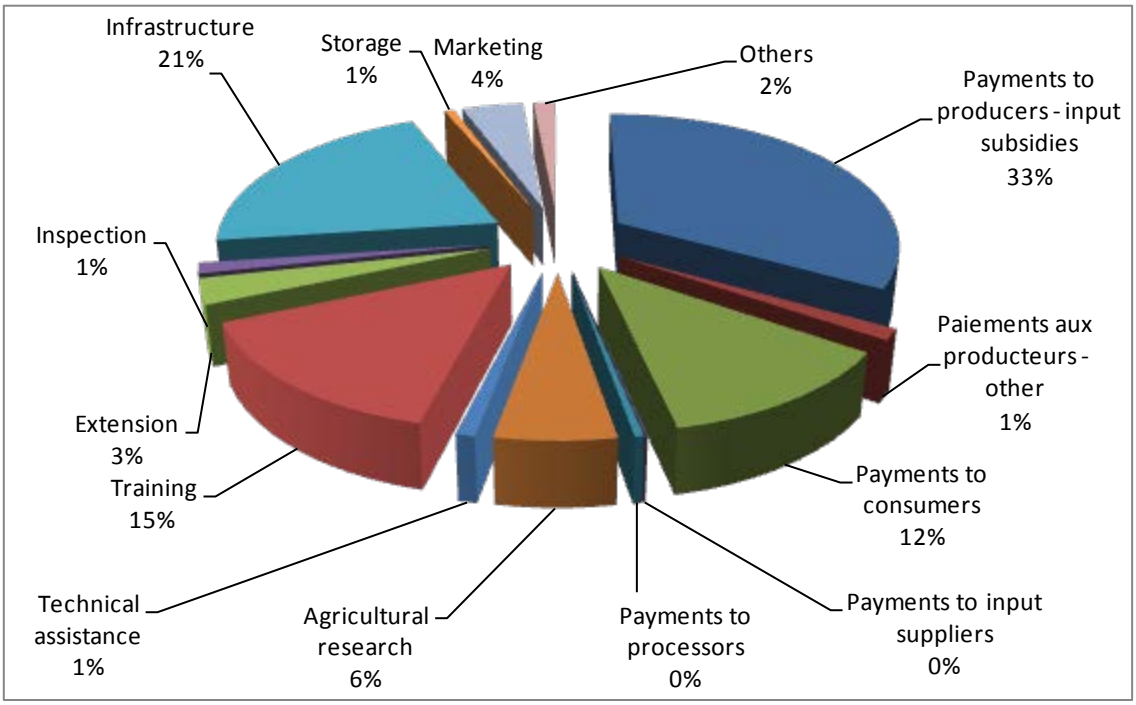
During the period 2008-2010, agriculture-specific public expenditure was dominated by spending for general support. In fact, spending for general support to the agriculture sector accounted for an average 53 percent of agriculture-specific public expenditure, compared with 47 percent for spending on operators in the food and agriculture sector. This was partly the result of a reduction in input subsidies between the periods 2006-2007 and 2008-2010, and partly due to an increase in support for training and infrastructure, especially infrastructures for irrigation.

These results reveal that input support was significant in the short term, but far less so over the long term. In fact, between 2006 and 2007, the share of agriculture-specific public expenditure allocated to payments to producers – input subsidies was 47 percent, while for the period 2008-2010, this share only accounted for 33 percent.

In terms of composition, agriculture-specific public expenditure was mainly comprised of spending on input subsidies (33 percent), spending on infrastructure (21 percent), training (15 percent) and payments to consumers (12 percent). Support to consumers, at 13 percent, was a significant figure, and this should be seen as a parallel strategy to government efforts to support inputs, evidence of an attempt to use budgetary tools to target both producers and consumers. As in the period 2006-2007, the period 2008-2010 witnessed a very low share of agriculture-specific public expenditure for storage (1 percent), inspection (1 percent), extension (3 percent), technical assistance (1 percent) and agricultural research (6 percent).

Long-term low levels of agriculture-specific public expenditure for storage, inspection, extension, technical assistance and agricultural research may become cause for concern since these sectors play a not insignificant role in agricultural development. Indeed, spending on extension services, inspection, technical assistance and agricultural research services can help farmers to adopt new production techniques that are more friendly to the environment and lead to more gains in productivity.

Figure 50. Composition of agriculture-specific public expenditure in Burkina Faso, average 2008-2010



Source: Authors, using data from DGB

Public expenditures in support of agriculture

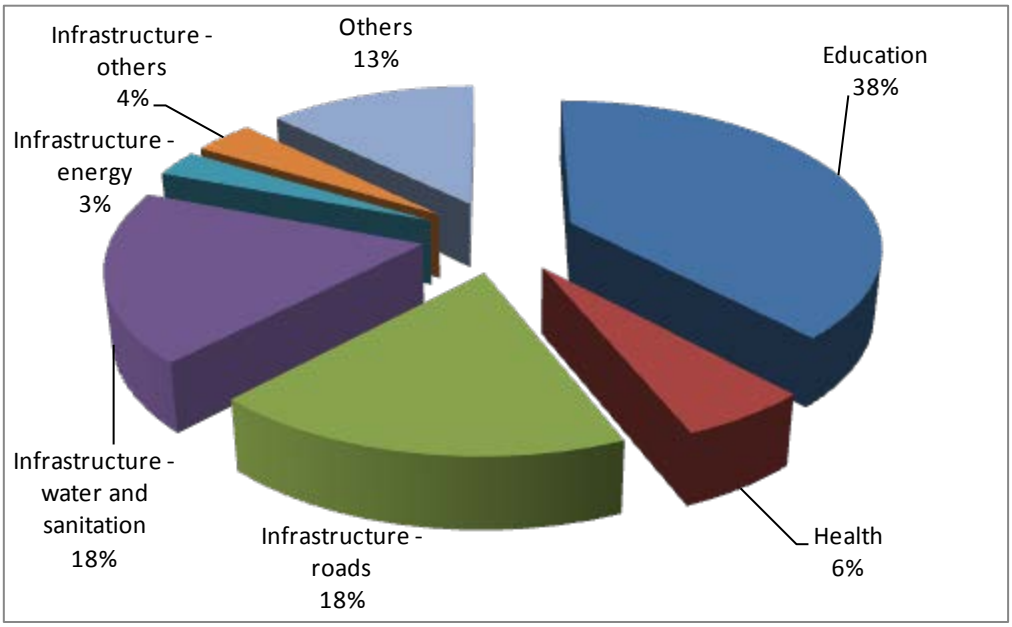
Public spending in support of agriculture includes public expenditure that is not agriculture-specific, but which has a positive impact on the development of the agriculture sector. This spending category covers: (i) funding for education in rural areas, including public spending in support of education in rural areas, (ii) funding for health in rural areas, including public spending in support of health services in rural areas, (iii) funding for rural infrastructure (roads, water, energy, others) which accounts for public spending in support of rural infrastructure, (iv) other public expenditure in support of agriculture for which there is insufficient information to classify it in one of the categories mentioned above.

The analysis, just as it is the case for the agricultural-specific expenditure, compares the 2006-2007 and 2008-2010 periods.

During the period 2006-2007, public expenditure in support of agriculture was mainly dominated by spending on rural infrastructure (43 percent) and education (38 percent). This refers to efforts to tackle illiteracy in rural areas and developing infrastructures (roads, water and sanitation, energy, etc.) to facilitate economic development in rural areas, in line with parts 2 and 3 of the Strategic Framework for Poverty Reduction (CSLP).

Spending on rural infrastructure in Burkina Faso mainly involves spending on infrastructures for water and sanitation, and for road infrastructures. These two types of expenditure are particularly highlighted in an attempt to promote supplies of safe drinking water and sanitation for rural communities and to facilitate trade in agricultural products from food surplus areas to those affected by shortages.

Figure 51. Composition of public expenditure in support of the agriculture sector, average 2006-2007

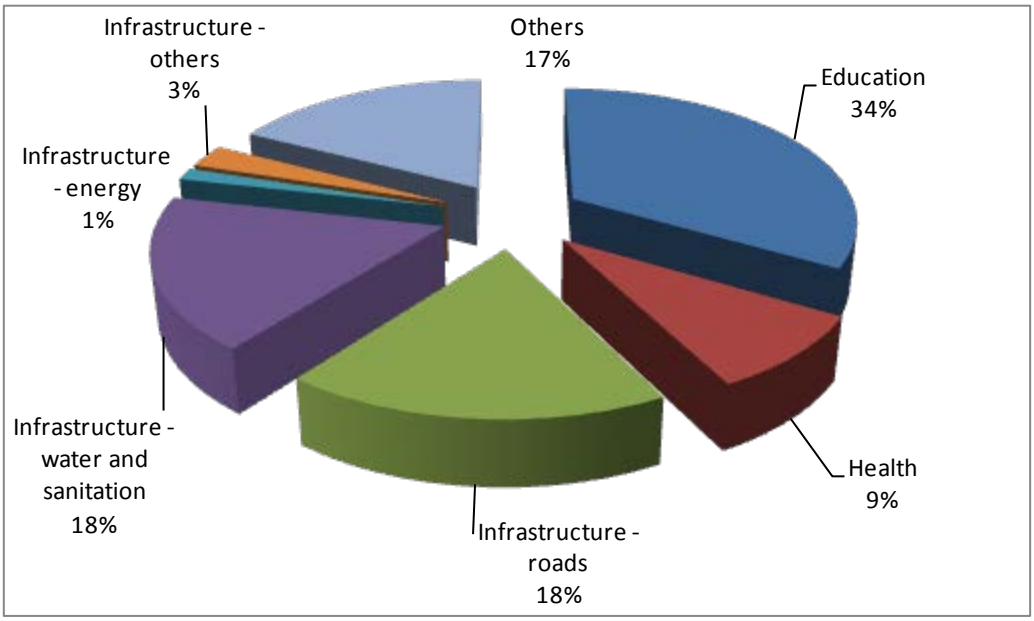


Source: Authors, using data from DGB

For the period 2008-2010, an almost identical structure was seen for public spending in support of agriculture, which continued to be dominated by spending on rural infrastructure (40 percent), education (34 percent) and others (17 percent). But during this period there was a relative decline in spending on rural infrastructure and education, compared with the period 2006-2007. By contrast, spending on health increased, rising to 9 percent, compared with 5 percent for the period 2006-2007.

The «others» category, which groups together measures to support agriculture for which there was insufficient information, also increased, rising from 13 percent to 17 percent between the period 2006-2007 and the period 2008-2010. Our analysis of the structure of public spending in support of agriculture could change if it were possible to move some projects and programme from this category into other categories for public spending in support of agriculture. It is therefore important that additional information is made available, so as to be able to place these measures in the appropriate spending categories.

Figure 52. Composition of public expenditure in support of the agriculture sector, average 2008-2010



Source: Authors, using data from DGB

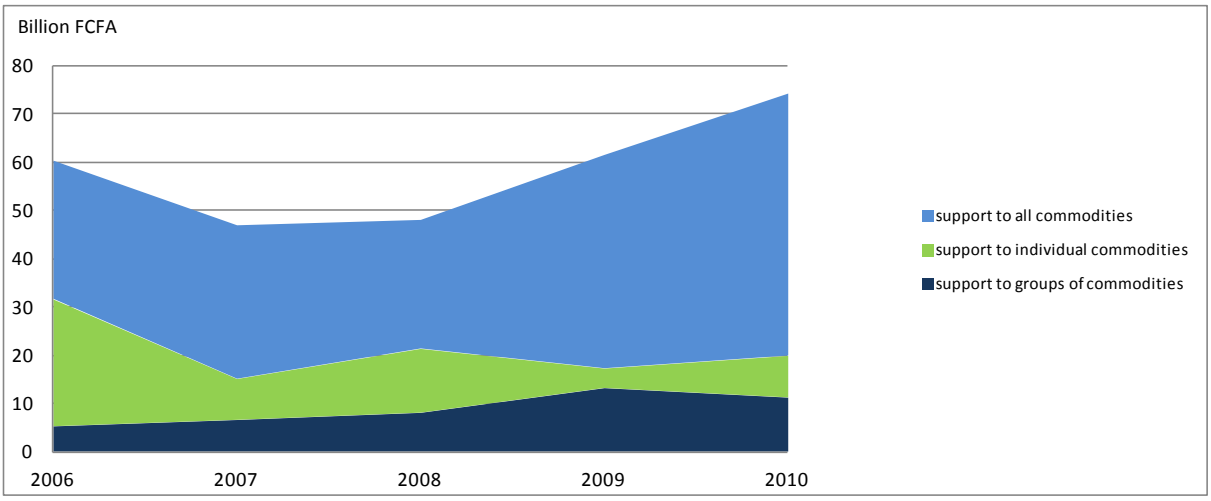
The study also made it possible to offer a breakdown of public spending in support of agriculture, based on the products to which it was destined[17]. Three categories of public spending have been identified:

- Support for all commodities
- Support for a given group of commodities (for example fruit and vegetables, livestock, horticulture, etc.)
- Support for individual commodities (rice, sorghum, sesame, etc.)

This breakdown shows a clear predominance for spending to support all commodities. During the period 2006-2010, the share of spending to support all commodities exceeded 63 percent, accounting for 73.2 percent of total spending in 2010. This category saw a constant increase between 2006 (47.5 percent) and 2010 (73.2 percent).

[17]Spending described in this section is that which the present study has been able to classify, according to commodity or commodity group to which it was allocated.

Figure 53: Composition of public expenditure by commodity: support for individual commodities, groups of commodities and all commodities

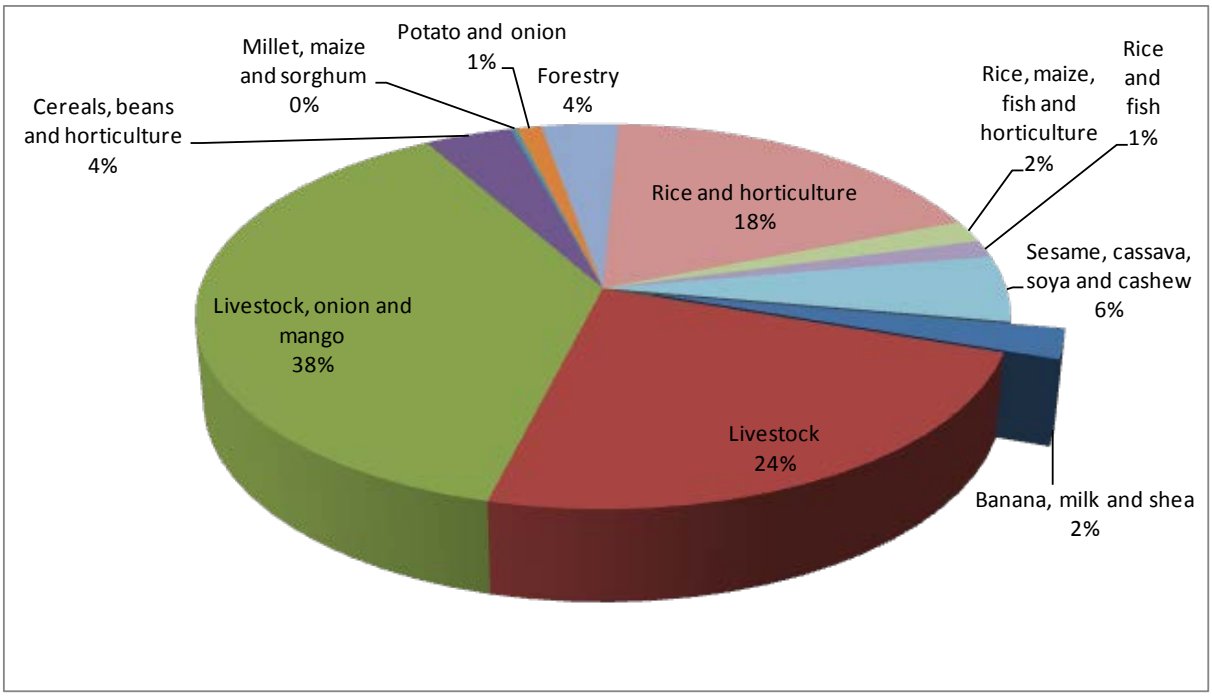


Source: Authors, using data from DGB

Public expenditure allocated to groups of commodities saw an increase between 2006 and 2009, going from 8.7 percent to 21.5 percent, but registered a small decline in 2010, at 15.2 percent. An analysis of the breakdown of public spending allocated to groups of commodities shows that the livestock/onion/mango group benefited from the largest share of funding. Indeed, 38 percent of total spending on groups of commodities was allocated to this particular group,. This is due to the importance of the World Bank supported "Agro-pastoral and forestry sectors support project" (PAFASP), which accounts for a very large share of agricultural-speficic public expenditure. Then come the «livestock» group, at 24 percent and the rice and horticulture group, at 18 percent. These results show that rice and livestock are the main groups of commodities targeted by the government, together with horticulture and fruits in the context of the PAFASP.

The lowest spending levels were for the «millet, maize, sorghum», «banana, milk and shea», «potato and onions», «rice, fish", «forestry production» and «cereals, legumes and horticulture» groups, which each received allocations of less than 5 percent of expenditure allocated to groups of products.

Figure 54: Composition of public expenditure by commodity: support for groups of commodities, average 2006-2010[18]



Source: Authors, using data from DGB

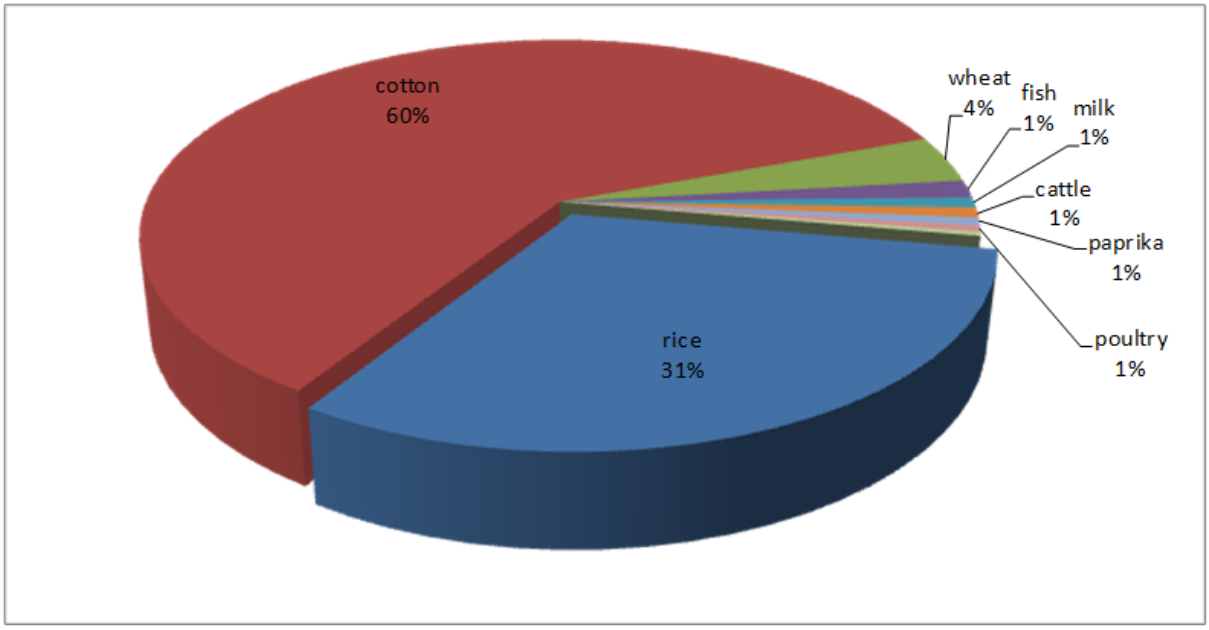
Spending in support of individual commodities reached their highest level in 2006 and 2008, with 43.3 percent and 27.7 percent, respectively, of agriculture-specific expenditure. They had a much lower share other years, at 18 percent in 2007, 6.6 percent in 2009 and 11,7 percent in 2010. Looking at the breakdown of public spending allocated to individual commodities, it emerges that cotton is the main commodity to benefit from public spending support. An analysis of the average for the five years of the study (2006-2010) shows that 60 percent of total spending allocated to individual commodities was directed towards cotton. This is explained by government and development partners effort to support cotton production, notably with the price mechanism and funds transferred to the cotton industries so at so subsidize inputs for producers.

Rice is the second most important product, receiving 31 percent of total spending allocated to individual commodities, due to the objective of food security and self-sufficiency for rice pursued by the State. The State thus provides support to production on plains and lowlands with improved seeds and fertilizers subisidies, and intensifying training for rice cultivation from 2008. The agriculture development project in rural areas, in particular, accounted for 85 percent of spending on rice between 2006 and 2010.

Tiger nuts, poultry, peppers, paprika, cattle, milk and fish are the commodities with the lowest shares, attracting less than 5 percent of total agriculture-specific public spending.

[18] It should be noted that the grouping was not done by the working group, but it evolved from the nature of the project. For example, when one sees livestock and mangoes, this refers to a project or programme that directly funds the mango and livestock sectors, and it is impossible to break down this category further.

Figure 55. Composition of public expenditure by commodity: support for individual commodities, average 2006-2010



Source: Authors, using data from DGB and DGCOOP

Nature of public expenditures for the food and agriculture sector

An analysis of expenditures for the food and agriculture sector for the period 2006-2010 shows that it was mainly dominated by transfers due to policies[19], which can take two forms: actual budgetary transfers (such as subsidies to production) and a budgetary shortfall for public administration (corresponding, for example, to tax relief). In fact, the share of transfers due to policies out of the total budget for agriculture was higher than 50 percent throughout the period 2006-2010. It even reached 96 percent in 2010. Regarding administrative costs, these are linked to the drawing up, implementation and evaluation of agricultural policies. The share of administrative costs in the total budget for agriculture was less than 20 percent for the period 2006-2010, except in 2008, when it was 42 percent.

Table 34: Share of transfers due to policies and administrative costs out of actual total expenditure (%)

Type of spending	2006	2007	2008	2009	2010
Administrative costs	13	9	42	16	4
Transfers due to policies	87	91	58	84	96
Total budget for agriculture	100	100	100	100	100

Source: Authors, using data from DGB and DGCOOP

[19] Transfers due to policies in this section do not include totals of transfers due to policies by the Ministries of Health, Education, Energy and Infrastructure.

In absolute terms, the budget approved for transfers due to policies varied between 154.1 and 175.5 billion FCFA for the period 2006-2010. Actual disbursements for transfers due to policies varied between 101 and 140.1 billion FCFA, with a disbursement level that varied between 65 and 88 percent over the period 2006-2010.

Regarding administrative costs, the approved budget varied between 11.7 and 19.8 billion FCFA for the period 2006-2010. In terms of actual disbursements, administrative costs varied between 11.9 and 18.9 billion FCFA over the same period. The disbursement level was more than 80 percent for all years during the same period. The disbursement level for administrative costs was therefore far higher than that of transfers due to policies between 2006 and 2009. By contrast, in 2010, the disbursement level for transfers due to policies was much higher than that for administrative costs.

Table 35: Approved budget and actual expenditures for the food and agriculture sector in Burkina Faso, 2006-2010

Billion FCFA	2006	2007	2008	2009	2010
Total budget for agriculture					
Actual disbursement (bn FCFA)	144,7	134,6	118,5	150,4	153,9
Approved budget (bn FCFA)	170,6	186,1	174,3	187,1	174,8
Share of actual disbursement in budget **(%)**	85	72	68	80	88
Transfers due to policies					
Actual disbursement (bn FCFA)	125,8	121,7	101,0	138,4	140,1
Approved budget (bn FCFA)	154,1	171,0	154,6	175,5	158,4
Share of actual disbursement in budget (%)	82	71	65	79	88
Administrative costs				--	
Actual disbursement (bn FCFA)	18,9	12,9	17,6	11,9	13,8
Approved budget (bn FCFA)	16,6	15,1	19,8	11,7	16,4
Share of a actual disbursement in budget **(%)**	114	86	89	102	84

Source: Authors, using data from DGB and DGCOOP

Types of public expenditures for the food and agriculture sector

The study also made it possible to classify total expenditures for the food and agriculture sector in Burkina Faso into investment spending and recurrent spending.

Investment spending is defined as spending on goods for developing the productive capacity of the agriculture sector.

Recurrent spending is that incurred by entities in charge of the agriculture sector in a repetitive manner over the years.

The analysis shows that expenditures for the food and agriculture sector is made up of more than 80 percent of investment spending. This predominance of investment spending is without doubt a positive factor for agricultural growth in Burkina Faso.

Table 36: Breakdown of public expenditure for the food and agriculture sector, by recurring and investment costs in Burkina Faso, 2006-2010, in billions of FCFA

Year	2006	2007	2008	2009	2010
Recurrent spending	16,1	12,9	19,7	18,4	13,2
Investment spending	83,9	87,1	80,3	81,6	86,8
Total budget for agriculture	100	100	100	100	100

Source: Authors, using data from DGB and DGCOOP

Role of development aid in public expenditures for the food and agriculture sector Burkina Faso

In this study, public expenditures for the food and agriculture sector were also classified according to funding sources. These are divided into:

- ✓ Spending with funding from domestic sources: this is spending funded by central and decentralized administrations in Burkina Faso ;
- ✓ External funding, involving all initiatives in support of agriculture that are funded by development partners.

External funding may take the form of grants or loans. It is important to make a distinction between these two types of aid, since loans can have serious repercussions for the economy, leading to an increase in outstanding debt and debt servicing levels. Between 2006 and 2010, the level of development aid in the agriculture sector varied between 114 and 74 billion FCFA. During the period 2006-2010, the share of external funding accounted for an average 71 percent of total expenditures for the food and agriculture sector. The highest share of external funding was in 2006, with 79 percent of total spending, and the lowest was in 2008, with 62 percent. The results reveal a strong reliance of agriculture on external funding for the period 2006-2010. This suggests great uncertainty in agricultural development for Burkina Faso, given that the country does not control external funding; it is difficult to build any strategy for sustainable agricultural growth in these conditions.

Table 37: External funding as share of expenditures for the food and agriculture sector in Burkina Faso, 2006-2010 (in billions of FCFA)

Year	2006	2007	2008	2009	2010	Moyenne
Total agriculture-supportive public expenditure	145	135	119	150	154	140
External funding	114	102	74	109	102	100
Share of external funding (in %)	79	76	62	72	66	71

Source: Authors, using data from DGB and DGCOOP

An analysis of public development aid in terms of agriculture-specific public spending and agriculture-supportive spending indicates that on average, public development aid financed

agriculture-specific public spending at a level of 68,7 percent for the period 2006-2010. Regarding agriculture-supportive spending, this was financed at an average level of 84,4 percent by public development aid.

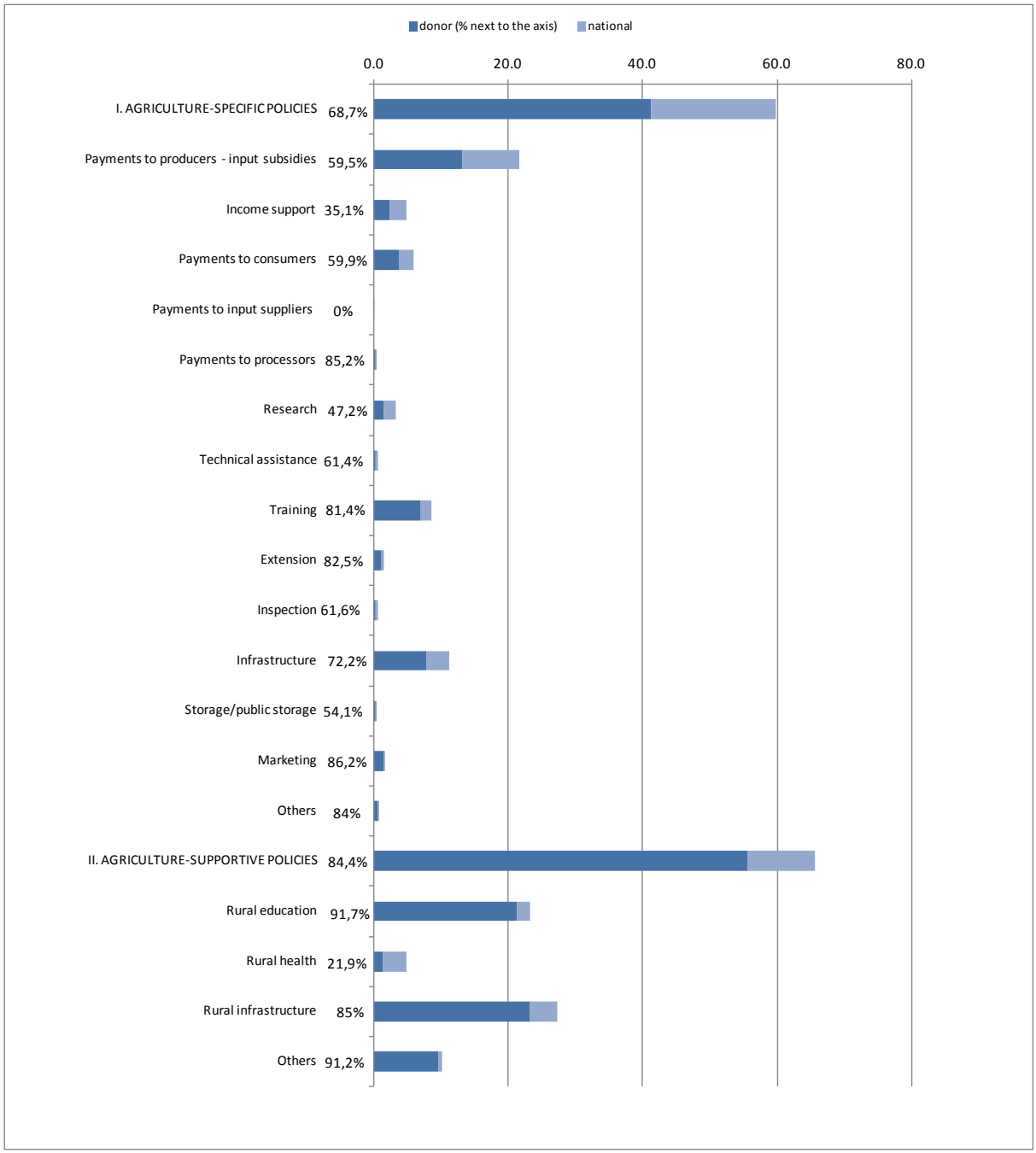
In the category of agriculture-specific public spending, the share of external funding according to the items of which it is comprised, the bulk of spendingI is allocated payments to producers, including input subsidies (32 percent), infrastructure (19 percent), training (17 percent) and payments to consumers (9 percent), who benefit from the largest amount of support in terms of external funding.

In the category of agriculture-supportive spending, policies linked to building rural infrastructure (42 percent) and education in rural areas (38 percent) receive the largest proportion of aid. It can also be seen that the «others» column accounts for 17 percent of agriculture-supportive spending.

In terms of the share of public spending made up of external funding, figures show that donors contribute mostly to marketing activities, which account for 86,8 percent of spending for these activities, as well as extension (82,5 percent), training (81,4 percent), payment to producers – input subsidies (59,7 percent), building infrastructures (72,2 percent)and payment to processors (85,2 percent).

Regarding activities in support of agriculture, the most vigorously supported sectors are education in rural areas (91.7 percent) and infrastructures in rural areas (85 percent). It is also important to highlight the significant proportion of external funding in the «others» category (91,2 percent). Such a category groups together projects with insufficient information that could hence not be classified satisfactorily.

Figure 56: Average share of aid to actual total expenditure for the food and agriculture sector in Burkina Faso, 2006-2010, (in %)



Source: Authors, using data from DGB and DGCOOP

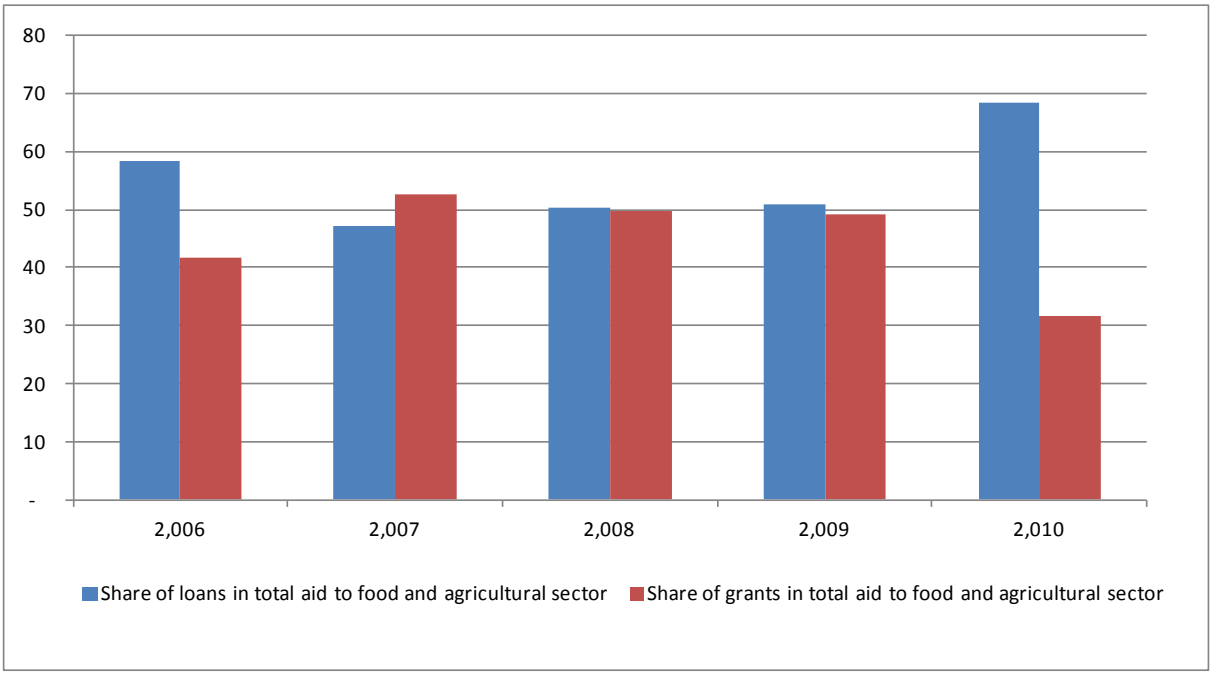
Overall, aid to Burkina Faso supplied by donors would seem to be line with the Strategic Framework for Poverty Reduction (CSLP). External funding focuses mainly on parts 2 (guaranteeing basic social services to the poor) and 3 (expanding employment and income generating opportunities for the poor) of the CSLP, which highlights aspects of production/market linkage, extension and training, input subsidies, infrastructures, education and infrastructure in rural areas.

A closer analysis of external aid makes it possible to break it down into grants and loans. Loans are financial transfers made by donors on condition that they are reimbursed at a later date, in some cases with interest. Grants are financial transfers made by assorted donors with no conditions.

For the period 2006-2010, loans made up an average 55.3 percent of total external funding. This indicates that during this period, external funding was dominated by loans, contributing to an increase in outstanding debt and debt servicing, which could prove an obstacle to development in Burkina Faso. Loans predominated in 2006, 2008, 2009 and 2010, when they accounted for, respectively, 58.3 percent, 50.2 percent, 50.7 percent and 68.3 percent of total external funding. However, in 2007, loans accounted for a share of 52.7 percent of total external funding.

The figure below gives a breakdown of external aid in terms of grants and loans.

Figure 57. Composition of development aid in loans and grants in Burkina Faso, 2006-2010, (in %)



Source Authors, using data from DGB and DGCOOP

Conclusions and recommendations

An analysis of public expenditure reveals significant trends in budgetary support for the food and agriculture sector between 2005 and 2010, in terms of volume, but especially in terms of composition.

A first observation is that, according to criteria adopted by the MAFAP typology, the budget share in favour of the total rural and agricultural sector exceeds the 10 percent target set by the Maputo Declaration in 2003. The figure was an average 15.2 percent for the period 2006-2010. Actual expenditure in favour of the sector for that period saw a 6 percent overall increase between 2006 and 2010, despite the initial decline between 2006 and 2008 linked to low levels of disbursement.

In terms of composition, it is clear that, agricultural public spending favoured input subsidies and agricultural infrastructures. Input subsidies accounted for 38 percent of agricultural-specific spending, training accounted for 15 percent and infrastructure for 20 percent (especially irrigation

and feeder roads). Rural infrastructure on their side accounted for 41 percent of agriculture-supportive spending. These attest to government interest in promoting irrigated agriculture and making certain production areas less remote.

Besides, the majority of public spending (an average of 63.2 percent of total spending) was allocated to all agricultural products, without targeting specific products, demonstrating an interest in cross-cutting agricultural policies and less targeting of public interventions. When sectors are targeted, it is mainly a case of rice, cotton, livestock and wheat, reflecting the government's strategic priorities, but also revealing a certain neglect of subsistence crops. During the five year study, there was also an increase in public spending in favour of health in rural areas, in line with part 2 of the Strategic Framework for Poverty Reduction (CSLP), however spending for education strongly decreased.

The expenditure focused mainly on investment rather than recurrent spending, with investment spending reaching more than 80 percent during the period 2006-2010. This was largely covered by external funding, which accounted for an average 71 percent of total public spending in support of agriculture. Loans accounted for an average 55.3 percent of external funding, representing a considerable burden for the country's debt levels.

Overall, public development aid appears to be in line with the key priorities of the Strategic Framework for Poverty Reduction (CSLP). But efforts can still be made to align it further with the country's priorities.

Regarding results of the analysis of public spending in support of agriculture, it would seem opportune to make the following recommendations:

- In order to improve analyses in the future, the Direction of Studies and Planification (DEP), and especially ministries in charge of the agriculture sector, should set in place and/or improve the content of project and programme repertories by indicating, for each project, the ministry in charge, the overall objective, the specific objectives, the results expected, activities to be carried out, the area of intervention, the level of governance and the products involved in their implementation;
- The ministry in charge of the budget should work to ensure that finance channels are even more efficient so as to further improve the level of actual disbursement for approved budgets, though remarkable progress has been observed in recent years;
- In future, greater efforts must be made in orienting budgetary allocations towards priority areas identified by PNSR objectives for sector development. This would make it possible to lighten the clear predominance of spending in general support of agriculture compared with targeted support to certain sectors, correcting an absence of real priorities in total spending for agriculture sector. Support to food crop sectors, in particular, is inadequate.
- Decision-makers should consider increasing state interventions in the fields of building storage infrastructures, support to marketing, inspection, extension, agricultural research and technical assistance. Support to production cannot have sustainable repercussions unless producers have access to better production techniques, stronger marketing and processing channels and improved quality and productivity for each sector.

7. Coherence between incentives and government spending

The MAFAP analysis provides policy-makers and development stakeholders with better information to evaluate whether agricultural policies in place address the gaps in the agricultural and rural sector in the country. There are different means to use the MAFAP results as a policy coherence assessment tool, hereby presented.

An assessment of policy coherence through incentives and disincentives for each commodity

A first approach to assess agricultural policy coherence is to look at the MAFAP results in terms of incentives and disincentives. These results, summarized with Nominal Rates of Protection and Market Development Gap indicators, can be explained through various driving factors which we have described in part 5 of the report (see p.92). Comparing these driving factors and MAFAP results with government policies, whether these policies are price-related policies or public expenditure, gives an overview of policy coherence for each commodity we analyzed. This overview is presented here as a matrix.

PRODUCT OR PRODUCT GROUP	**INCENTIVES/** **DISINCENTIVES** ***What are the price incentives for producers? What are the costs/ that market inefficiencies represent for producers?***	**DRIVING FACTORS** ***What are the key factors or issues driving incentives/disincentives for production?***	**POLICY** ***What policy measures and objectives are related to these driving factors?***	**PUBLIC EXPENDITURE** ***How public spending addresses these driving factors?***
ALL PRODUCTS	Average Observed NRP: -11% Average Adjusted NRP: -31% MDG: -22%	• Lack of infrastructure, under-exploited production and marketing capacities, lack of structure between actors • Lack of competitiveness on internationalo markets, poor integration • Producers have low impact on price fixation, accept low prices offered by traders • Inefficient marketing pathways/high access costs) • Lack of quality/ heterogeneity	• Input subsidies • Market support • Storage supprort • Organizing producers, capacity building • Price ceilings, fixed prices • Registration of operators • Export restrictions for staples	• Cotton and rice are the main individually targeted commodities through public expenditure (60 % and 30% of such support), respectively • Most of agriculture-specific public expenditure goes to input subsidies (capital rather than variable), and infrastructure, respectively 38% and 20%. Agriculture-supportive expenditure mostly goes to education, at 36%. • Most commodities have low productivity, which is a major constraint both for food security and marketing. However only 6% of agricultural-specific expenditure goes to research, which is insufficient to expect significant improvements on productivity. • Marketing is also a major constraint, restricting opportunities to improve income for producers and for the State to harness the

				potential of some export crops, yet only 3% of agricultural-specific expenditure goes to marketing support.
IMPORTS	Average Observed NRP: 29% Average Adjusted NRP: 21% MDG: -6%	• For rice, lack of organization of the value chain, failing to meet domestic demand, despite incentives for production. Lack of policy support for cottonseed oil production despite incentives existing.	• Import tax levy • Low-price sales • Input subsidies • Fixed prices	• While the government supports local rice production to improve self-sufficiency, it does not push for local production of edible vegetable oil.
Cottonseed oil	Average Observed NRP: 31% Average Adjusted NRP: 16% MDG: -11%	• Insufficient production, lack of potential use of cotton industries, lack of policy support	• No specific measure adopted by the government to promote cottonseed oil the focus being on cotton lint • Import tax levy on palm oil (2008-2011) • Ceiling prices negotiated with wholesalers	• No public expenditure for cottonseed oil
Rice	Average Observed NRP: 26% Average Adjusted NRP: 32% MDG: 5%	• High access costs because of the landlocked nature of Burkina, natural protection with regards to rice imports. • Still high dependency on rice imports, only 53% self-sufficiency ratio. • Ceiling prices after the food crisis but prices still got higher, bad for consumers but good for producers • Input subsidies to boost rice production over the period studied. • Lack of structure of the value chain, weak organization of producer organizations, weak marketing of locally produced rice despite a consumer preference for that rice.	• Strategic commodity flagged as such in the national policy frameworks (SDR, PNSR). • Import tax levy (2008-2011). • National strategy for rice production (SNDR) with sustainable growth of rice production as the main objective. • Input subsidies (seeds, fertilizers, credit) • Price fixation, negociation with traders • Registery of wholesalers • Better training of producers • Building of stocks from 2008 onwards •	• High spending on input subsidies (48% of agriculture-specific), a large part of it supporting rice production. • Expenditure towards building of stock (including rice) remain very low, between 0% and 1% of agricultural-specific spending. • 15% of agricultural-specific spending goes for training, a large part of it being for rice. • Rice is individually targeted by 6.5 % of agricultural-specific public expenditure • It accounts for 31% of agricultural-specific expenditure targeting groups of commodities. • All groups of commodities that include rice account for a total of

				3,3% of agricultural-specific public expenditure • They represent 21% of public expenditure targeting groups of commodities •
EXPORTS	Average Observed NRP: -21% Average Adjusted NRP: -40% MDG: -25%	• Lack of structure of value chains, poor productivity, product quality and marketing capacities, insufficient infrastructure (especially roads) make for expensive exports • Lack of competitiveness on international markets, lack of integration.) • An exception : cotton, that draws most of the policy attention both in terms of policy measures and expenditures. •	• Two groups of export products : cattle, gum arabic and groundnuts receive little policy attention and support. On the other hand, several policy instruments and a large share of expenditure goes in support of the cotton value chain : price mechanism to ensure producers receive incentives and input subsidies through the cotton industries.	• High spending on input subsidies (48% of agriculture-specific), a large part of it supporting cotton production • Fair share of public expenditure on livestock (9.4%), essentially to boost production and marketing. • Cotton an • Low spending on other export products. • Spending on marketing is only 3%, but lot of spending on rural roads (18% of agricultural supportive spending). •
Cattle	Average Observed NRP: -36% Average Adjusted NRP: -49% MDG: -20%	• • Lack of productivity due to low investiment on cattle productivity, especially when it comes to animal feed. • Inefficient marketing pathways with many intermediaries and high market power from wholesalers. •	• No specific policy measure in support of the cattle value chain • However there have been strategic frameworks to boost the livestock sector as a whole, and several projects and programmes are in place. However, these projects and programmes seem to fail to increase incentives to cattle production and marketing as a whole, and the money invested is very low compared to other sectors.	• Cattle is individually targeted by 0.2% of agricultural-specific public expenditure • It accounts for 1% of public spending targeting individual commodities • All groups of commodities that include livestock account for a total of 9.4% of agricultural-specific public expenditure • They represent 62% of public expenditure targeting groups of commodities

Cotton	Average Observed NRP: 33% Average Adjusted NRP: -10% MDG: -34%	• Support and incentives to producers thanks to input subsidies and a fixed price mechanism • Disincentives for cotton industries on the other hand, they act as a policy relay to subsidize production • Challenges for the value chain : international competition, sustainability of the system, value chain organization, low yields, aging farming systems.	• 'Price tunnel » mechanism put in place by the government and donors. • Input subsidies to producers (campaign pre-financing) through cotton industries, supported themselves by the government : debt security, budgetary transfers… • Cotton industries are losing out, and there are questions on the sustainability of the price mechanism	• High spending on input subsidies (48% of agriculture-specific), a large part of it supporting cotton production. • Cotton is individually targeted by 12,6% of agricultural-specific public expenditure • It accounts for 60% of public spending targeting individual commodities.
Gum Arabic	Average Observed NRP: -29% Average Adjusted NRP: -51% MDG: -31%	• Need for quality improvement and capacity building on how to increase productivity of gum production if a true market-oriented value chain is to be developed. At the moment, weak quality of Burkina gum, heterogeneity of production, irrigation insufficiencies. • • Low influence of producers on prices given by traders, low organization of the value chain • •	• Gum arabic has been included in the global strategy for the promotion of forestry products in Burkina Faso, launched in 2008 • In 2010, the government launched a specific strategy to develop the gum arabic sector • Equipment and credit subsidies for gum producers (up to 25 per cent) and building of infrastructure through various projects and programmes.	• No specific public expenditure for gum arabic • However, forestry as a commodity group accounts for 0,5% of agriculture-specific expenditure • It accounts for 4% of public expenditure targeting groups of commodities.
Sesame	Average Observed NRP: 9% Average Adjusted NRP: -32% MDG :-27%	• Local sesame market is not connected to the international market • Low productivity, and lack of marketing capacities for the production. • Low quality of production	• Indirectly beneficiates from input subsidies for other commodities, but not directly targeted. • Exports are supported by the government. •	• Sesame is not individually targeted by public expenditure in Burkina Faso. • However, sesame, together with other commodities, are targeted as a group by 0,8% of agricultural-specific public expenditure • This group represents 6% of public expenditure targeting groups of commodities.

THINLY TRADED	Average Observed NRP: -3% Average Adjusted NRP: -23% MDG :-21%	• Thinly traded commodities are a mix of domestic cash crops (onion, groundnuts), food security (sorghum), and one versatile crop, maize. • Export for maize and sorghum is restricted by the government, with high transport costs and small surpluses mostly traded to the other side of the border. • Producers are poorly organized and traders have a strong market power, even though themselves are often not in a strong position, receiving low prices as well. • Quality of thinly traded products is low	• Maize and sorghum experience export restrictions and are mainly considered as food security crops that should stay within the territory. • Groundnuts and onions are traded in small quantities but do not get strong government support as most of the policy support for exports goes to cotton.	• None of the thinly traded products are individually targeted by public expenditure. • Sorghum and maize are targeted through expenditure for coarse grains, onion through horticulture and the PAFASP project (livestock, onion and mango), while groundnuts is simply not targeted either as an individual product or through a group.
Maize	Average Observed NRP:-20% Average Adjusted NRP: -33% MDG :-17%	• High access costs and excessive traders' margins • Producers not very well connected to the international market • Producers operating on the domestic market receive higher incentives than those operating on trade corridors. •	• Improved seeds subsidies and free distribution in 2008-2009 and 2009-2010, for 3084 millions FCFA and 3942 millions FCFA respectively. • Fertilizer subsidies for the same years, for 5269 millions FCFA and 4034 millions FCFA respectively. • Stocks were made by the State from 2008 onwards. The State also put a floor price in place, if prices got under the floor price, producers could sell their production to the National Stock (SONAGESS), at floor price. • Traders were registered. • The government supports domestic marketing of maize rather than regional or even international trade, as it considers maize to be a food security commodity.	• Maize is not individually targeted by agricultural-specific public expenditure • Maize, millet and sorghum, as a group of commodities, are targeted by 0,04% of agriculture-specific public expenditure. • They represent 0,2% of public expenditure targeting groups of commodities

Sorghum	Average Observed NRP: 13% Average Adjusted NRP: -13% MDG: -23%	• Sorghum is traded in small quantities, as it is mostly self-consumed and market domestically. • It is traded in case of surpluses in Burkina Faso and deficits in neighbouring regions. Because of the cereal's status as a food security commodity, trade is inefficient with low economy of scales, high transport costs and excessive traders's margins because of assymetries of information.	• Following the 2007/2008 food crisis, the government has tried to boost sorghum production while supporting sorghum consumers. • On the consumer side : low-price sales and even distribution of sorghum were organized in 2008 and 2009 • The State has tried to negotiate with the main traders so have to ensure lower prices. • Exports are restricted since the food crisis to keep sorghum within the borders of Burkina Faso. • On the producer side, the government has given input subsidies for fertilizers (50% of the normal price) and improved seeds. • •	• Sorghum is not individually targeted by agricultural-specific public expenditure • Maize, millet and sorghum, as a group of commodities, are targeted by 0,04% of agriculture-specific public expenditure. • They represent 0,2% of public expenditure targeting groups of commodities
Groundnut	Average Observed NRP:- 2% Average Adjusted NRP: -24% MDG : -23%	• The groundnuts value chain is poorly organized. • Small quantities marketed, poor quality of edible groudnuts prevents international trade. •	• • No specific policy support for the groundnuts value chain, almost totally abandonned by the State since the 1990s.	• No public expenditure targeting groudnuts as an individual commodity or through a group of commodities. •
Onion	Average Observed NRP:-48% Average Adjusted NRP: -52% MDG :-5%	• Highly inefficient value chain. Lack of quality infrastructure for storage, while onion is a highly seasonal crop, resulting in high losses and sales at low prices for producers. • However, recent improvement of the value chain, policy effort to develop horticulture.	• Important support of the onion value chain through the PAFASP project : storage, value chain organization. Project launched in 2006.	• Onion, together with mango and livestock, is targeted by the PAFASP project. It is the main group of commodities targeted by agriculture-specific expenditure, at 5,8%. • The onion, livestock and mango group represents 38% of agriculture-specific expenditure targeting groups of commodities.

An assessment of policy coherence through agricultural policy objectives

A second way to assess policy coherence using MAFAP results is to put them in perspective with the stated government's objectives for agricultural development. These objectives are set within large policy frameworks. Agricultural policies are considered here as being a series of decisions and policy measures aimed at being consistent with the overall objectives.

A study on agricultural policy coherence of the Global Donors Platform for Agricultural and Rural Development (Wiggins et al., 2011) showed that the real risk of inconsistency lies in the proliferation of policies, projects and programs that are subsequently cancelled and are not prioritized. Indeed, in Burkina Faso, as in other countries, it can be observed that, despite progress in a coherent and coordinated sectoral approach, agricultural policy consists of a maze of programs and projects. Included in this category are government decisions on trade, especially those relating to tariffs.

It should also be remembered that agricultural policy is not the exclusive domain of government. Donors and other development partners also have an influence on policy decisions, dictated by their own agenda and interests. In Burkina Faso, 71 percent of expenditure for agriculture comes from foreign aid.

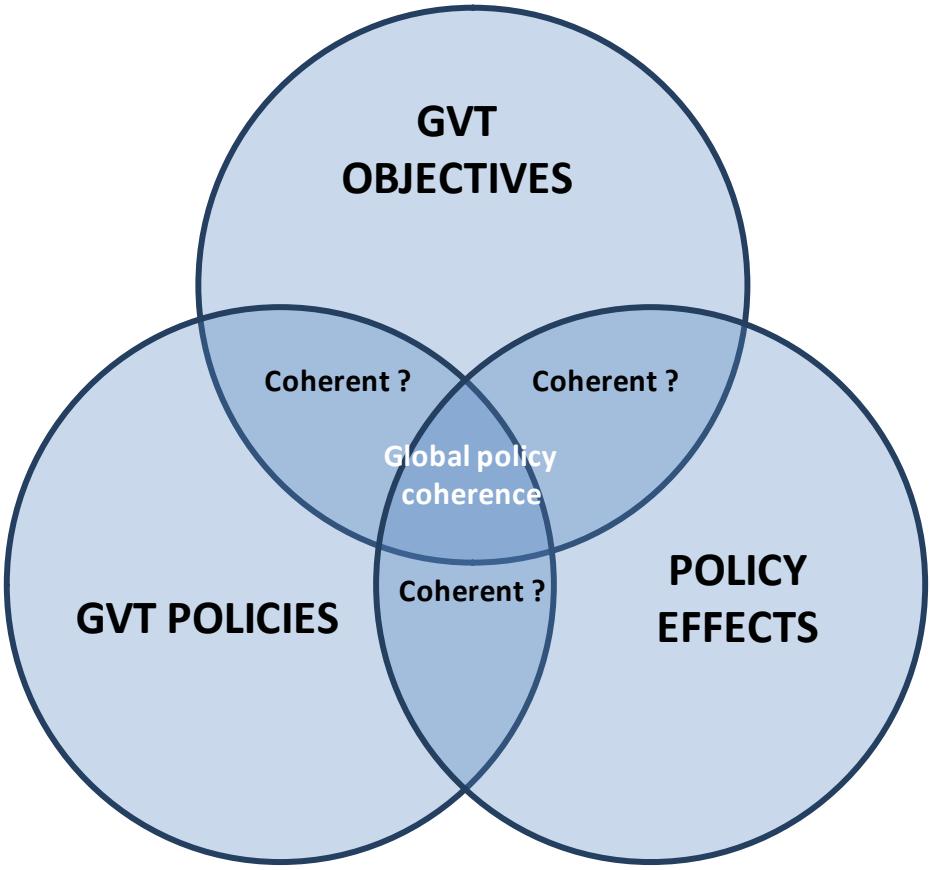
Therefore, the main questions in addressing the issue of policy coherence are:

a. What are the main strategies determined by the government?

b. What are the major policy decisions and measures (main programs/projects, taxes/exemptions)? Are these decisions consistent with the stated objectives?

c. Have the adopted measures and policy decisions really had an impact/achieved expected effects, and have they met the outlined objectives?

Figure 58. Logical framework for the analysis of policy coherence



Source: Authors

Government's main objectives

This brief review of objectives covers measures for sectoral and trade policies and public spending objectives. The development of policy frameworks, as well as recent policy measures concerning the sectors studied by the MAFAP project in this country are detailed in part 1. Given the large number of objectives, it has been decided to retain only the most significant ones in relation to the object of the analyses carried out as part of the MAFAP/SPAAA project, and not for their size in absolute terms. The four principal documents retained are:

- ✓ The parts linked to the SRA of the CSLP and SCADD
- ✓ The Policy Letter for Rural Decentralized Development (LPDRD)
- ✓ The Rural Development Strategy (SDR 2003-2015)
- ✓ The National Programme for the Rural Sector (PNSR 2011-2015)

The objectives were divided into 6 categories, defined, *a priori*, as finding support objectives for production, trade, consumption, the environment and sustainable resource management, strengthening capacities and professional organizations, revenues and food security (see Table 38).

Table 38. Key objectives of government policies in Burkina Faso

Document	Production	Trade	Consumption	Natural resources/Environment	Capacities/Professional organization	Revenues/Food security/ social protection
SRA of CSLP	Growth of 5 to 10% of agricultural production by 2010	Support formal private sector intervention in livestock keeping and livestock organizations		Generalize and strengthen natural resource management by rural communities	Support-advice (MIS, R&D, training)	Availability and accessibility of people to appropriate calorie requirements and animal protein consumption
	Optimizing livestock production and productivity: feed	Withdrawal of state involvement			Education in rural areas, literacy herders	More secure land tenure
	Withdrawal of state involvement	Decline in dubious trade practices and transparency for tariffs (cereals, especially maize)			Structuring of sectors (legal framework, chamber of agriculture, incentives for private initiatives)	Contributing to revenue growth of at least 3% for farmers and herders. Income diversification
	Infrastructure (water, transport, electrification)	Strengthened capacities for storage and negotiation by operators (fruit and vegetables)			Improvement research/extension	Access to water
	Access to equipment and fertilizer	Rural tracks, lower transport costs (oilseeds, livestock)				
	Access to credit (cereals)					
	Soil fertility					

	Policy incentives for producer prices (cotton)					
SRA of SCADD	Subsidies/distribution improved seeds and inputs	International and regional marketing for cereals, cowpeas, fruit and vegetables, livestock keeping		Management of the environment and optimal use of natural resources	Training and awareness raising of good agricultural practices	More secure land tenure
	Tackling pests and diseases (cereals)	Strengthened domestic marketing for milk			R&D and extension	Protection against risks and agricultural disasters
	Increased oilseed and legume production, especially cowpeas, through research	Development of access capacities to markets			Livestock: growth pole PO/research/training	Water and sanitation
	Improved cotton competitivity through better processing, reinvestment in diversification approaches	Public-private partnerships (especially for fruit and vegetables)			Capacity strengthening for each sector	
	Improved livestock feed and shelter, animal genetics and health for more productivity					
	Highlighting milk production					
	Infrastructure: Importance of irrigation (+50% by 2015) and rural electrification (60% coverage by 2015					

LPDRD	Modernization of farms	Development of market economy in rural areas		Sustainable management of natural resources	More professionalism and strengthening of role of different actors	Food and nutrition security
		Refocusing government role and promotion of private initiative			Setting in place of system for cofinancing activities and infrastructures (schools, tracks, health centres) between public authorities and local communities.	Improvement of economic status of women in rural areas
SDR	- Increasing, diversifying and intensifying agricultural, pastoral, forestry, animal and fisheries production	Strengthening production/market linkage		Ensuring sustainable management of natural resources	Strengthening capacities of actors and creating a favourable institutional framework	Halving the number of people suffering from hunger and malnutrition by 2010.
						Increasing and diversifying revenue sources
						Improving access to drinking water and sanitation
						Promoting a gender approach to improve the economic situation and social status of women and youth in rural areas
PNSR	Sustainable development of agricultural and fisheries	Promoting the		Sustainable management of water	Piloting and support for	Food and nutrition security

	production	agricultural economy		and soil and more secure land tenure in rural areas	programmes	
	Sustainable management of agricultural water	Improvement of competitivity and marketing of animal products		Safer tenure and sustainable management of pastoral resources	Environmental governance	Water and sanitation
	Growth in productivity and animal production			Improvement of plant and forestry production in the context of climate change		
	Improved animal health and strengthening of public veterinary health			Cleaning up the environment and better living conditions		
				Adapting to variability and climate change		

The distribution of government objectives in Burkina Faso by category reveals priorities. Indeed, a study of various strategic frameworks during the study period 2005-2010, leads to the following observations:

- That consumption in absolute terms was totally absent. It was only taken into account as part of the food and nutrition security angle.
- An increase in crop and animal production appears to be a key government priority. The focus is on intensification, with improved seeds, genetic improvement and animal health. Hydro-agricultural infrastructures are also highlighted, including pastoral water supplies. Diversification is a recurrent theme.
- Marketing is another important priority, with a clear commitment to improve linkages between sectors and markets and increase competitivity. This is to be achieved especially by developing rural tracks so as to reduce transport costs, but also by encouraging private initiatives.
- Natural and environment resource management is cited in all strategic frameworks, without particular emphasis, except in the case of the PNSR or SDR.
- Capacity strengthening is dealt with systematically, although it does not feature significantly in the SDR, whose priority objectives only mention «piloting and support for programmes». By contrast, the subject is dealt with in some detail in the CSLP and SCADD, together with extension, advice and support, training and education.
- Food and nutrition security is highlighted in all strategic frameworks. Water and sanitation feature in the PNSR and SDR, as well as the SCADD and CSLP (but separate from the parts devoted to agriculture).
- The sectors explicitly cited are oilseeds (especially sesame and shea), cotton, fruit and vegetables, livestock, milk and cereals.

At the same time, this table indicates the large number and overlapping of objectives between the various government policy documents. It seems that despite the hierarchy of the documents cited, there are similar objectives, with levels of details and scope that are comparable for the general strategic frameworks (CSLP, SCADD) as for the PNSR or SDR. It therefore appears impossible to sort government policy objectives by hierarchy, and this makes it more difficult to analyze coherence between objectives, actions taken or measures adopted and the impacts or results observed.

Review of effects of principal policy decisions and measures based on MAFAP/SPAAA project results

Looking at the various existing policy documents for Burkina Faso, it is difficult to have a clear and rapid view of government priority objectives on food and agriculture.

Burkina Faso is characterized by a somewhat complex and indistinct decision-making system, which requires laborious interpretation in order to identify priority approaches and discern coherence of objectives and actions.

The aim of this section is to understand the coherence of policies in general, but also in a more precise manner, to understand policy coherence from the viewpoint of decisions on explicit measures to support production in certain sectors and decisions on public spending. Our intention is to identify situations where policies complement each other, as opposed to those that appear to

contradict or compete with one another, resulting in incoherent messages, which make it far more difficult to arbitrate in favour of frontline operators such as producers. For example, we would like to establish if, beyond government claims, there is real support for producers, or at least for certain producers of products deemed to be priority goods, combining support through prices and public spending in favour of producers.

However, it is not possible to cover all government objectives and measure policy performances in all sectors exclusively through the methodology of the MAFAP/SPAAA project. We have therefore listed below selected objectives for which the approach and methodology developed by the MAFAP/SPAAA project makes it possible to make a relevant appraisal of the performance and coherence in certain fields of food and agricultural policies.

Increasing production

This is a key objective of the CSLP, revised in 2003, and which led to the Strategy for the Rural Sector (SDR). The overall goal is to increase production by 5 to 10 percent by 2010. The emergency initiative plan against high living costs, launched in 2008, was the principal decision taken by government during the period 2005-2010. It included a number of measures: input support, credit for equipment and the development of a national rice strategy.

Firstly, it can be seen that the goal of increasing production was effectively achieved for several products, notably rice, which saw a substantial increase in production during the 5 years studied, according to official figures. However, the increase in production began in 2008, with emergency measures against high living costs. Production increased fourfold between 2007, before the crisis, and 2010. This strong increase in production shows that producers received clear incentives, obtaining prices higher than benchmark prices, and all this despite the emergency plan against high living costs and other measures of the SDR. It can therefore be concluded that policies for a sustainable increase in production are coherent, since producers have incentives to produce more.

Examining the overall objective of the SDR, which is to increase agricultural production and the revenue of producers, results of analyses of production incentives by production reveals coherence for products such as rice, cotton, sorghum, and, to a lesser extent, groundnuts. As for other products, disincentives for producers, who do not receive prices that would encourage production, reveal a lack of coherence between the objectives and measures taken on the one hand, and the effects obtained on the other. A breakdown of spending by product, especially in terms of individual support, shows enormous government support for rice and cotton production compared with other products. However, at the same time, there is a lack of coherence, since the government strategy includes the goal of diversifying agricultural production. The massive support given to these two products, which account for 91 percent of spending per product, certainly reveals a limitation to the goal of diversification.

Results of the analyses show that maize production experienced disincentives at producer level, even though it is a strategic sector and maize and rice are both directly targeted in food security objectives. For example, the 2011 crisis led to the launch of operation *maïs de case*, with storage bays for maize, but also operation «Bondofa» maize. Government policy on maize therefore lacks coherence regarding the effects of measures adopted (disincentives to production), in the light of declared objectives (incentives to production).

Stimulating exports

In part 2 of the SDR, and even in the PNSR, priority is given to ensuring production/market linkage. To achieve these objectives, priority actions are detailed in the strategy and programme. These notably include improving competitivity for export products; strengthening capacities and improving, for example, packaging and quality control for export products. However, much remains to be done. For example, 14 percent losses are recorded for gum arabic, 7 percent post harvest losses for sesame and a decline in the value of cotton for Burkina Faso compared with the international market. These losses and quality problems are generally due to poor packaging and inadequate quality control for agricultural products.

Livestock, also an exported product, has experienced difficulties too. Animals are exported to Nigeria via Benin. It should be noted that the crisis in Côte d'Ivoire since 2002 has had a considerable impact on livestock exports, since this country was a major importer. Stability in Cote d'Ivoire is therefore a major issue for livestock exports from Burkina Faso. Livestock production is penalized by policies in place, or rather by the absence of policies, since it is an important export product for Burkina Faso. This represents a clear lack of coherence between the goal of stimulating exports and the policies put in place.

Furthermore, it was noted earlier that overall, producers of maize, sorghum, sesame and especially onions, were penalized by prices lower than benchmark prices between 2005 and 2010. This penalization is largely due to the fact that exports of dry cereals are hampered due to policies for guaranteeing the country's food security. If this measure seeks to respond to a real need, that of ensuring food security, it contradicts the goal of increasing exports, and it leads to disincentives for production, which could prove dangerous to the country in the medium term.

Finally, as regards cotton, which is the country's leading agricultural export, our results show that producers received massive support via transfers and the price smoothing mechanism. Results show that for the five years studied (2005-10), cotton producers in Burkina Faso received a higher price than they would have done in the absence of policies and that as a result, cotton production for fibre export was strongly encouraged. This was, however, at the expense of the cotton companies, which experienced disincentives during the period. Nevertheless, our results indicate a strong level of coherence between policy objectives and effects, since producers effectively receive incentives. However, as previously mentioned, although such levels of support are coherent with government objectives, they also affect other aspects of government strategy for the sector, such as product diversification and stimulating exports.

Supporting the livestock sector

At the level of the CSLP and PNSR, livestock remains a central sub-sector. The objectives are to build rural tracks, lower transport costs and improve competitivity and marketing for live animal products. Results show that government efforts to boost the livestock sector are real, especially for cattle, although they could be reinforced given its potential. Livestock as a group, when including the PAFASP support, which also goes to horticulture and fruits, receives 9.4 percent of agriculture-specific public expenditure and accounts for 62 percent of public expenditure targeting groups of commodities. However, cattle itself only receives 9.4 percent of agricultural-specific public expenditure. Insufficient resources allocated to the livestock sector, together with the price

disincentives revealed by our study, indicate that the government needs to make greater efforts to achieve coherence.

Diversifying production

This objective features prominently in the CSLP and PNSR. The focus of policy incentives on rice and cotton has the effect of distancing the government from its stated objective of diversification. The government puts in place a system that offers strong incentives for cotton production in the country, creating market distortions that attract producers towards this sector at the expense of other apparently less remunerative crops. Furthermore, an analysis of government spending reveals that 31 percent of spending specific to agricultural products was used for promoting rice cultivation, 60 percent to that of cotton and 4 percent to wheat cultivation. These three products therefore account for a total of 95 percent of specific support to agricultural products, apparently revealing a limited effort to diversify production. It should however be noted that support to individual commodities is proportionally far lower than spending in cross-cutting support of the country's agricultural production, or even spending in support of groups of commodities: 11,7 percent in 2010 for individual products compared with 73,2 percent for cross-cutting support to all products. It should also be noted that a resistance in dietary habits based on certain imported products, especially in urban areas, acts as a major obstacle to diversification.

In parallel with these observations, it is interesting to note that the government has adopted specific programmes to encourage product diversification. These include the action plan for cowpeas, the action plan for sesame, the sesame promotion policy, the Action Plan and Investment Programme for the Livestock Sector (PAPISE) , the Support Project for Agro-Sylvo-Pastoral Sectors (onion, mangoes, sesame, meat), the Agriculture Development Programme (sesame, cashew, cassava, mangoes and rice). Alongside these programmes and projects, decisions of a more institutional nature have also been made, including that of launching the Management of Agricultural Sectors in 2008, the Management of Agricultural Enterprises in 2008, and the Management for Organization of Agricultural Markets in 2008. These different administrative units are charged with promoting the diversification of agricultural products.

Developing hydro-agricultural infrastructures and roads

This objective features in both the SRA of the CSLP and in the PNSR. Among the projects identified, the hydro-agricultural component is generally substantial. Considerable efforts also appear to be have been made with projects to improve roads. In total, it can be seen that the share of infrastructure in government spending specific to agriculture was an average 17 percent during the period studied. This reveals a certain level of coherence between policy objectives and the projects and programmes adopted in accordance with a government commitment to developing road and water infrastructures. The objective of developing irrigation is closely linked with government efforts to promote rice cultivation and that of other irrigated crops. In some cases, irrigation projects include a horticulture component, indicating that the government is keen to promote a certain level of product diversification.

Regarding access to production factors, the government has also shown coherence, since direct support to farms accounts for the principal type of spending specific to agriculture identified by the

MAFAP project (38 percent). These payments cover both capital support (credit funds, equipment) and various inputs.

However, the various analyses conducted to measure incentive levels for production of the commodities selected reveal that excessively high access costs constituted one of the main disincentives for producers, with inefficiencies linked to poor road and storage infrastructures.

Ensuring the country's food security

Food security figures among the government's general objectives. A national food strategy for 2010 was set up through five-year plans, with the first once covering the period 2003-2007. Food security is also an area for priority interventions in the SDR and the PNSR. The issue is a major concern for the government, which has set up an executive secretariat for food security, charged in particular with piloting an action plan for a «food security information system». Since the plan was launched, two sessions have been held each year in order to forecast the food and agriculture outlook The idea is to offer an information monitoring service for food security, on the basis of which measures are taken to resolve the food security problems that inevitably arise. The same procedure carried out in countries of the Permanent Interstate Committee for Drought Control in the Sahel (CILSS).

However, incoherencies often occur due to the fact that measures taken in an emergency situation may be in contradiction with policy objectives for the medium or long term. For example, following the 2008 food crisis, a number of measures were adopted. Anxious to maintain food security, especially in towns, the government introduced tax exemption for rice imports. These tax relief measures effectively reduced or wiped out efforts to protect local rice production. In addition, improved seed was distributed, creating distortions on the improved seed market and causing difficulties for some private operators. These measures were accompanied by the imposition of price ceilings for some products, including rice, in such a way as to limit the potential gains of producers in a situation of rising prices. Instructions were given to customs to discourage dry cereal export (especially maize, millet and sorghum), particularly through transborder trade, thereby imposing more bureaucracy. The informal non-tariff measures prevented some producers from taking advantage of market opportunities in neighbouring countries. The emergency measures were introduced as a way of offering solutions to critical situations of grave food security, but it is important that such initiatives do not obscure the many different factors that are central to food security: long-term stability, financial access to food and food diversity. These are all aspects, which cannot be resolved by short-term measures.

It should also be noted that some objectives aimed at ensuring food security for the country end up by contradicting other growth and development objectives. Millet and sorghum account for almost 80 percent of consumption in rural areas (CILSS). However, the vast majority of development projects seek to promote production and marketing for rice (31 percent of spending specific to agricultural products, but it would be 63 percent without cotton subsidies) and, to a lesser extent, maize. Paradoxically, millet and sorghum are not the focus of similar attention via specific projects. There are only agricultural research projects and programmes aimed at producing better varieties and projects focused on processing and marketing. Our analyses show that millet and sorghum production are not simply penalized by prices that are lower than benchmark prices. Production appears to be largely disconnected from regional market signals, since these cereals are widely consumed in Burkina Faso itself. As a result, few efforts appear to be made to encourage their

marketing. These elements would suggest that inadequate attention is paid to the availability and access aspects of food security, by increasing production and offering better access to key products for food security, such as these two cereals. The dimension of stability appears to be more closely pursued by restricting exports than through other policy measures, such as, for example, support for storage.

Marketing for domestic outlets and processing

The production-marketing linkage is mainly addressed by the SDR and PNSR. Marketing and processing are among the objectives identified by the government in the PNSR as a way of generating higher value added leves for the national economy. Only 4 percent of budgetary spending specific to the agriculture sector is allocated to supporting marketing, with almost no payments to processors. However, lack of processing capacities leads to significant losses of value added for the country. This is true, for example, for dry cereals, but most of all for milk and livestock, which is exclusively exported live to coastal countries and Nigeria. It should be noted that with the creation of a Directorate for Standards and Metrology, the government shows that it is committed to supporting agricultural producers in terms of quality and food safety. For the time being, however, there are few results in terms of product performance on highly competitive markets, as shown by the examples of gum arabic, groundnuts or even livestock.

Strengthening capacities

With its goal of modernizing farms, the Policy Letter for Decentralized Rural Development, as well as the SDR, sees capacity strengthening as an important government objective. An analysis of public spending shows that 19 percent of the budget for policies specific to agriculture involve training, extension and veterinary inspection. Training alone accounts for 15 percent of the budget for policies specific to agriculture. This constitutes a significant effort in modernizing the agriculture sector. Other noteworthy efforts are those that promote greater professionalism in agricultural sectors, with the support of the CIRB for the rice sector, the CICB for all cereals, etc.), which supplements support for the management of agricultural sector development. The MAFAP analysis does not, however, allow for an assessment of the quality of the training, or its sustainability or impact. Despite the encouraging share of spending specific to agriculture allocated to training in the countr there is still much to be done, with an acute lack of skills among producers and producers' organizations, and in some cases, even among government services.

Conclusion on policy coherence

From this analysis of policy coherence, several key points emerge:

- In some cases, government policies in Burkina Faso seem coherent, even though coherence in decision-making and the transparency of these decisions do not necessarily appear to be linked. Examples of coherence without transparency include consumer support following the food price crisis, through tax exemptions and ceiling prices.

- Government coherence can also be seen in the support it provides for strategic sectors such as cotton and rice. It is evident that this massive support is made in the form of production incentives for these two sectors, at the expense of the cotton companies in the case of cotton. Even if policies seem coherent regarding objectives and the measures adopted in order to reach

them, their actual effects are sometimes different from the stated intentions. This is shown by the case of rice, where the government intention was to support producers in increasing production, while the impact of these measures was mainly that of supporting consumers, especially urban ones.

  - By contrast, attention focused on rice and cotton is mainly at the expense of sectors such as livestock, which is itself recognized as a priority. These attract too little government interest and the actors are subject to strong disincentives.
- Public spending on rural infrastructure projects is significant, especially for roads. This shows that the government is trying to relieve the burden of access costs on producers, as revealed in the analysis of incentives and disincentives to production.

Part 3. TOPIC OF NATIONAL INTEREST RELATED TO THE POLICIES : SOCIAL ACCOUNTING MATRIX ANALYSIS OF FOOD AND AGRICULTURE SECTOR

8. Introduction

In Burkina Faso, the Strategy for Growth and Sustainable Development (SCADD) has identified agriculture as a priority sector. A review of spending using the MAFAP methodology shows that the share of the budget allocated to agriculture was more than 10 percent during the period 2006-2010, thereby satisfying the commitment taken by leaders at the African Union summit held in Maputo, Mozambique, in 2003. However, the commitment made in terms of budget input does not appear to have translated into stable growth in agricultural value, with erratic development between 2005 and 2010 and an average growth of 3.7 percent, which is lower than the 6 percent goal of the CAADP. In a general sense, growth in the agriculture sector is not sufficient to drive growth in GDP at the level enshrined in the Strategy for Growth and Sustainable Development (SCADD) objectives. This raises questions about the real possibility of achieving these goals. Such questions assume even greater importance in the light of the fact that, according to our study, 73 percent of public spending on the agriculture sector in Burkina Faso is funded by donors, with more than half made up by loans, for which repayments will place a heavy burden on the national economy.

It is therefore of key importance that the government of Burkina Faso has clarification on the links between public expenditure on agriculture, development aid and growth for both the country and the agriculture sector. This section aims to provide that clarification. First and foremost, this study offers an opportunity to reflect on the possible impact of investment in strategic sectors identified by the MAFAP project, determining their ripple effect on the economy with the help of the Social Accounting Matrix. So only a selection of the 133 products analyzed by the MAFAP team using this method is presented here. The analysis then offers some comments on the volume and share of public spending required in the agriculture sector to achieve the growth target fixed by SCADD, as well as that for agricultural growth set by CAADP, while proposing different funding scenarios for this public expenditure (external or national).

9. Analysis of ripple effects of commodities studied

In order to give answers to the above questions it will be necessary to carry out an analysis of the upstream and downstream effects of the main sectors monitored by the MAFAP/SPAAA project in Burkina Faso, so as to have a better understanding of the impact of public spending for agriculture on the national economy.

The study uses the Social Accounting Matrix (SAM) for the period 2005-2010.

Definition of a Social Accounting Matrix (SAM)

According to King, a Social Accounting Matrix (SAM) has two main objectives. The first involves organizing information with regard to a country's economic and social structure during a given year, and the second is to supply a statistical basis for the construction of plausible models.

From a technical viewpoint, the Social Accounting Matrix is a square double entry grid that groups together, in columns and rows, a series of figures which are the tallies for production, goods and services, factor inputs, institutions, capital or accumulation and the figures for the rest of the world in the case of an open economy, as show in Table 39 below. It is important that the order of the figures in both row and column be identical.

From an accounting standpoint, SAM is a table that offers a synthesis of economic data, making it possible to track over a given year the entire production, revenue, demand and trade flows between different sectors of a well disaggregated economy. As a result, the presentation shows interlinkages between employment, revenue distribution and the structure of production.

The recording of various flows within a SAM follows a precise protocol. All the receipts are recorded in a row (i) and expenses are recorded in a column (j). So all monetary flows (tij) in a matrix cell correspond to expenditure for the accounts column (j) and a receipt for the accounts row (i). One of the accounting principles of the Social Accounting Matrix is that the total receipts and total expenditure for each tally should be equal.

The main categories for tallies in a SAM are:

- ✓ **Production activities:** these are essentially production figures for the economy being studied and generally refer to sectors defined in the matrix.
- ✓ **Goods and services:** these give a picture of the market for domestic goods, through domestic purchases, imports and exports. In some SAMs, the tally for goods and services is not recorded separately from that of production activities.
- ✓ **Factor inputs:** these figures give a picture of production assets and generally distinguish between work and capital.
- ✓ **Economic operators,** who are mainly households, firms and government.
- ✓ **Capital or savings-**investment or accumulation**.**
- ✓ **The rest of the world** or the external figure in the case of an open economy.

Reading the rows

Looking at the row of tallies for production activities, total production is made up of three elements: the share of goods and services sold on the domestic market (domestic sales), subsidies to exports and the share of exported goods and services.

On the row showing figures for goods and services, it can be seen that total demand is made up of demand for products for intermediate consumption, demand for end-use products for households and government and demand for investment, which represents variations in stocks and the Gross Fixed Capital Formation (GFCF).

For factor inputs, the total value added is comprised of the overall wage total and the total revenue in capital or cash.

For institutions, the figure for households records total household income. This is made up of wages from labour, profit distributed from capital held, transfers from firms and government and revenue from overseas workers.

For firms, the tally records their total revenue from non-distributed profits of capital and government transfers.

For the government, the tally records total government revenue from value added taxes (VAT) on production activities, indirect tariffs and taxes on goods and services, social security contributions, taxes on capital profits, direct taxes paid by households and taxes paid by companies.

The capital figure includes total savings, made up of household savings, corporate savings, government savings and capital transfer (balance of payment outcome) received from the rest of the world.

As for the rest of the world, the total receipts correspond to the value of imported goods and services and transfers from the rest of the world.

Table 39: Structure of Social Accounting Matrix

			EXPENSES									
			Activities	Commodities	Factor inputs					Savings/Invest	Rest of world	Total
					Work	Capital		Firms	Govt			
Revenue	Activities											Production
	Commodities		Intermediate demand									
	Factor inputs	Work	Wages									
		Capital	Cash									
	Institutions	Households			Revenue from work	Profits distributed						
		Firms										
		Government			Social charges	Enterprise taxes	Income taxes	Tax			Transfers from abroad	
							Household savings	Firm savings	Government savings		Net capital inflow	Total savings
				Imports								Imports
	Total		Production	Domestic supply			Household expenditures	Firm expenditures	Government expenditures	Total investment	Foreign exchange	

Source: FAO, 2008

Reading the columns

The column for production activities breaks down total production into intermediate demand, remuneration of factor inputs (wages and cash) and value added taxes on production activities.

The total in the column for goods and services shows the total resources (domestic offer) offered by the national economy and imports valued at market price, including indirect taxes and deducting consumer subsidies.

The columns for work and capital indicate the allocation of the overall wage total and the total capital revenue to holders of capital and/or workers. The total overall wage figure is broken down into wages and tax and social security contributions, while the total capital revenue is broken down into distributed profits, non-distributed profits and taxes on profit.

The column for institutions tracks spending by various operators. Household spending consists of paying direct taxes on revenues, ensuring spending for end-use products, saving and potentially, making transfers to the rest of the world.

As for firms, they pay taxes to the government, make transfers to households, accumulate savings and also make transfers to the rest of the world.

For the Government, spending consists mainly of subsidies to exports, end-use consumption in goods and services, transfers to households and firms, savings and transfers to the rest of the world, especially to service the external debt.

The column for capital or investment spending presents what is invested in goods and services.

The column for the rest of the world indicates what the rest of the world spends in terms of exports, revenues for overseas workers and capital transfer.

Analysis results for ripple effect

In general, the upstream component of a production activity, or sector. groups together supply sectors for its inputs or intermediate consumption. Taking the example of agriculture, the upstream component mainly groups together industries producing fertilizer, phytosanitary products, petroleum products, etc.

The direct upstream ripple effect for each sector or production activity is the sum of the technical coefficients for its column. This effect makes it possible to measure indirect intermediary consumer demand for other sectors of the economy that would result from an increase of one production unit in the sector concerned. In other words, taking, for example, the activity of sorghum production, it looks at how many supplementary units of seeds, fertilizer, energy and other inputs would be needed if total sorghum production were to increase by one unit.

In general, the downstream component of a production activity, or sector, groups together sectors using products from this activity, such as intermediate consumers. Taking the example of agriculture, In general, the upstream component mainly groups together the agrifood industries, etc.

The downstream ripple effect for each sector or production activity is the sum of the use of each product by other economic activities. An analysis of the downstream ripple effect was made, mostly taking into account the products studied as part of the MAFAP/SPAAA project.

Using an updated and aggregated version of the Social Accounting Matrix (SAM) for 2005, a classification of the activities of products selected has revealed the following situation.

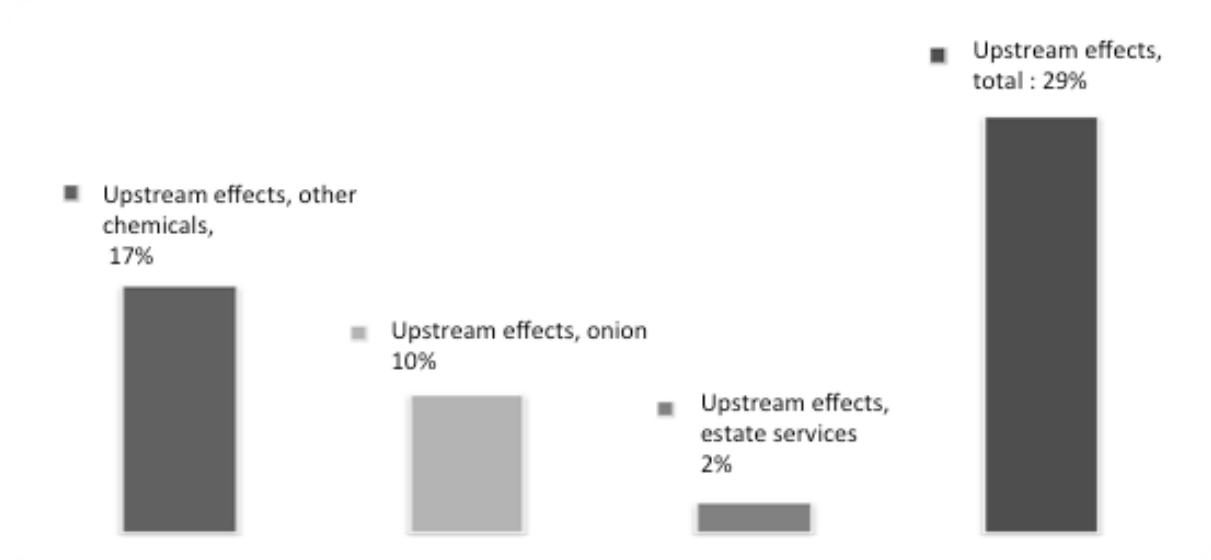
Onion production

Onion cultivation usually generates an upstream ripple effect of 29 percent. This means that an increase of onion cultivation by 100 units would require an increase of 29 units in intermediate consumption from other economic activities. Onion production therefore emerges as the activity with the strongest upstream ripple effect for the primary sector. Products featuring in the form of intermediate consumption in this activity are mainly onion seeds, other chemical products (chemical fertilizer, treatment products, etc.) and property services.

The ripple effect for onion cultivation on chemical products is very pronounced. An increase of 100 units in onion cultivation involves a rise of 17 units in chemical products, which are mainly imported.

In addition, an increase of 100 units in onion cultivation would involve an increase of 10 units of onion seed quantities. Property services would have to undergo an increase of 2 units following a rise of 100 units in onion cultivation.

Figure 59. Ripple effect of onion cultivation



Source : Authors

Downstream, onion cultivation has a ripple effect of 43 percent. For an output of 100 units of onions, 43 units are used by sectors for economic activity such as intermediate consumption, to ensure production. Two other activity sectors use onions in realizing their production activity. These are catering activities and onion cultivation. In fact, onions are far more widely used in catering activities (36 units for every 100 produced) than in onion cultivation itself (7 units for every 100 produced).

Cotton production (seed cotton)

Cotton cultivation has an upstream effect of 27 percent. That means that an increase in cotton production of 100 units entails an increase of 27 units in intermediate consumption from other economic activities. This makes cotton the activity with the second strongest upstream ripple effect of the products studied. The increase in intermediate consumer demand is shared between two products: cottonseed and chemical products (chemical fertilizer, treatment products, etc.). Chemical products contribute strongly to the upstream effect of cotton cultivation, with 27 units. Observations revealed through this study show that cotton cultivation is intensive in its use of chemical products (chemical fertilizer, treatment products, etc.). Cotton cultivation emerges as the second leading activity for the primary sector, after onions, with a significant upstream ripple effect.

Downstream, seedcotton has a ripple effect of 87 percent. This means that for every 10 units of seedcotton produced, 87 units are used by other economic activities. Cotton is the fifth leading activity for the primary sector, with a significant downstream ripple effect.

Demand for seedcotton comes exclusively from the cotton ginning sector.

A policy to support increased cotton production should therefore prompt cotton companies to increase the capacity of their ginning factories. This may involve buying new machines and/or recruiting new personnel and/or setting up new ginning factories. A cotton sector that is stimulated in this way would appear to make a significant contribution to poverty reduction.

Legume production

Legumes cover cowpeas, haricot and wandzou. These products have not yet been analyzed as part of the MAFAP/SPAAA project. The upstream ripple effect of legume cultivation is 25 percent. In other words, an increase in legume production by 100 units entails an increase of 25 units in intermediate consumption from other economic activities.

Legume production emerges as the activity with the third strongest upstream ripple effect Intermediate consumption of legume cultivation is mainly made up of chemical products (chemical fertilizer, phytosanitary products, etc.) which contribute to the upstream effect by 14 units. Seeds for wandzou and haricot (cowpeas) are also used for intermediate consumption in legume production, contributing, respectively, 9 and 3 units to the upstream ripple effect of legumes.

A policy to increase legume production would therefore probably be to the advantage of producers and distributors or sellers of seed for wandzou and/or haricot (cowpeas).

Cowpeas are a product with a downstream effect of 13.9 percent. This figure indicated that for every 100 units of cowpeas produced, 13.9 units are used for intermediate consumption from other economic activities. These 13.9 units are used to make cereal-based food products and legume cultivation. However, a far greater proportion of cowpeas is used in making food products than in legume cultivation. For every 100 units of cowpeas produced, the manufacture of cereal-based food products requires 10.6 units and legume cultivation (cowpeas and wandzou) use just 3.3 units of cowpeas.

A policy to increase cowpea production would therefore lead to an intensification of small-scale trade, such as sales of cereal-based food products (patties and others), while increasing the availability of seed for cultivation.

Maize production

Maize cultivation generates an upstream ripple effect of 19 percent. The effect it entails involves an increase in demand for chemical products (fertilizer, pesticides and other inputs) to the value of 17 units, an increase of one (1) unit for rubber or plastic products and an increase of one (1) unit for every 100 units of maize produced. As can be seen, the ripple effect for maize cultivation is much stronger for chemical products. Maize cultivation is the fifth leading activity in terms of size of the upstream ripple effect.

A policy of increasing maize production would contribute to increasing imports of chemical products and would therefore result in more foreign exchange from the country. So only producers and input distributors (traders) would be likely to benefit from such a policy.

The downstream effect of maize cultivation is 0.93 percent, so very low. Two activity sectors mainly use maize for intermediate consumption. These are maize cultivation itself and working with seed and starch products. For every 100 units of maize produced, the activities of working with seed and making starch products requires just 0.03 units. Demand for maize cultivation is not therefore particularly stimulated downstream. This is also explained by the fact that, in Burkina Faso, the staple diet of households is mainly made up of cereals.

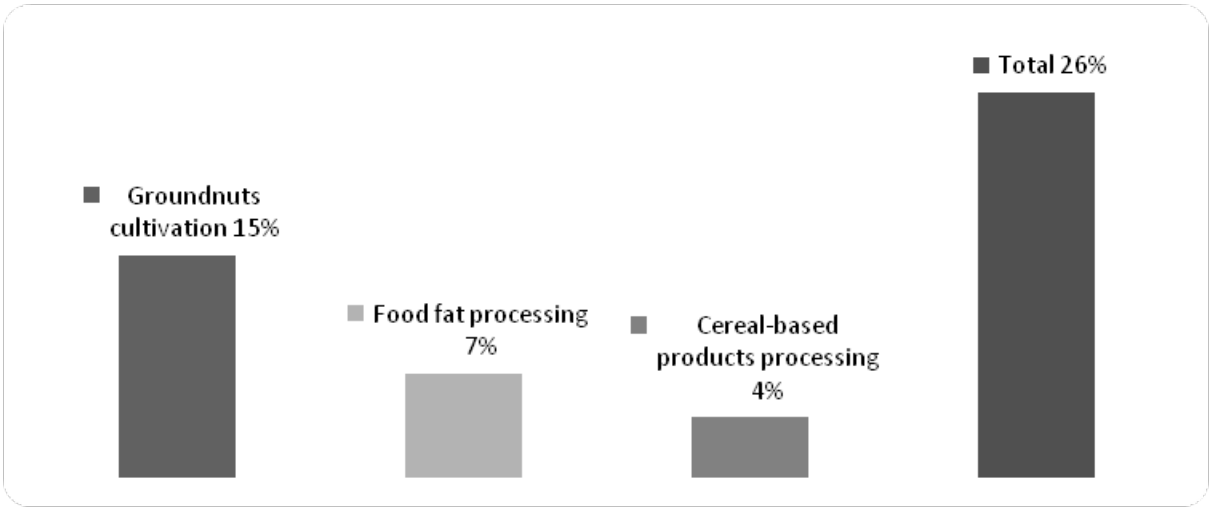
Groundnut production

Groundnut production has an upstream ripple effect of 19 percent, like maize. Intermediate consumption products for this activity are groundnuts and chemical products (fertilizer, pesticides etc.).

The ripple effect of groundnut cultivation mainly involves groundnuts themselves, and, to a relatively small extent, chemical products. An increase in groundnut production by 100 units would entail an increase in production of 16 units of groundnut seeds and 3 units of chemical products. Given these figures, it would appear that a policy to increase groundnut production would mainly profit producers and traders of groundnut seed.

The downstream ripple effect of groundnuts is 26 percent. Three activity sectors use this product for intermediate consumption: groundnut cultivation, the manufacture of food oils and fats and the manufacture of cereal-based food products. Of 26 units of intermediate consumption, 15 units are used for groundnut cultivation itself, 7 units are used for the manufacture of food oils and fats and 4 units are used for the manufacture of cereal-based food products. It is clear that demand for groundnuts for groundnut cultivation is greater than that of the other two activity sectors. This is especially due to the fact that groundnuts produced are needed for its cultivation. Groundnuts are also used for manufacture of oils and cereal-based food products (peanut butter). A policy to massively increase groundnut production could stimulate the two sectors which use significant quantities in the form of intermediate consumption.

Figure 60: Downstream ripple effect for groundnuts, by activity sector



Source : Authors

Fisheries

Fisheries activities have an upstream ripple effect of 11 percent. This is the ninth leading activity for the primary sector in terms of importance of its upstream ripple effect. Fisheries activities mainly consume textile products (ropes), products from the «furniture and miscellaneous» category. Production of fisheries products entails the use of 8 units from textile products (ropes) and 2 units from the furniture and miscellaneous category.

Fish is a product that has a downstream ripple effect of 6.8 percent. According to figures for the agricultural SAM of 2005, fish processing and conservation represents the only activity sector that uses fish for intermediate consumption. An increase in fish production could also stimulate the activity sector of fish processing and conservation.

Millet production

Millet cultivation has an upstream ripple effect of 10 percent. This is the second leading activity for the primary sector in terms of importance of its upstream ripple effect. Chemical products and millet seeds make up the bulk of intermediate consumption needed for millet cultivation. Chemical products account for 9 units out of 10. Millet seeds only contribute one unit. A policy to intensify millet production would therefore greatly increase demand for chemical products, which are mainly imported. Such a scenario would require the mobilization of foreign exchange for their purchase. Given the desire to minimize costs for the economy, and hence society, it may be preferable to promote organic manure and other forms of mineral fertilizer rather than imported chemical products.

Millet cultivation has a downstream ripple effect of 29 percent. For every 100 units of millet produced, 29 units are used for intermediate consumption by other economic actors. Millet holds thirty seventh place in the primary sector in terms of importance of its downstream ripple effect. Three activity sectors are influenced by an increase in millet production: millet cultivation (1 unit); poultry keeping (1 unit), manufacture of cereal-based products (1 unit).

Millet is used to a much greater extent for human food products (food for employees and others) and for seeds than as feed for poultry keeping. It is used to a lesser extent in making food products than for the processing and conservation of fruit.

A policy to increase millet production would be a way for the country to achieve self-sufficiency in food production. Stimulating millet production would have a ripple effect on the maize economy above all, but also on production of millet itself, since producers would increase production significantly.

Sorghum production

Sorghum cultivation has an upstream ripple effect of 9 percent. It is the eleventh leading activity for the primary sector in terms of importance of its upstream ripple effect.

Products consumed in producing sorghum are mainly sorghum seeds and chemical products. These latter account for nearly all (8 units) the upstream ripple effect of sorghum.

As in the case of millet, a policy to intensify sorghum production would require a significant quantity of chemical products and would therefore entail a considerable outflow of foreign exchange for the country. To support intensification and productivity without affecting the country's balance of payments, it may be worth considering using organic manure instead of chemical products.

Sorghum cultivation has a downstream ripple effect of 29 percent. These 29 units produced are distributed throughout six (6) economic activities. These are: drinks manufacturing, working with seeds and making starch products, livestock keeping, farming of sheep, goats and equine species, sorghum cultivation and the manufacture of cereal-based products.

A significant share of sorghum is used for drinks manufacturing (dolo), which is widely consumed in the country. This activity uses 18 of the 29 total downstream units for intermediate consumption. Table 40 below shows the distribution of the downstream effect of sorghum by activity.

Table 40: Downstream ripple effect of sorghum

Type of activity	Downstream effect
Drinks manufacturing	17.7%
Working seeds; making starch products	5.1%
Livestock keeping	3.3%
Sorghum cultivation	1.3%
Farming sheep, goats and equine species	1%
Manufacture of cereal-based food products	0.5%
Total	**28.9%**

Source: Authors

Rice production

Rice cultivation has an upstream ripple effect of 8 percent. It is the twelfth leading activity for the primary sector in terms of importance of its upstream ripple effect.

Products used as intermediate consumption in rice cultivation are rice seeds and chemical products (chemical fertilizer, phytosanitary products, treatment products, etc.). These two product categories contribute in equal shares (4 units) to the upstream ripple effect of rice. It is thought that a policy to support rice production would benefit producers and rice seed traders. By contrast, imports of chemical products to support an increase in production would entail an outflow of foreign exchange from the country, since fertilizer is mainly imported by Burkina Faso. As in the cases of millet and sorghum, it might be worth replacing chemical products with organic manure and other mineral fertilizer, which are easily accessible in Burkina Faso.

Rice generates a downstream effect of 36 percent. Two activity sectors mainly use rice for intermediate consumption. These are working seeds and making starch products (32 units) and rice cultivation itself (4 units).

It is clear that a policy of intensifying rice production could in turn intensify activities for working seeds (hulling, packaging and others) through the creation of new units and staff recruitment, and this could have favourable repercussions on jobs and unemployment.

Cattle rearing

Cattle rearing has an upstream ripple effect of 8 percent, in common with rice. The main products used as intermediate consumption for cattle rearing are sorghum, sugar, molasses and health services.

It can be seen that for every 100 units of products from cattle rearing, there is a need for 4 units of sorghum, 3 units of sugar and molasses and 1 unit of health services. Support measures for cattle rearing would involve an increase in upstream sorghum production as livestock feed. This could have a two-pronged advantage for livestock and sorghum producers.

Cattle rearing has a downstream ripple effect of 59 percent. The activity sectors concerned are slaughtering, meat processing and conservation, which use cattle for intermediate consumption. Measures aiming to intensify cattle production would therefore have positive impacts on the activity sectors of slaughtering and meat processing and conservation.

Oilseed production

Oilseeds are mainly made up of soya and sesame. This activity has an upstream ripple effect of 3 percent. It holds twentieth place in the primary sector in terms of importance of its upstream ripple effect.

Products used as intermediate consumption are chemical products and soya and sesame seeds. As in other production activities mentioned earlier, the problem posed by increased imports of chemical products in response to an increase in oilseed production may be the focus of local solutions, starting with mineral fertilizer available in the country.

Sesame has a downstream ripple effect of 0.7 percent. This mainly involves cultivation of other oilseeds (soya, sesame and other oilseeds) which require sesame for intermediate consumption. This result indicates that sesame is mainly used as an end-product for households or trade. State intervention aiming to increase sesame production could improve purchasing power for producers and facilitate economic access for households to this staple food product.

The two tables below sum up results of upstream and downstream ripple effects for the products analyzed.

Table 41: Summary of upstream ripple effects of activities where products are monitored by MAFAP project

Type of activity	Upstream effect	Rank
Onion and garlic cultivation	29%	1st
Cotton cultivation (seedcotton)	27%	2nd
Legume cultivation (cowpeas and wandzou)	25%	3rd
Maize cultivation	19%	4th
Groundnut cultivation	19%	5th
Fisheries	11%	8th
Millet cultivation	10%	9th
Sorghum cultivation	9%	10th
Rice cultivation	8%	11th
Cattle rearing	8%	12th
Cultivation of other oilseeds (sesame and soya)	3%	20th

Source: Authors

Table 42: Summary of downstream ripple effects for products monitored by MAFAP project

Type of product	Downstream effect	Rank for downstream effect
Primary sector		
Seedcotton	87%	6th
Meat (Cattle)	59.2%	12th
Onions, garlic	43.1%	19th
Rice	36.4%	23rd
Sorghum	28.9%	27th
Groundnuts	26%	28th
Haricot beans	13.9%	29th
Fisheries	6.8%	33rd
Millet	2.9%	37th
Maize	0.9%	38th
Sesame	0.7%	39th
Soya	0.1%	43rd

Source: Authors

Investment options

Aside from their contribution to agricultural production, most of these commodities present upstream or downstream ripple effects of more than 10 percent (seedcotton, meat, onions, rice, maize, groundnuts, millet, sorghum, cowpeas, fish). This shows that incentives or disincentives for producers also affect other sectors of the national economy.

Given the goal of achieving food security through self-consumption, it would be desirable to give priority to targeting support towards products that have a strong ripple effect on production itself. The results described earlier show that these are mainly cereals, for which it would be sufficient to produce enough quantities to satisfy consumer demand.

By contrast, if the goal is that of improving the financial access of households to food products, it would be advisable to target products with a high potential for producing ripple effects.

The same reasoning can be applied to overall economic growth. Indeed, in order to favour overall economic growth, account must be taken of the ripple effects of production activities, so as to ensure that other sectors of the economy benefit from the best ripple effects.

Once the activity sector that must receive one of the options for agricultural investment has been identified, it remains to establish whether it is preferable to fund the activity through public funds or

external funds[20], that is to say, international aid and loans. This leads on to the section below, which uses the Social Accountability Matrix.

10. Which finance model for the agricultural sector ?

Starting from the Social Accountability Matrix, the total receipts for each account i, R_i can be broken down into two accounts: an endogenous account and an exogenous account (exo). This can also be expressed in terms of coefficients (input/output) of matrix A for endogenous accounts, while considering that the total receipts for account i are equal, by definition, to the sum of spending of each account on this account i. In mathematical terms, this is expressed as follows:

$R_i = \sum_j^J A_{ij} R_i + exo = Di$ (reference equation 1)

A model based on SAM essentially responds to the question: what is the level of receipts (and spending) of each endogenous account generated by a certain level of exogenous spending? In our case, the question is rather: what is the level of receipts from other economic sectors following changes in public expenditure for agriculture?

The algeabric solution for the exogenous expediture given may be sought with the help of various methods using linear systems. So, reference equation 1 leads to the following equation:

$R_i - \sum_j^J A_{ij} R_i = exo$ hence $R_i = (I - A_{ij})^{-1} exo$

The matrix $(I - A_{ij})^{-1}$ is known as the «**multiplier**» matrix, since, from an analytical viewpoint, it allows the effects of exogenous spending to be passed on to the economic system through a process of «multiplication» of impacts which follow an iterative circuit of production, distribution and use of revenue.

Since 2005, the DGPER of the Ministry of Agriculture in Burkina Faso has benefited from technical support provided by FAO's policy assistance division, which made it possible to implement simulation tools, policy measure options and impact evaluations for these policy measures on poverty and food security. A first Social Accountability Matrix, based on the year 2000, was developed. It was updated between 2008-2010 on the basis of economic information and coefficients referring to 2005.

A breakdown of non market agricultural services and non agricultural services for two sectors: the «agriculture state» sector and the «non agriculture state» sector was made possible by the work of Cisso Carole in 2011[21].

[20] This questioning leads us to two scenarios: Scenario1=Agricultural funding from public expenditure and scenario2=agricultural funding through external aid.

[21] DEA Statement. Agricultural funding and growth»

Possible scenarios

An increase in share of agricultural public spending from government budget

An increase in agricultural public spending from a fixed total would result in a decline in the share of non-agricultural public spending from the same total. For example, in 2005, the share of agricultural public spending was about 12 percent, while the share of non-agricultural public spending was 88 percent. Our simulation shows that with the current economic structure in Burkina Faso, a 1 percent rise in demand for agricultural public services would be accompanied by a 1 percent decline in the share of non agricultural public spending.

For simulation purposes, agricultural budgetary growth was plotted, progressively, from 1 percent to 10 percent, to establish the probable variation in GDP and agricultural value added for each of the scenarios. The responses are presented in Table 43.

An increase in share of agricultural public spending from external funding

An increase in agricultural public spending from a fixed total would not result in a decline in the share of agricultural public spending, if financial assistance was made by external funding. In other words, it would be a case of a supplementary increase in sector resources, but not at the expense of another sector. For example, if the agriculture sector received X billion and the other sectors Y billion, the agriculture sector would receive X+alpha, with alpha representing external funding, and the other sectors continuing to receive Y billion.

The objectives of SCADD in terms of GDP and agricultural value added growth are summarized in Table 43. It should be recalled that the government goal is to satisfy the criteria set out in the Maputo Declaration of lifting the rate of agricultural value added growth to 6 percent, higher if possible. Restating the SCADD objectives offers an opportunity to decide if they have been achieved, using different simulations.

Table 43: Objectives of SCADD

Year	2010	2011	2012	2013	2014	2015
GDP growth in %	5.5	7.6	8.5	8.8	9.4	10.3
Agricultural VA growth	4.3	4.5	5.1	5.5	6.6	7.0

Table 44 gives the GDP growth and the agricultural value added growth resulting from supplementary growth through agricultural public expenditure in order to reach various growth objectives; on the one hand at GDP level and on the other at the level of agricultural value added.

Results

Table 44 presents the results and shows that the SCADD objectives for overall growth in GDP would not be achieved if funding for the agriculture sector depended on the country's own sources. Even an increase of 10 percentage points in the budget allocated for the agriculture sector would not allow Burkina Faso to achieve these goals.

However, with a growth of 4 to 10 percentage in public spending on agriculture, it would be possible to achieve the growth goal for agricultural value added during the period 2011-2015 (4.5 to 7

percent). Indeed, since internal funding is drawn from duties and taxes, an increase in public spending on agriculture would lead to a reduction in spending for other sectors, leading to a negative overall growth.

Table 44: Summary of simulation results using two funding sources

With external funding					Growth of agricultural sector	With domestic funding				
2011	2012	2013	2014	2015		2011	2012	2013	2014	2015
4.5	5.1				1%-2%					
		5.5			2%-3%					
			6.6	7.0	3%-4%					
7.6					4%-5%	4.5				
	8.5	8.8			5%-6%		5.1			
			9.4		6%-7%			5.5		
				10.3	7%-8%					
					8%-9%				6.6	
					9%-10%					7.0

Source: Authors

If the option of external funding is chosen, a growth of 1 to 4 percentage points on agricultural spending would be sufficient to achieve the objectives for agricultural value added in the period 2011-2015, while it would require 4 to 10 percentage points between 2011 and 2015 using domestic funding.

To reach the overall growth expected by SCADD, there would have to be 4 to 8 percent growth in agricultural spending using external funding during the period 2011-2015.

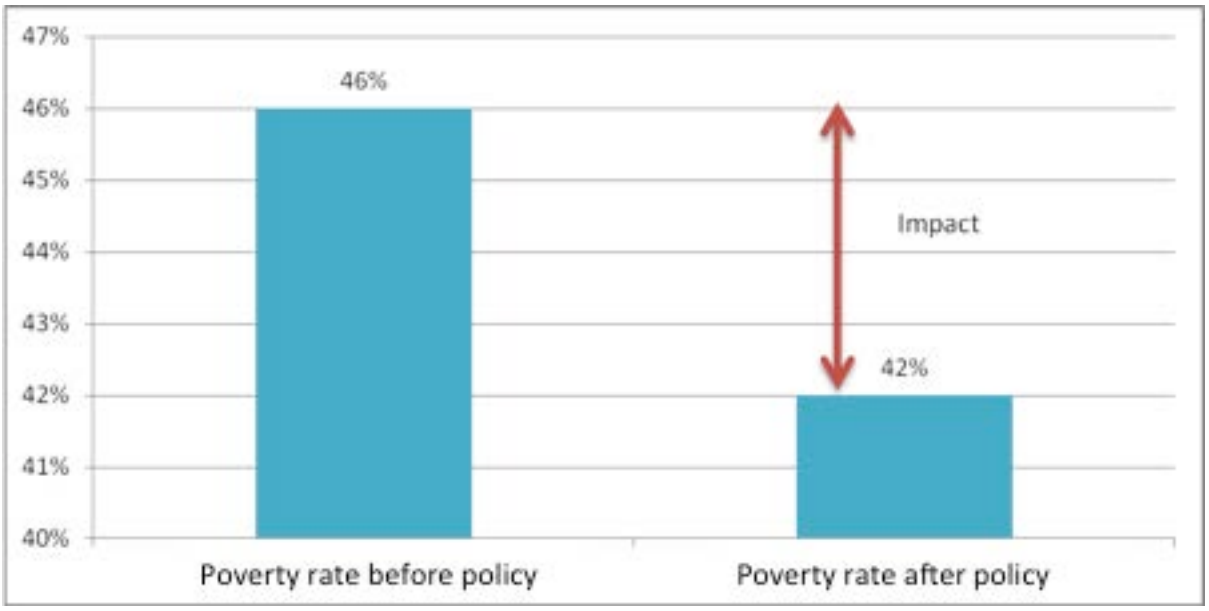
Our simulations show that to achieve the growth objective of the Maputo Declaration (6 percent growth in agricultural value added), just using the national budget, there would have to be a growth in spending of 8 to 9 percentage points. Unfortunately, overall growth would be affected adversely, as explained previously.

This situation could lead the country to look to external funding in order to achieve the Maputo objectives, rather than relying on its own resources. It would also appear that if external funding were to be mobilized, a 3 to 4 percent growth in agricultural spending would be sufficient. On the other hand, if domestic funds were to be used, there would have to be a growth of 4 to 10 percent in public agricultural spending, which is clearly higher.

In terms of impact on poverty reduction, the external funding option would also seem advantageous. If the SCADD objectives for overall growth were to be achieved by 2015, poverty would be reduced

by 4 percentage points, from 46 percent in 2011 to 42 percent in 2015. Figure 61 shows changes in the percentage of the population living below the poverty threshold[22], between 2008 (left-hand column) and 2015 (right-hand column).

Figure 61: Impact of SCADD 2015 poverty objective



Source: Our simulations, based on EICVM 2008

11. Conclusions and recommendations

Funding for agriculture has been strongly criticized by some development actors in Burkina Faso. It has been argued that agriculture is the backbone of the economy in developing countries and of Burkina Faso in particular, and must be considered a strategic sector, which should not be allowed to become too dependent on external funding. In the light of the comparative analysis of the effects of both domestic and external funding, we propose reframing the debate and considering it from several angles.

The two options both have advantages and disadvantages. The domestic funding option involves a relatively accelerated strategy for transforming traditional agriculture into one that is more modern and formal, where operators in the agriculture sector are able to make a real contribution to the tax base. Funding for this type of agriculture through the budget multiplier effect could stimulate overall growth. The downside to this scenario is that a rapid structural transformation of agriculture does not seem very plausible.

We show that the option of using external funding would have a greater impact on agricultural and overall growth. However, this agricultural and overall growth would have to be strong and above all sustainable if the country is to be able to pay off the debt servicing and the debt itself without too much difficulty.

[22] An approximate average of $240/cap/year.

In order to lessen the burden of foreign debt, the country might find it useful to follow a middle path, by mobilizing fiscal resources that are no paid to the government. This would call for greater fiscal transparency and require a more effective fight against corruption.

In all cases, the government needs to have access to detailed data on the composition and level of agricultural funding, backed up by relevant analyses, which make it possible to guide decision-making.

General conclusions

12. Key messages

Burkina Faso is classified as least developed country, even though there has been strong growth in its economy, of about 5.54 percent per year, during the most recent decade 2000-2010. The population is also experiencing steady growth (3.1 percent per year) at national level (UNDP, General Agriculture Census, 2006), with strong urban growth reaching 5 percent in 2010 (WDI, 2010). The population is young (more than 46.6 percent of the population is less than 15 years-old) and has a high birth and death rate, estimated, respectively, at 46 per 1000 and 11.8 per 1000 in 2006 (WHO, 2006). In spite of the boom in resource mining, especially for gold, the economy of Burkina Faso is still dominated by agriculture, which contributed 32.4 percent to domestic GDP in 2010. More than 79.6 percent of the rural population earns a living from agriculture (see list of indicators in the context section). Growth of the agriculture sector is generally steady (9 percent in 2010), though there are strong variations from one year to another (negative in 2007, 2009, 2011) with disparities between commodities. Despite average annual growth of 5.5 percent between 2000 and 2010, the economic repercussions in terms of living standards for the population remain inadequate. Indeed, the poverty rate remains extremely high, with 43.9 percent of the population living on an average of less than one dollar a day in 2010, more than half of them (50.7 percent) in rural areas (INSTAT, 2010). This high rate in rural areas indicates that agriculture, the economic mainstay, is not managing to fulfil the role as driver of development and poverty eradication that is usually assigned to it, especially by the government. Against this background, it becomes crucial to verify that the many food and agriculture policies and public spending for the sector produce the incentives needed to develop production and ensure fair and adequate remuneration for producers. It is also important to measure the level of coherence between the goals of these policies, the measures adopted and the effects produced.

Incentives, disincentives, market development gaps

The analysis of incentives and disincentives was based on a group of ten products (rice, cattle, sorghum, cotton, groundnuts, maize, gum arabic, sesame, seedcotton oil, onion), accounting for almost 85 percent of the value of agricultural production in Burkina Faso. These are divided into four categories:

- Exported products: cotton, gum arabic, cattle, sesame
- Imported products: rice, seedcotton oil
- Thinly traded products: maize, sorghum, groundnuts, onions
- Key products for food security: maize, sorghum, rice, groundnut, onion, sesame

It should be noted that the period analyzed (2005-2010), the most recent period for which data was available, was particularly turbulent due to the food crisis and soaring food prices from 2007 onwards. These events called into question market fundamentals, and price trends underwent strong variations. This has made the analysis more difficult, and determining the causes of incentives and disincentives more challenging.

For this period 2005-2010, two major product groups were observed from the perspective of incentives and disincentives: imports on the one hand, and exports, thinly traded products and

products important for food security on the other. Overall, imports received strong incentives. The two products, rice and cottonseed oil, showed positive NPTs ranging from 15 to 38 percent for rice producers and 19 to 57 percent for oil manufacturers. At wholesale level, NPTs were 7 to 23 percent for wholesale rice importers and 27 to 75 percent for cottonseed oil wholesalers. Wholesale rice importers have an oligopoly, with high levels of power over other market actors for these imported products in Burkina Faso. Overall, exports, thinly traded products and products important for food security received disincentives, with the exception of sorghum. Since the crisis of 2007-2008, incentives have become stronger for the category of imported products and disincentives have become stronger for exports, especially sesame.

Regarding the results by product, the analysis revealed some interesting observations.

- For the imported products studied (rice, seedcotton oil), producers and wholesalers received incentives overall, at 26 percent for rice producers and 5 percent for cottonseed producers. On average during that period, rice producers were better protected than wholesalers. By contrast, for seedcotton oil, the opposite was the case, with wholesalers receiving the strongest incentives.
- For export products, livestock, sesame and gum arabic producers experienced disincentives, on average, while cotton producers were the only ones receiving incentives. Regarding wholesalers for this group of products, only those trading in sesame and cotton received incentives. For cotton producers, the nominal rate of protection was an average 33 percent for the period. Our analysis shows that between 2007 and 2010, following sector reform and the implementing of various measures, in particular a price fixing mechanism for producers of seedcotton, the country managed to support cotton production and offer very clear incentives to producers, through prices that were higher than the benchmark price between 2007 and 2010. However, more would have to be known about production accounts, especially production costs and margins, before any conclusions could be drawn on the profitability of cotton for producers in Burkina Faso.
- None of the thinly traded products, except sorghum, received incentives at producer level during the period studied. Maize received incentives at wholesaler level, as well as sorghum. Onions experienced strong disincentives at both producer and wholesaler level.

To sum up, disincentives received by wholesalers, when they exist, are often less significant than those experienced by producers. Overall, the combination and accumulation of disincentives for producers and wholesalers appear to be major hurdles to the development of agricultural production.

Disincentives are particularly striking in the case of onions, livestock, gum arabic and maize. The extent of disincentives recorded for livestock keepers is equally surprising. This is in spite of the fact that livestock is the country's third largest source of export revenue and that meat consumption on the West African sub continent is set to rise due to urbanization and the growing population of Nigeria, which is unable to meet domestic demand.

Disincentives for dry cereals such as maize can be explained by the government's wish to limit exports so as to ensure food security. However, this policy may cause medium and long-term damage to attempts to encourage maize production, which remains a promising sector, given increasing demand in Burkina Faso and in the sub-region.

Lastly, market development gaps (MDG) measure the extra costs and a large number of inefficiencies linked to market access or operations. It was seen that aside from rice, which had an average MDG rate of 5 percent for the period studied, all the other products were negatively affected by market development gaps, regardless of their trade status, or of the incentives and disincentives resulting from explicit policies (trade policies, price policies, etc.). An average weighted MDG rate of -22 percent was observed for the period. This rate reflects average additional disincentives at producer level, caused by implicit policies, mainly lack of infrastructure and market inflexibility and imperfections. Exports experience the most important MDG, at -25 percent, compared to -6 percent only for imports and – 21 percent for thinly traded products. These rates indicate the depth of the problem caused by market development gaps, which lower incentives for products that have received incentives (cotton) and penalize even further those products that have already been penalized. Conversely, market development gaps also show the gains or economies that could be realized if the necessary investments were made, especially for transport infrastructures or technology acquisition; and the benefits that could accrue if adequate measures were adopted, especially to eliminate or at least counter obstacles to market operations, such as illegal taxes, monopolies, duopolies, oligopolies and even wholesaler revenue in some cases.

Public expenditure and aid

The share of total budget approved for agriculture in Burkina Faso increased from 170.6 billion FCFA to 174.8 billion FCFA over the period 2006-2010, marking an overall rise of 2 percent. However, notable declines were recorded of 6 and 7 percent respectively, between 2007 and 2008 and between 2009 and 2010. Disbursements increased from 144.7 billion FCFA in 2006 to 153.9 billion FCFA in 2010, representing a rise of 6 percent. Of this total, more than 80 percent of expenditure was for investments.

The share of the overall budget allocated to agriculture underwent a constant decline during the period 2006-2010. However, it remains well above the 10 percent threshold recommended by the declaration of African heads of state in Maputo.

Public expenditure on agriculture is dominated by payments to producers-input subsidies (38 percent), spending on infrastructure (20 percent), and spending on training (15 percent). By contrast, very small percentages are spent on marketing (3 percent), storage (0 percent), inspection (1 percent), extension (3 percent), technical assistance (1 percent) and agricultural research (6 percent).

Public expenditure in support of agriculture was mainly dominated by spending on rural infrastructure (41 percent) and education (36 percent) for the period 2006-2010.

Public expenditure on agriculture brought, above all, cross-cutting support to all products representing 73.2 percent of total spending in 2010. The share of spending to support commodity groups saw a regular increase between 2006 (8.7 percent) and 2009 (21.5 percent). Spending to support individual products reached its highest level in 2006, with a figure of 43.8 percent, followed by a decline in 2008 and 2010 with, respectively, shares of 27.7 percent and 11.7 percent.

Development aid to the agriculture sector went from 114 billion FCFA in 2006 to 101 billion FCFA in 2010. Over the period 2006-2010, the share of external financing, made up of an average 55.3 percent in loans, accounted for an average of 71 percent of total public expenditure on agriculture.

Performance of agriculture sectors

It should be remembered that the work carried out and presented in this report is based on a comparison of domestic prices observed and international benchmark prices, and in certain cases regional prices. Besides examining production incentives through prices, and in order to grasp the overall impact of policies, it is also important to compare changes for commodities and revenues for producers. Ideally, therefore, our conclusions should be supplemented by work to identify the share of value added between various actors and sectors, an analysis of the sub-sectors, or the net margins generated by producers, depending on different types of farm. Nevertheless, our results enable us to draw a number of useful conclusions for decision-makers in Burkina Faso.

Firstly, it was seen that production of all the commodities studied increased steadily during the period, except for cotton for which production levels and yields have been falling since 2005.

- Cotton production in Burkina Faso experienced interannual fluctuations during the period 2007-2011 (following the effective liberalization of the cotton sector), which was preceded by a period of rapid growth in production (2001-2006).
- Despite erratic rainfall, rice cultivation in Burkina Faso has increased steadily since 2008, with a strong growth rate of about 200 percent between 2008 and 2009. These results would appear to be mainly due to government price measures taken in response to the food crisis in an attempt to achieve self-sufficiency in rice. However, the increase in production far from enabled the country to meet the goal of achieving self-sufficiency in rice, although the self-sufficiency ratio increased from 43 percent to 52 percent during the period 2008 to 2010.
- Growth in groundnut production has been more the result of extending the quantity of land sown with the crop rather than of improvements in yields.
- The number of cattle has continued to increase, with an annual growth rate estimated at 2 percent.
- Since 1985, quantities of maize produced have risen from 9 percent of the country's total cereal production to a figure of 17 percent. This growth is mainly due to the fact that more land is now sown with the crop.
- Between 2005 and 2010, sesame production increased by 262 percent rising from 25,000 tonnes in 2005 to 90,000 tonnes in 2010. Burkina Faso is the world's second largest producer of sesame, accounting for about 1.55 percent of global production in 2006 (SP/CPSA, 2009).
- National onion production increased fourfold between 2005 and 2008.

Aside from cotton, rice, and to a certain extent, onions, agriculture sectors in Burkina Faso are inadequately structured overall, both for exports and for sales on domestic markets. However, national and sub-regional markets represent more important outlets, especially for cereals. This poor structuring leads to large numbers of intermediaries (especially for milk and livestock) and excessive power for wholesalers, who prevent market signals for international prices from reaching producers effectively.

Very high transport costs pose a major hurdle to improving sector performance. These costs are the result of investment problems such as lack of infrastructure and modern vehicles, as well as by problems of governance, such as administrative bureaucracy and illegal charges.

It is clear that better processing infrastructures could lead to more value added and better marketing prospects for products. This is true for exports, especially livestock, a sector where heavy losses in value added occur, but also for domestic trade in cereals.

Nevertheless, Burkina Faso has a solid marketing tool for agricultural products in the form of the Agricultural Market Information System (AMIS). This computer-based system enables actors to remain connected to price trends and signals at local, regional and global level. However, diffusion of this information has yet to be perfected, and even when it does circulate, producers are not always in a position to act on it.

Coherence of food and agriculture policies

The methodology used to produce this report has been tested in a number of contexts. It enables several clarifications to be made on the incidence of food and agriculture policies in place and even on certain aspects of their coherence when an analysis of incentives is combined with an analysis of public spending. However, this study does not make it possible to draw any conclusions on policy impacts for the margins and revenues obtained by producers. In other words, this analysis allows us to understand the incentives and disincentives received by producers as a whole, but it does not reveal how these incentives are absorbed, combined and transformed in a dynamic sense by the wide variety of farms that exist in the country. This is due to the fact that the analysis stops at the farmgate, and does not go as far as attempting to understand production choices on the part of producers facing a range of incentives and disincentives that vary from one product to another and which producers are forced to integrate into their production systems.

Having issued this reminder, interesting lessons on levels of policy coherence shown by the government of Burkina Faso can be drawn and advanced in an effort to promote positive policy dialogue. Policy coherence is a challenge for all countries, and Burkina Faso is no exception. The Action Framework for Agricultural Investment (CAIA, OECD, 2012) showed that the partial assessment of sectoral investment policies, even though it needs to be investigated more thoroughly, reveals significant weaknesses in terms of efficacy (poor capacity for achieving objectives) and efficiency (high unit cost for public resources, compared with norms and performances obtained by some countries in the sub-region). This analysis reveals positive and negative points in terms of policy coherence.

We have shown that policy coherence should be analyzed at a minimum of three levels:

- Coherence between stated objectives and measures adopted, with good levels of visibility and transparency for both objectives and measures;
- Coherence between measures adopted and the impacts measured;
- Coherence between public intervention methods, namely between incentives received from explicit policies, especially price policies, and levels and composition of public spending.

Coherence in consumer support during food crises. The government of Burkina Faso has been coherent in consumer support for staple products following the food price crisis of 2007-2008.

Coherence in support to strategic products. It can also be seen that the government is coherent in its support, especially financial support, for products it considers to be strategic, such as cotton and rice, which receive significant monetary transfers. Rice and cotton absorb a considerable share of budget resources allocated by the government to the agriculture sector. The policies take the form of incentives to production for these two products (price incentives and budgetary transfers). In the case of cotton, one of the goals of the Strategic Framework for Poverty Reduction is to put incentive measures in place and raise prices for producers. Our analysis of incentives for producers shows that they were supported throughout the period studied, and it can therefore be concluded that government policy was coherent with its objectives.

Incoherence of disincentives for export products. Although for the period studied, an average 12.1 percent of public expenditure was allocated to specific products, livestock, sesame and gum Arabic received disincentives for this period as a whole. This fact represents a real incoherence with the objective of increasing production so as to make Burkina Faso an export power at sub-regional level. Livestock keeping is still largely neglected when compared with other measures allowed by the government to support crop production, especially rice and cotton. However, livestock keeping offers significant potential for growth and development, as well as a source of food security.

Incoherence in promotion of product marketing at sub-regional level. The objectives of encouraging intra-regional trade, where there are real market opportunities – or even the goal of selling a larger share of production on the domestic market – do not seem to be translated into deeds.

There appears to be a problem of coherence on the part of the government when it comes to its policy of promoting the marketing of certain agricultural products (cereals, cowpeas, fruit and vegetables, livestock) on regional and livestock markets, as described in the Strategy for Accelerated Growth and Sustainable Development (SCADD). In fact, cereals are only lightly exported, or not at all, due to export bans or controls apparently issued in pursuance of food security objectives during crises such as those that occurred between 2008 and 2011. The deeper cause of disincentives to maize producers may be this incoherence between stated objectives and measures implemented. Similarly, for livestock keeping, disincentives observed at wholesaler level can be attributed to the fact that these actors are largely disconnected from external markets, which reveals the inefficiency of both internal and external market channels. The Strategic Framework for Poverty Reduction expresses a commitment to promoting trade and marketing of products at sub-regional and global level, and show a relative disengagement on the part of the government in this field, thereby affecting the level of overall coherence of policy frameworks. For example, it has been seen that customs duties are sometimes waived, which goes against the rules set out in the UEMOA's common external tariff (CET) framework.

Finally, the government wish to ensure production-market linkage is not reflected in any visible results: trade levels are still low for most products, disincentives for producers are the rule rather than the exception (except for rice and cotton), market information systems are not sufficiently developed and marketing infrastructures are lacking, not to mention investments in product processing and packaging.

Coherence, but ineffective measures to contain access costs. Significant levels of public spending on projects and programmes for agricultural infrastructure (21 percent of total spending specific to agriculture) shows that the government is attempting to lighten the burden of access costs for producers. However, while this axis of government policy seems coherent with the priorities and constraints observed at producer level, the efficacy of measures taken remains open to doubt since throughout the period studied, access costs remained the principal source of disincentives for producers.

Incoherence of action in support of sector organization. Aside from difficulties due to transport costs, producers often find themselves in a weak position within the value chain, compared with other stakeholders, be they wholesalers, retailers or collectors. Most often, they are force to sell when and where they can, generally on the local market when prices are low, since their priority is to obtain cash resources with which to meet short-term household needs. Their negotiating position is weak due to the precarious nature of their revenue sources and low cash reserves. In an attempt to find solutions, NGOs[23] are setting up *warrantage,* also known as warehouse receipt systems, so that producers are no longer forced to sell off their produce cheaply straight after harvest. The use of storage facilities could also help to counter this problem, but storage infrastructures are costly, and few producers have access to them due to lack of financial resources. Besides, losses are high for individual storage: this is the case for onions, cowpeas and even livestock, which lose a substantial proportion of live weight during transit to Nigeria.

Incoherence regarding priorities for irrigation. The total area of land farmed under irrigation (horticulture crops, rice and irrigated maize) is estimated at about 25 percent of irrigable potential, compared with 11 percent of irrigable potential covered in 2004. Despite these advances, the share remains low given the rapid growth objectives outlined in SCADD regarding the measures needed to ensure food security. An analysis of changes in crop production shows that the country experiences a difficult season about once every 3 years. Yields also indicate that irrigation is still not sufficiently well developed to attain the potential yields of some crops, notably rice and maize, in some production areas.

Accelerated irrigation development remains an ambition and for the time being constitutes a constraint for achieving the performance objectives for agricultural sectors wished by the government.

In a more general sense, although the agricultural sector is at the core of the key paradigms for the country's development, state interventions in the agricultural sector in order to pursue objectives of food security reveal an ambiguity in the role assigned to agriculture, highlighting the diverse functions that agriculture must take on, even though they may not always be explicitly acknowledged through policies: social functions (jobs, food security, stability) but also economic functions (output, exports, revenue, growth). Support to one or other of these functions, or a lack of clear determination on the roles that need to be favoured, can end up causing incoherencies between objectives, measures and impacts observed. In the light of decisions taken and results analyzed, it

[23] SOS Sahel in the *Sud-Ouest* region

emerges clearly that in Burkina Faso, these two functions have yet to be made separate in policy terms.

13. Recommendations for better dialogue on food and agricultural policies

The main goal of the MAFAP/SPAAA project is to generate a richer and more transparent dialogue on food and agriculture, both at national and regional level. The stated aim is that the policies analyzed should, if necessary, be reformulated, adjusted and reformed so as to achieve a strong level of coherence between objectives, measures and implementation tools and the effects and impacts on commodity value chains, most particularly on producers.

Against this backdrop, it seems important to seize the different opportunities that present themselves. The dialogue on policy encouraged by the MAFAP/SPAAA project seeks to link the various stakeholders of the rural and agriculture sector affected by the results of the project and the proposals made as closely and rapidly as possible. It especially seeks to favour the inclusion of professional organizations, non-profit associations and the private sector in policy dialogue.

Regarding the themes of this dialogue, the results of the MAFAP/SPAA project offer a wide range of possibilities. However, it seems that certain themes will be especially attractive to producers, their representatives and decision-makers. Particularly important topics include the situation for each commodity sector regarding production incentives and disincentives, levels of incentives and the stability of signals sent to producers over the years, the question of policy coherence at various levels (objectives, measures/effects, price policies/public spending) by product and for the sector, and the issue of transparency of objectives, including *a posteriori* knowledge on this topic.

Dialogue at both national and regional level appears an essential prerequisite to answering one of the main challenges posed by this report – the need to point food and agriculture policies in Burkina Faso in three main directions:

- Limiting the various risks faced by producers, consumers and all the actors in commodity sectors. The highest risks are production and marketing risks. These latter have strong repercussions for price volatility, both in terms of intensity and instability. Government decisions can provide responses that may be more or less effective in offering incentives to production and consumption, and in a wider sense, attaining the goal of food security.
- There are various options, some of which may be used together:
    - Management of grain storage in order to stabilize prices and handle food emergencies,
    - Warehouse receipt systems to reduce price volatility and make use of market mechanisms,
    - Trade policy measures, often used to support or stabilize domestic offer through protection measures at borders,
    - Agricultural commodity exchange to group offers together, improve price transparency and reduce transaction costs,

- Market information systems to facilitate access to reliable and constant information on market prices. These often make it possible to support government planning and interventions, including those aimed at limiting risks and correcting market imperfections. They also help to include actors in decisions that affect markets and production.

Other risks, especially those linked to production, must of course be taken into account by public policies. There is a range of options for risk management mechanisms focusing on production: using various levels of financial services, insurance mechanisms, safety nets and the whole gamut of risk management measures for natural, climate and biological disasters (zoosanitary and phytosanitary problems).

This report does not directly address political and institutional risks as potential sources of instability, but it should be borne in mind that these factors can have an impact on producers, since they directly or indirectly affect the context and markets, and hence the incentives.

- Organizing markets and developing inclusive sectors so as to promote marketing of production volumes, grouping together large numbers of producers and production systems in production areas, with the aim of supplying demand from urban consumer markets in the West African region.

- Investing in the infrastructure needed to help sectors be more effective and better organized, especially to lower access costs for products, reduce isolation for some production areas, ensure that market information circulates freely, particularly for prices. The existence of MIS (especially MIS SONAGESS, MIS Livestock), means that Burkina Faso has access to high quality data and information. This is a key tool which needs to be preserved and consolidated. However, a well developed system using mobile phones, e-surveys, smart phones and other technologies needs to be planned so as to make information accessible and available for everyone (producers, consumers, public services, NGOs, technical and financial partners for the agriculture sector in Burkina Faso, etc.).

- At sub-regional level, diffusion of price information on the major wholesale and consumer markets by RESIMAO is another important tool. However, there is still room for improvement in the respect and application of free circulation of goods between country members of UEMOA, judging from the results of inquiries conducted by the Observatory of Abnormal Practices (number and duration of road checks, illegal charges made along trade corridors). Eliminating these obstacles would help facilitate trade by further reducing access costs for products. Furthermore, there is a need to harmonize quality standards and criteria within UEMOA, especially to encourage greater cohesion in efforts to achieve more competitivity for sub-regional products competing with international products.

- The issue of promoting policy dialogue between national and regional or sub-regional levels also seems fundamental. Here too, there are opportunities for strengthening links and ultimately achieving better coherence for policy documents defined at sub-regional level (PAU or ECOWAP), numerous and diverse national policies and national or regional plans or programmes for agricultural investment (PRIA, PNIA). An institution such as UEMOA seems ready to take the lead in promoting and harmonizing policy dialogue between member countries, provided that this

dialogue be non-binding and voluntary and the results of monitoring and analysis for food and agriculture policies could be presented, experiences shared and the paths followed by each country commented on. Such a forum could in turn enable the experiences of Mali and Burkina Faso to be extended to other countries in the sub-region, assuming that these countries have an interest in having better knowledge, better understanding and a better way of measuring the effects of their food and agriculture policies.

14. Lessons learned and future of the MAFAP/SPAAA project in Burkina Faso

Implementation of the first phase of the MAFAP/SPAAA project has highlighted several lessons to be learned and identified opportunities and uncertainties for the future of the services promoted by the MAFAP/SPAAA project in Burkina Faso. These threats and opportunities are relative, and sometimes specific, to Burkina Faso. They also contribute to reflections on implementing the project in other countries. There are several points worth mentioning.

Regarding the scope of the project, it is important to bear in mind the underlying objective, which is to set up a system of monitoring and analysis for food and agriculture policies in at least 10 African countries, and in particular Burkina Faso. The main challenge is to institutionalize the process so that in future years, it is no longer considered a project of limited duration but becomes a regular, even routine task, to be scheduled in line with the normal cycle of policies and institutional processes in Burkina Faso.

Regarding efforts to institutionalize the work promoted by the MAFAP/SPAAA project in Burkina Faso, there are some highly favourable factors.

Firstly, technical coordination is handled by the General Directorate for the Promotion of the Rural Economy (DGPER), together with the Permanent Secretariat for the Coordination of Agricultural Sector Policies (SP/CPSA), with the effective participation of other bodies at the core of the Ministry of Agriculture, civil society, the Central Bank, the Ministry of Economy and Finance, the Ministry of Trade, the Ministry of Promotion for Women, etc. Substantial efforts have already been made to involve and raise awareness among decision-makers and other stakeholders and partners. The role of conveying the technical results and engendering policy dialogue falls to the SP/CPSA, which attempts to use the period of negotiation and finalization of the National Programme for Rural Sector (PNSR) to attract the attention of high-ranking political figures in Burkina Faso.

On 16 July, 2012, preliminary results of the MAFAP/SPAAA project for rice, sesame and maize were presented to a cabinet meeting at the Ministry of Agriculture. A presentation of results is planned to be made to government and to the National Assembly, especially regarding an analysis of public expenditure.

Another important point is the Ministry of Agriculture's decision to integrate the methodology and approach used by the MAFAP/SPAAA project as a tool for prospective analysis for the food and agriculture planning service, which handles technical coordination for the project. For this reason, the analyses promoted by the MAFAP/SPAAA project will gradually become a regular activity for the DGPER and hence for the Ministry of Agriculture. Aside from being integrated into the DGPER, the project benefits from a national technical coordinator whose skills are widely recognized and who is

well connected to the different actors in the rural and agriculture sector. The methodology has been taken on board by the national team, and even successfully diffused during launch and capacity strengthening workshops. Communications on these workshops have been relayed by newspapers and television. This also represents a strength which can be translated into real opportunities, since the project has already attracted growing interest from technical and financial partners, but also major national actors, as evidenced by the presence of top ministry officials at the launch workshop. Indeed, the project appears to be relevant to decision-makers, for it enables suitable responses to be offered to areas where there is a real need for information, especially on the impact of major government policies.

Regarding technical and financial partnerships, there are several points to be made. At international level, the project currently benefits – and this will doubtless continue for the next two or three years – from a good base, with institutional and financial support from the Bill and Melinda Gates Foundation, USAID and FAO, to which should be added support and development partnerships with other international institutions, such as OECD, IFPRI and the World Bank for technical aspects. These partnerships are a strength.

However, there are also some weaknesses. The main uncertainty at the end of this first phase is linked to the institutional climate, which is predictably uncertain in a period of crisis. There can be no guarantee that political and institutional instability in some countries of the region, including neighbours of Burkina Faso, will not have repercussions for the country.

On a more technical level, information collection is a very costly exercise and the priority aspect continues to be poorly understood, especially in a food crisis situation, as was the case in Burkina Faso in 2011.

The DGPER planning service for food and agriculture, with a young skilled staff, has worked tirelessly to supply the data and reports on time. However, some of these people have yet to receive due recognition, sometimes working in precarious conditions (with no Internet connection for more than 6 months and no telephone) and do not have long-term contracts. This kind of issue casts some doubt on the sustainability of the exercise. However, ensuring that the workforce benefits from good conditions would avoid the familiar pitfall of the brain drain and would help to ensure that knowledge and skills acquired by these young people in analyzing food and agriculture policies were retained within the Ministry of Agriculture. Discussions are under way, notably in partnership with a network of African universities, to take account of the risks and suggest options that would lessen the threat of losing these capacities created in partner institutions, when the first phase of the MAFAP/SPAAA project comes to a close.

To summarize, the technical and institutional models adopted by Burkina Faso as a basis for the MAFAP/SPAAA project have proved relevant in the sense of ensuring the sustainability of tools for monitoring and analyzing food and agriculture policies. There is justification for proposing these to other countries wanting to improve support to decision-makers, so that they will make more informed choices based on fact.

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Annex I. Data source for the analysis of incentives and disincentives

		Description	
Concept		***Observed***	***Adjusted***
Benchmark price	**Rice**	The CIF price is the price observed at the first customs post in Burkina Faso (Dakola, Burkina-Ghana border) and already includes port taxes. This price was calculated using data on quantities and value of imports to Burkina Faso from the ONAC database.	N.A.
	Maize	The FOB prices were estimated using a coefficient obtained from the ratio of the FOB prices for 2009 (itself estimated from the retail price for maize in Niamey) and the wholesale price for the same year, with the hypothesis that the coefficient remains constant throughout the study period. Due to the fact that maize was imported in 2007 from Côte d'Ivoire, the calculation of the CIF price for this year is different. It was estimated on the basis of the retail price for maize in Korhogo, a town in northern Côte d'Ivoire	N.A.
	Cotton	The FOB export price was obtained from data through the macroeconomic model (IAP) between 2005 and 2010. These price data are generally available from cotton companies and producers' organizations	FOB price given by Cotlook index.
	Cottonseed oil	The CIF price for palm oil on the world market (weak presence of cottonseed oil on this market) was obtained from FAOSTAT (2005-2009) and the World Bank (2010).	
	Cattle	Price of Peul zebu observed at the market of Lessa in Nigeria, to which were added transport costs to Porga (Burkina Faso-Benin border, the transit country for livestock destined for Lessa).	
	Gum arabic	Price given by a CIRAD study in 2009 and interpolated using the rate of	If the gum arabic from Burkina Faso was of at least equal quality to that of Niger, the price of a kilo would be 100 FCFA

		inflation to obtain these other two years	higher. The Benchmarkadjusted price has been calculated on the basis that this price difference is reflected in the FOB price.
	Groundnuts	The FOB price was built from the wholesale price on the Tamale market in Ghana, to which the transport costs between Tamale and the Burkina-Ghana border were deducted. Wholesale prices were obtained from the data base of the Food and Agriculture Ministry of Ghana.	N.A
	Sorghum	The FOB price was calculated from the retail price collected on the main grain market of Niamey, Niger. Various costs and taxes were deducted to this consumer price to obtain the Kantchari price (Burkina-Niger border).	N.A
	Onion	The FOB price for 2010 was taken from the Agrobusiness and Trade Promotion Project (ATP) publications, and 2006 to 2009 prices were estimated with the inflation rate. The CIF prices for 2005 and 2010 were obtained from wholesale prices (RESIMAO) of onion in Niamey, to which total transport costs to Kantchari (frontier between Burkina and Niger) were added.	N.A
Wholesale Prices	**Rice**	Price at the market of Ouagadougou given by the Interprofessional Rice Committee of Burkina Faso (CIR-B) for the years 2005, 2006, 2008, 2009 and 2010. The price for 2005 is that of the Ouagadougou market, collected by RESIMAO.	N.A.
	Maize	Wholesale prices for this market were obtained by an additional survey conducted by the MAFAP team through wholesalers in Burkina Faso.	N.A.
	Cotton	Average wholesale price between 2005 and 2010 given by IAP used for 2005 application of factory price/benchmark price ration in 2005 to calculate factory prices for other years	N.A.
	Cottonseed oil	Wholesale price obtained from the General Inspectorate of Economic Affairs (IGAE) for 2006 to 2010. Inflation rate index used for 2005. A transitional coefficient was then applied to the wholesale price.	N.A.
	Cattle	Average annual price on the market at Pouytenga collected via the Market Information System (MIS) of the General Directorate for Statistic	N.A.

		Forecasting and Livestock at the Ministry of Animal Resources	
	Gum Arabic	The wholesale price at the market of Ouagadougou was obtained from the companies GOMARCO and APEGA for 2006 to 2010. The price for 2005 was obtained through interpolation, using the inflation rate.	N.A.
	Groundnuts	Wholesale prices on the Pouytenga market from the RESIMAO database for the period 2006-2010, plus data collection on the same market by the MAFAP team.	
	Sorghum	Average of wholesale prices in Sankarvare and Gounghin that were collected by SONAGESS on two wholesale markets.	
	Onion	Average wholesale price for bulb onion at Koudougou between January and March 2010 (collected through a MAFAP survey). Prices for other years were obtained using inflation rates.	N.A
Producer Prices	**Rice**	Producer prices for paddy rice come from two sources: SONAGESS for 2005 to 2008 and the Permanent Agricultural Survey (EPA) for 2009 and 2010. The difference in sources is due to the fact that the SONAGESS database made available to the team only had data up till 2008.	N.A.
	Maize	The producer price was obtained from the market at N'Dorola in the province of Kénédougou, the main maize producing province in the region according to the EPA.	N.A.
	Cotton	1st grade cotton price obtained from cotton companies.	N.A.
	Cottonseed oil	Obtained from SN CITEC for 2006-2010. This producer price is actually the factory price of oil sold by the company to various clients, including wholesalers on request. The price for 2005 was also obtained by applying the inflation index.	N.A.
	Cattle	Average annual prices at Yilou (the country's 4th leading market) collected through the Livestock MIS of the General Directorate for Statistics Forecasting and Livestock at the Ministry of Animal Resources.	N.A.
	Gum arabic	Selling prices differ, depending on whether the producer sells his gum to the principal or primary collector. Producer prices are therefore the average weighted prices applied by primary collectors and those applied by	N.A.

		principal collectors, using data from the study conducted by MECV et al. (2009) and information gathered by one of the principal collectors based at Dori in the *Sahel* region, the main production area. Inflation rate indexes were used to calculate the price for 2005, since available data only covered the period 2006-2010.	
	Groundnuts	Producer prices collected during the Permanent Agricultural Survey (EPA) in the Gnagna province.	N.A
	Sorghum	Producer prices for sorghum were collected during the Permanent Agricultural Survey (EPA) of DGPER for years 2005 to 2009, while the prices from SONAGESS were used for the year 2010.	
	Onion	The price for 2005 was collected in Reo (during a survey on horticulture by DGPER in 2005), the price for 2006 and 2007 of onion was also collected in Reo by the PAFASP project, the price for 2008 was collected through the General Agriculture Census of 2008. Prices for 2009 and 2010 were obtained using the inflation rate.	N.A
Exchange rate	**Rice**	IAP of Ministry of Economy and Finances (MEF, 2011).	Calculation of FCFA/US$ exchange rate using fixed FCFA/Euro exchange rate for 2005 and 2006. Assumption of overvaluation of 20% from 2007 onwards.
	Maize	Non relevant since maize is exported in the UEMOA zone.	No adjustment made.
	Cotton	IAP of Ministry of Economy and Finances (MEF, 2011).	Same as rice
	Cottonseed oil	IAP of Ministry of Economy and Finances (MEF, 2011).	Same as rice
	Cattle	IAP of Ministry of Economy and Finances (MEF, 2011).	Same adjustment made since the Naira is linked to the US$.
	Gum arabic	IAP of Ministry of Economy and Finances (MEF, 2011).	Same as rice
	Groundnuts	IAP of Ministry of Economy and Finances (MEF, 2011).	Calculation of FCFA/US$ exchange rate using fixed FCFA/Euro exchange rate for 2005 and 2006. Assumption of overvaluation of 20% from 2007 onwards.

	Sorghum	Non relevamt since sorghum is exported in the UEMOA zone.	No adjustment made.
	Onion	Non relevant since onion is exported in the UEMOA zone	No adjustment made.
Access costs wholesaler-border	**Rice**	Difference (wholesale price/1.03)-(CIF/1.135). This method was used since margins estimated by wholesalers are often widely underestimated.	To reflect a more efficient sector, the 8% informal charges estimated by the West Africa Trade Hub were deducted from the access costs observed.
	Maize	Sum of costs linked to transport of maize from Ouagadougou to Kantchari, the closest area to the border with Niger, increased by illegal charges and margins for exporter (5% of wholesale price). For 2007, the sum of access costs between Ouagadougou and Korhogo, the closest area to the border with Côte d'Ivoire, plus illegal charges and margins for importer.	To reflect a more efficient sector, the illegal charges and legal procedures that inflate access costs were deducted.
	Cotton	Structure of access costs obtained from SOFITEX for 2005 and updated by applying the inflation rate for the other years.	To reflect a more efficient sector, deductions were made from access costs of a 2.9% corruption level of access costs observed, estimated by the West Africa Trade Hub.
	Cottonseed oil	Sum of access costs between Ouagadougou and the border with Burkina Faso and Côte d'Ivoire (Niangoloko), for it is considered that imported edible oil comes mainly from Côte d'Ivoire. These costs include transport costs Niangoloko-Ouagadougou (MIS Burkina Faso Markets), customs duties and tolls, maintenance and storage, illegal charges (Trade Hub), and trade margins estimated at 10% of CIF price (Conseil Burkinabé des Chargeurs).	According to the West Africa Trade Hub, informal costs borne by importers account for about 8% of total transport, logistics and import costs. The coefficient was applied to transport costs observed from Abidjan-Ouagadougou and the result offset.
	Cattle	Access costs are the sum of components determined by the MAFAP/SPAAA project via wholesalers-exporters at Pouytenga. These include costs for transport, maintenance, livestock feed en route, tolls and taxes, and informal charges, with a margin estimated at 7.5% of wholesale price, due to the very low margin given by surveys.	To reflect a more efficient sector : - Access costs are adjusted to deduct informal charges - The trade margin is estimated at 5% of the wholesale price, instead of 7.5%.
	Gum arabic	The structure of access costs given by the SDV show these to be about 67,000 FCFA per tonne without counting the wholesaler margin.	To reflect a more efficient sector : - Corruption costs estimated at 2.9% of total transport costs have been deducted

	Groundnuts	Access costs are the sum of components determined by the MAFAP/SPAAA project via wholesalers-exporters at Pouytenga. These include costs for transport, maintenance, tolls and taxes, and informal charges, with a margin estimated at 10% of wholesale price, due to the very low margin given by surveys.	To reflect a more efficient sector : - Access costs are adjusted to deduct informal charges - The trade margin is estimated at 5% of the wholesale price, instead of 10%. - Transport costs were brought down (using World Bank data)
	Sorghum	Transport costs in Burkina have been estimated at 50 FCFA per tonne in 2010, calculated using inflation rates for other years. Illicit costs were added to transport costs, estimated at 2864 FCFA for 100 km, that is 401 FCFA per tonne on the Ouagadougou-Kantchari distance for a 30 tonnes truck. Handling, storage, and traders margin (10 per cent of wholesale price) were also used in the analysis.	To reflect a more efficient sector : - Access costs are adjusted to deduct informal charges - The trade margin is estimated at 5% of the wholesale price, instead of 10%. - Transport costs were brought down (using World Bank data)
	Onion	For years 2006 to 2009, the whole of access costs between Koudougou , the wholesale market and Niangoloko (at the border between Ivory Coast and Burkina). Such costs include transport costs, handling, as well as legal costs and the phytosanitary certificate (ATP survey). Illicit taxes obtained from the Observatory for Abnormal Practices (OPA) and the traders margin estimated at 10% of wholesale price, were also taken into account.	To reflect a more efficient sector : - Access costs are adjusted to deduct informal charges - The trade margin is estimated at 5% of the wholesale price, instead of 10%. - Transport costs were brought down (using World Bank data)
Access costs producer-wholesaler	**Rice**	All the costs involved in transporting the product from the farm (in Bagré) to the point of competition (Ouagadougou), including charges linked to market access such as storage, delivery, transport, any illegal charges and the different margins that include processing costs of paddy into hulled	Adjusted access costs presuppose the absence of inefficiency charges, such as illegal charges and some other expenses that contribute to high transport costs. It also presupposes that the wholesaler margin is halved from 10 to

		rice, with a yield rate of 62%.	5% of the producer price.
	Maize	Charges linked to transport between N'Dorola and Ouagadougou. To these charges must be added illegal charges and wholesale margin estimated at 10% of producer price.	To reflect a more efficient sector : - Illegal charges are deducted - The trade margin is reduced to 5% - Road transport costs are reduced.
	Cotton	The sum of charges of delivering cotton to the factory, including wholesale margin estimated at 5% of producer price, and including processing costs of seedcotton into cotton fibre, with a yield coefficient of 42%.	N.A
	Cottonseed oil	The sum of charges of delivering cottonseed oil to the industrial unit at Bobo Dioulasso, and then to Ouagadougou, point of competition between this oil and imported oil	Adjusted access costs to producers are calculated on the basis of World Bank (2007) estimates on efficient access costs in Burkina Faso.
	Cattle	Access costs are the sum of components determined by the MAFA/SAPAA project via herders in Yilou. These include transport, trader margins of 7.5% of cost price per head, collection charges and travel costs for collector, taxes on livestock markets and bureaucracy charges linked to transport.	To reflect a more efficient sector: bureaucracy charges (or illicit charges) are assumed to be absent and the trade margin is estimated at 5%.
	Gum arabic	The sum of charges of delivering cotton to the wholesaler. These include storage, delivery, transport, other various charges and the margin applied by the wholesaler, estimated at 10% of the producer price.	To reflect a more efficient sector: bureaucracy charges (or illicit charges) are assumed to be absent and the trade margin is estimated at 5%.
	Groundnuts	Access costs are the sum of components determined by the MAFAP/SPAAA project via wholesalers-exporters and producers from Mani, the producing area, and Pouytenga, the wholesale area. These include costs for transport, maintenance, tolls and taxes, and informal charges, with a margin estimated at 7.5%.	To reflect a more efficient sector: bureaucracy charges (or illicit charges) are assumed to be absent and the trade margin is estimated at 5%.
	Sorghum	Transport costs plus all costs needed to take the sorghum between Ouagadougou and the point of production in the Mouhoun province (Dedougou), plus illicit costs and the wholesaler's margin (10%).	To reflect a more efficient sector: bureaucracy charges (or illicit charges) are assumed to be absent and the trade margin is estimated at 5%.

		Onion	Transport costs obtained from the PAFASP project, plus handling, illicit taxes and the traders margin estimated at 10%	To reflect a more efficient sector, illicit costs have been deducted and the traders' margin was brought down from 10 to 5 percent.
QT adjustment	**Front Wholesale**	**Rice**	N.A	N.A
		Gum Arabic	A quantity adjustment of 0.86 was used to account for the 14% loss of gum Arabic due to humidity and poor quality.	
		Onion	An adjustmend coefficient of 0.90 was used to account for the 10% loss at wholesale level during exports (2006-2009). No adjustment was made for import years 2005 and 2010.	
	Wholesale – Prod	**Rice**	An adjustment coefficient of 0.62 was used to reflect the 62% yield rate of paddy to hulled rice.	
		Maize	Adjustment coefficient of 1.08 corresponds to an underestimate of quantity sold by producers. Sacks of about 108kg are sold for the price of 100kg.	
		Cotton	Adjustment coefficient of 0.42 corresponds to rate for processing seedcotton into cotton fibre.	
		Groundnuts	The shelling rate for groundnuts is estimated at 65%, which was used to computed a quantity adjustment ratio, since the producer price used was that of shelled groundnuts whereas the analysis is for unshelled groundnuts.	
		Sorghum	A quantity adjustment of 1.08 was used to reflect the variation of the actual weight of 100 kg bags of sorghum that are overloaded up to 108 kgs.	N.A
QL adjustment	**Front Wholesale**	**Rice**	Prices observed on markets in Burkina Faso show that local rice (from Bagré) has a higher price, and is preferred, to imported rice. The adjustment is therefore the ratio between the two prices, which is assumed to be constant. This ratio is 18,000/17,500 (imported rice/local rice price), making about 1.03.	N.A

	Wholesale – Prod	**Cotton**	Adjustment coefficient of 0.95 corresponds to 5% of seed production processed into by-products (seedcake and oil) not remunerated to producer	

Annex II. Prices used for the analysis of incentives and disincentives

Product	Source	Notes	Unit	2005	2006	2007	2008	2009	2010
Rice									
Benchmark price	ONAC	Value ratio of quantity of imported Thai rice multiplied by exchange rate to give dollar price.	USD/ton	169	248	243	368	234	272
Wholesale price	CIR-B and RESIMAO	Wholesale market in Ouagadougou (for 2005, 2006, 2008, 2009 et 2010) CIR-B. Ouagadougou market, 2007 RESIMAO.	FCFA/ton	251 563	252 752	250 000	311 481	312 346	285 801
Producer price	SONAGESS, DGPER	EPA DGPER price for *Centre Est* (Bagré) for 2009 and 2010; SONAGESS price *Centre Est* 2005 to 2008.	FCFA/ton	140 000	124 000	122 000	160 000	142 000	134 000
Cotton									
Benchmark price	IAP	Export price for cotton from Burkina Faso multiplied by exchange rate to give price in US$.	USD/ton	1 298	1 239	1 139	1 306	1 167	1 247
Wholesale price	SOFITEX	Price before FOB SOFITEX operating account	FCFA/ton	576 000	544 710	458 767	491 912	476 068	518 820
Producer price	SOFITEX	Price of seedcotton purchased by SOFITEX from producers	FCFA/ton	175 000	165 000	155 000	165 000	168 000	210 000
Cattle									
Benchmark price	Additional survey	Price of Peul zebu observed at market of Lessa in Nigeria, less access costs.	USD/ton	702	788	905	1 069	1 080	1 169
Wholesale price	MIS/DGPSE/MRA	Average annual price of Peul zebu at market of Pouytenga	FCFA/ton	185 000	235 796	318 491	337 251	311 040	328 558

Producer price	MIS/DGPSE/MRA	Average annual price of Peul zebu at market of Yilou	FCFA/ton	132 000	129 076	164 234	201 174	235 429	237 338
Seedcotton oil									
Benchmark price	FAOSTAT, World Bank (2009)	Annual CAF price for palm oil imported to Burkina Faso.	USD/ton	694	707	797	895	1 000	902
Wholesale price	IGAE	Retail price for imported palm oil relative to a coefficient corresponding to the ratio of retail price to wholesale price available for one year.	FCFA/ton	731 895	616 969	639 730	838 383	726 346	757 575
Producer price	SN CITEC	Factory price for one litre of seedcotton oil to which density had been applied.	FCFA/ton	446 405	455 333	509 111	622 222	603 333	618 888
Gum arabic									
Benchmark price	CIRAD	FOB price of gum interpolated using inflation rate from CIRAD price in 2009.	USD/ton	1 420	1 434	1 566	1 674	1 622	1 622
Wholesale price	APEGA, GOMARCO	Price of gum arabic in Ouagadougou.	FCFA/ton	441 176	450 000	450 000	450 000	500 000	600 000
Producer price	MECV	Price of gum obtained from producers in Dori.	FCFA/ton	286 275	292 000	311 000	321 000	331 000	350 000
Maize									
Benchmarkprice	Additional survey	Retail price of maize in Niamey (export) and Korhogo (import) from which access costs up to respective borders have been deducted.	USD/ton	358	370	141	536	412	431
Wholesale price	Additional survey	Wholesale maize price in Ouagadougou	FCFA/ton	141 658	145 000	140 000	180 000	150 000	160 000

Producer price	EPA/DGPER	Producer price for maize in N'Dorola, in province of Kénédougou	FCFA/ton	97 000	79 000	68 000	130 000	102 000	101 000
Groundnuts									
Benchmark price	Food and Agriculture Ministry of Ghana.	The FOB price was built from the wholesale price on the Tamale market in Ghana.	USD/ton	531	631	632	866	678	784
Wholesale price	RESIMAO, MAFAP	Wholesale prices on the Pouytenga market from the RESIMAO database for the period 2006-2010, plus data collection on the same market by the MAFAP team.	FCFA/ton	225 000	188 000	248 000	295 000	238 000	275 000
Producer price	Permanent Agricultural Survey	Producer prices collected during the Permanent Agricultural Survey (EPA) in the Gnagna province.	FCFA/ton	139 870	166 320	111 320	97 470	183 250	166 610
Sorghum									
Benchmark price	RESIMAO	Calculated from the retail price on the market of Niamey, Niger.	FCFA/ton	202,260	136,659	128,752	170,069	192,496	175,428
Wholesale price	SONAGESS	Average of wholesale prices in Sankarvare and Gounghin that were collected by SONAGESS on two wholesale markets.	FCFA/ton	183 898	137 318	125 072	161 441	181 220	178 520
Producer price	Permanent Agricultural Survey and SONAGESS	Collected during the Permanent Agricultural Survey (EPA) of DGPER for years 2005 to 2009, while the prices from SONAGESS were used for the year 2010.	FCFA/ton	140 330	106 863	94 736	108 630	106 035	124 082
Onion									

Benchmark price	ATP project, RESIMAO	The FOB price for 2010 was taken from the Agrobusiness and Trade Promotion Project (ATP) publications, and 2006 to 2009 prices were estimated with the inflation rate. The CIF prices for 2005 and 2010 were obtained from wholesale prices (RESIMAO) of onion in Niamey	FCFA/ton	257 560	266 705	266 705	295 468	303 312	285 040
Wholesale price	MAFAP Survey	Average wholesale price for bulb onion at Koudougou between January and March 2010 (collected through a MAFAP survey). Prices for other years were obtained using inflation rates.	FCFA/ton	173 743	177 218	177 218	196 329	201 542	201 542
Producer price	DGPER, PAFASP, General Agricultu re Census	The price for 2005 was collected in Reo (during a survey on horticulture by DGPER in 2005), the price for 2006 and 2007 of onion was also collected in Reo by the PAFASP project, the price for 2008 was collected through the General Agriculture Census of 2008. Prices for 2009 and 2010 were obtained using the inflation rate.	FCFA/ton	61 000	108 500	163 800	108 000	110 867	110 867

Annex III. Summary of main methodological concepts for public expenditure analysis

Main concepts

The methodology proposes to capture all public expenditures that are undertaken in support of food and agriculture sector development. That includes expenditures from the national budget, either central or regional government, regardless of the ministry that implements the policy, and external aid, provided either through local governments or specific projects conducted by international organisation or NGOs.

The primary focus is on the food and agriculture sector, however, for some countries forestry and fisheries may be an important part of rural activity and are also included in the scope of the project.

We seek to capture all public expenditures in the rural areas, such as rural infrastructure, rural education and rural health, as they may also have an important role in agriculture's sector development, even if they are not specific to the sector.

Expenditure measures generate explicit or implicit monetary transfers to supported individuals or groups. We consider all those expenditure measures that generate explicit or implicit monetary transfers in support of food and agriculture sector development. These measures are divided into two main categories of expenditures: agricultural-specific expenditures and agricultural supportive expenditures. Agricultural-specific expenditures include those measures that generate monetary transfers to agricultural agents or sector as a whole. The agents, or the sector as a whole, must be the only, or the principal recipient of the transfers generated by the expenditure measure. Agriculture supportive measures should include measures that are not strictly specific to agriculture sector, but that have strong influence on agricultural sector development such as investments in rural development. All the measures that comply with these criteria are considered, regardless their nature, objectives or perceived economic impacts.

Further, general expenditure measures available throughout the entire economy are not considered, even if they generate monetary transfers to agricultural sector.

Finally, the expenditure measures are considered and classified according to the way in which they are implemented and not on the basis of their objectives or economic impacts.

Classification and disaggregation

Many expenditures of greatest relevance to agricultural development, in terms of their ability to expand the production frontier, may not be specific to agriculture, but could fall into other categories. Moreover, support can be provided in several different ways. Support to agricultural producers may be provided via reduced input prices (e.g. a fertiliser subsidy), cost sharing for fixed capital (e.g. machinery), revenue foregone by the government (tax concession), reimbursement of taxes or charges or services in kind (e.g. delivery of extension services). Agriculture-specific support to the sector more generally may be provided via spending on agricultural education, research,

marketing of agricultural goods, irrigation etc. Some policies, which benefit agriculture, may be even more general, such as expenditures on rural infrastructure, rural education or rural health. Although the latter are not sector specific, they may be sector supportive. In order to capture all public expenditures in support of the food and agriculture sector, the following breakdown is proposed.

1. A broad distinction between policies that are: agriculture-specific, agriculture supportive and non-agricultural expenditures.

2. Within the agriculture-specific category, a distinction between support to producers and other agents in the value chain, and general sector support. The agents in the value chain include farmers (producers), input suppliers, processors, consumers, traders and transporters.

The detailed classification of support follows the OECD's principle of classifying policies according to their economic characteristics i.e. the way they are implemented, which provides the basis for further policy analysis (OECD, 2008). The particular categories, however, should be designed to reflect the types of policies applied in African countries. Likewise, the categories proposed in the box below have been elaborated based on the experience of various agencies, including FAO (e.g. FAO, 2006), working on public expenditures in developing countries (for a comprehensive overview, see MAFAP, 2010c). Further, drawing on the OECD's experience, the classification proposed aims at distinguishing, to the extent possible, policies providing private goods as opposed to public goods, given their different economic effects.

Proposed classification of public expenditures in support of the food and agriculture sector

I. Agriculture-specific policies – monetary transfers that are specific to agriculture sector i.e. agriculture is the only, or major, beneficiary of a given expenditure measure

I.1. Payments to the agents in the agro-food sector – monetary transfers to the agents of agro-food sector **individually**

I.1.1. Payments to producers – monetary transfers to individual agricultural producers (farmers)

A. Production subsidies based on outputs – monetary transfers to agricultural producers that are based on current output of a specific agricultural commodity

B. Input subsidies – monetary transfers to agricultural producers that are based on on-farm use of inputs:

B1. variable inputs (seeds, fertiliser, energy, credit, other) – monetary transfers reducing the on-farm cost of a specific variable input or a mix of variable inputs

B2. capital (machinery and equipment, on-farm irrigation, other basic on-farm infrastructure) – monetary transfers reducing the on-farm investment cost of farm buildings, equipment, plantations, irrigation, drainage and soil improvements

B3. on-farm services (pest and disease control/veterinary services, on-farm training, technical assistance, extension etc., other) – monetary transfers reducing the cost of technical assistance and training provided to individual farmers

C. Income support – monetary transfers to agricultural producers based on their level of income

D. Other – monetary transfers to agricultural producers individually for which there is insufficient information to allocate them into above listed categories

I.1.2. Payments to consumers – monetary transfers to final consumers of agricultural commodities individually in form of:

E. food aid – monetary transfers to final consumers reducing the cost of food

F. cash transfers – monetary transfers to final consumers to increase their food consumption expenditure

G. school feeding programmes – monetary transfers to final consumers providing free or reduced-cost food in schools

H. other – monetary transfers to final consumers individually for which there is insufficient information to allocate them into above listed categories

I.1.3. Payments to input suppliers – monetary transfers to agricultural inputs suppliers individually

I.1.4. Payments to processors – monetary transfers to agricultural commodities processors individually

I.1.5. Payments to traders – monetary transfers to agricultural traders individually

I.1.6. Payments to transporters – monetary transfers to agricultural commodities transporters individually

1.2. General sector support – public expenditures generating monetary transfers to the agro-food sector agents **collectively**

I. Agricultural research – public expenditures financing research activities improving agricultural production

J. Technical assistance – public expenditures financing technical assistance agricultural sector agents collectively

K. Training – public expenditures financing agricultural training

L. Extension/technology transfer – public expenditures financing provision of extension services

M. Inspection (veterinary/plant) – public expenditures payments financing control of quality and safety of food, agricultural inputs and the environment

N. Infrastructure (roads, non-farm irrigation infrastructure, other) – public expenditures financing off-farm collective infrastructure

O. Storage/public stockholding – public expenditures financing public storage of agro-food products

P. Marketing – public expenditures financing assistance in marketing of agro-food products

R. Other – other transfers to the agro-food agents collectively for which there is insufficient information to allocate them into above listed categories

II. Agriculture supportive policies – public expenditures that are not specific to agriculture, but which have a strong influence on agricultural sector development

S. Rural education – public expenditures on education in rural areas

T. Rural health – public expenditures on health services in rural areas

U. Rural infrastructure (rural roads, rural water, rural energy and other) – public expenditures on rural infrastructure

V. Other – other public expenditures on rural areas benefiting agricultural sector development for which there is insufficient information to allocate them into above listed categories

For more details on MAFAP methodology on measurement of public expenditures in support of food and agriculture sector development, see **www.fao.org/mafap.**

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