

Provided for non-commercial research and educational use.  
Not for reproduction, distribution or commercial use.

This article was originally published in the online Reference Module in Food Sciences, published by Elsevier, and the attached copy is provided by Elsevier for the author's benefit and for the benefit of the author's institution, for non-commercial research and educational use including without limitation use in instruction at your institution, sending it to specific colleagues who you know, and providing a copy to your institution's administrator.



All other uses, reproduction and distribution, including without limitation commercial reprints, selling or licensing copies or access, or posting on open internet sites, your personal or institution's website or repository, are prohibited. For exceptions, permission may be sought for such use through Elsevier's permissions site at:

<https://www.elsevier.com/about/our-business/policies/copyright/permissions>

From Honfoga, B.G., 2019. Agricultural Policy and Challenges to Reducing Food Insecurity and Poverty in Benin. Reference Module in Food Science. Elsevier, pp. 1–7. doi:

<http://dx.doi.org/10.1016/B978-0-08-100596-5.21467-4>

ISBN: 9780081005965

© 2019 Elsevier Inc. All rights reserved.

Academic Press

# Agricultural Policy and Challenges to Reducing Food Insecurity and Poverty in Benin

Barthelemy G Honfoga, University of Abomey-Calavi, Cotonou, Benin

© 2019 Elsevier Inc. All rights reserved.

<b>Introduction</b>	<b>1</b>
<b>The Historical Outlook, 1960–2016</b>	<b>1</b>
Brief Overview Agricultural Policy in Benin Overtime	1
Reference Policy Documents and Recent Agricultural Transformation Perspective	2
Analyzing Agricultural Policy Changes in Benin under Food Security Lenses	4
<b>Economic Paradigms Behind Agricultural and Food Policy</b>	<b>6</b>
Economic Paradigms Behind Agricultural Policy in West Africa	6
Major Economic Approaches of Food Policy-Making in Benin	6
<b>Conclusion</b>	<b>7</b>
<b>References</b>	<b>7</b>
<b>Relevant Websites</b>	<b>7</b>

## Introduction

Benin is a West African country with total population projected at 11,496,140 inhabitants in 2018, and per capita GDP in 2017 estimated at 842 USD.<sup>1</sup> Agriculture is the basis of the country's economy. It contributes 36% to the Gross Domestic Product and provides incomes to 75% of the active population.<sup>2</sup> Rural population in 2016 was estimated at 56% of total population,<sup>3</sup> meaning 1,014,748 rural households with an average size of 6 persons and 761,000 farmers (or head of farm households). However, the agricultural sector's performance has remained relatively weak over the last thirty-five years. Between 2013 and 2015, total area cultivated was about 3 million ha of which only 0.4% is irrigated. Average fertilizer use is less than 15 kg per ha cultivated. A large majority of farmers are poorly equipped smallholders, who cultivate in average 0.5 ha in the south/center and 2 ha in the north of the country.

Cassava, yam, maize, sorghum, millet and beans are the main food crops. Main export crops include cotton, cashew and pineapple. Maize and cotton are grown in rotation and consume the bulk of agricultural inputs. The main constraints to developing Benin's agriculture include: low productivity, small farm size, rigidity of land tenure regimes<sup>4</sup> and low adoption of improved technologies available. The latter stems from market access difficulties, limited and expensive access to credit, poor development of rural infrastructure, poor access to inputs for food crops, implicitly unfavorable economic policies for agriculture and vulnerability of smallholders to climate change. However, there is potential for improving the performance agriculture in the country, thanks to many technologies available for water and soil conservation, soil fertility management, mechanization and motorization of plowing and other farm operations, variety improvement and genetic engineering, pest control, and post-harvest management.

The main questions of the present analysis of agricultural policy in Benin are the following: To what extent did agriculture help to promote development in Benin? What productivity gains did the successive agricultural policies implemented achieve, and how did they impact people's food security and living conditions so far? What are the new prospects for the country's agricultural policy to improve food security and reduce poverty among rural populations?

This paper discussed agricultural policy in Benin since the colonial era until today, its effects on food security, the main economic paradigms behind it, and the prospects for policy-making to address food security and poverty reduction.

## The Historical Outlook, 1960–2016

### Brief Overview Agricultural Policy in Benin Overtime

Agricultural policy in Benin was influenced by the types of governance and public administration that characterized the successive periods of its history: colonial period, independence, socialist revolution backed with the Marxist-Leninist philosophy, and

<sup>1</sup>Source: <https://fr.actualitix.com/pays/ben/benin-population-rurale.php>.

<sup>2</sup><http://www.fao.org/docrep/009/j2623f/j2623f07.htm>.

<sup>3</sup>Source: <https://donnees.banquemondiale.org/indicateur/SP.RUR.TOTL.ZS>.

<sup>4</sup>A new land law was voted in 2017 by the parliament, addressing mainly the titling of rural lands as a means of avoiding land conflicts, securing land properties and promoting investments. It also sets a compulsory time limit to the non-use of agricultural lands by absentee landlords. Yet, customary land tenure regimes still prevail and determine the real access of those who cannot buy land.

liberalization period after the national conference of December 1990. [Adjovi-Ahoyo et al. \(2011\)](#) previously identified the colonial period (before 1960), the 1960–72 period when there was a hesitant move from the colonial to a national agricultural policy, the 1972–90 period characterized by the Marxist-Leninist agricultural policy, the economic liberalization period (1990–2006), and the period after 2006 when agricultural policy was oriented towards green revolution. Below, some parts of these authors' historical reading are captured and dubbed with fresh analysis.

During the colonial period, oil palm was the main cash crop. After independence, oil palm continued to be the priority crop to meet the country's foreign exchange needs, but other crops had also attracted state support (peanuts, coffee, cotton, etc.). After 1972, the revolutionary Marxist-Leninist regime established food self-sufficiency as a top priority for developing agriculture, hence the decline of oil palm and cotton. In 1983, a state monopoly (SONAPRA) was created to revive cotton production.

After a sustained growth until the late 1980s, the cotton sector stagnated until the national conference in 1990. Thanks to the liberalization of the economy, donors came to the sector's rescue and production resumed with an upward trend. With favorable conditions on the world market, this led in 1999 to a cotton boom, which never occurred before. But from 2000, the global cotton market deteriorated and internal crises arose among the national cotton institutions and went on until 2005, causing about 50% fall in production. Those crises stemmed from a deviation of the liberalization process towards installing a private monopoly, under a hidden rent-seeking agenda. Following the 2006 presidential elections, a recovery was initiated; but as early as 2011, a disagreement arose between the government and the private monopoly and the sector plummeted again. The new crisis lasted until the 2016 elections, which brought the boss of the private monopoly to power. Thanks to a new reform, a vertiginous growth in cotton production is now being observed, whereby the peak of 1999 is multiplied by 5 to reach nearly 600,000 tons today.

It can thus be observed that Benin's agricultural policy has so far been dictated mainly by that of cotton, since this crop contributes nearly 80% of the country's export earnings and finances the bulk of public expenditure. However, this policy evolved with the various presidential elections and successive governments, and according to donor support and the mood of elected Presidents. The share of agriculture in public investment programs (PIP) decreased sharply from about 35% in 1990 to 15% in 1996, before resuming to 22% in 1998. Indeed, starting from 1990, privatization of agricultural services and production led to reducing public investments in agriculture, in favor of the recovery of the degraded public urban infrastructure ([Honfoga, 2012](#)).

### Reference Policy Documents and Recent Agricultural Transformation Perspective

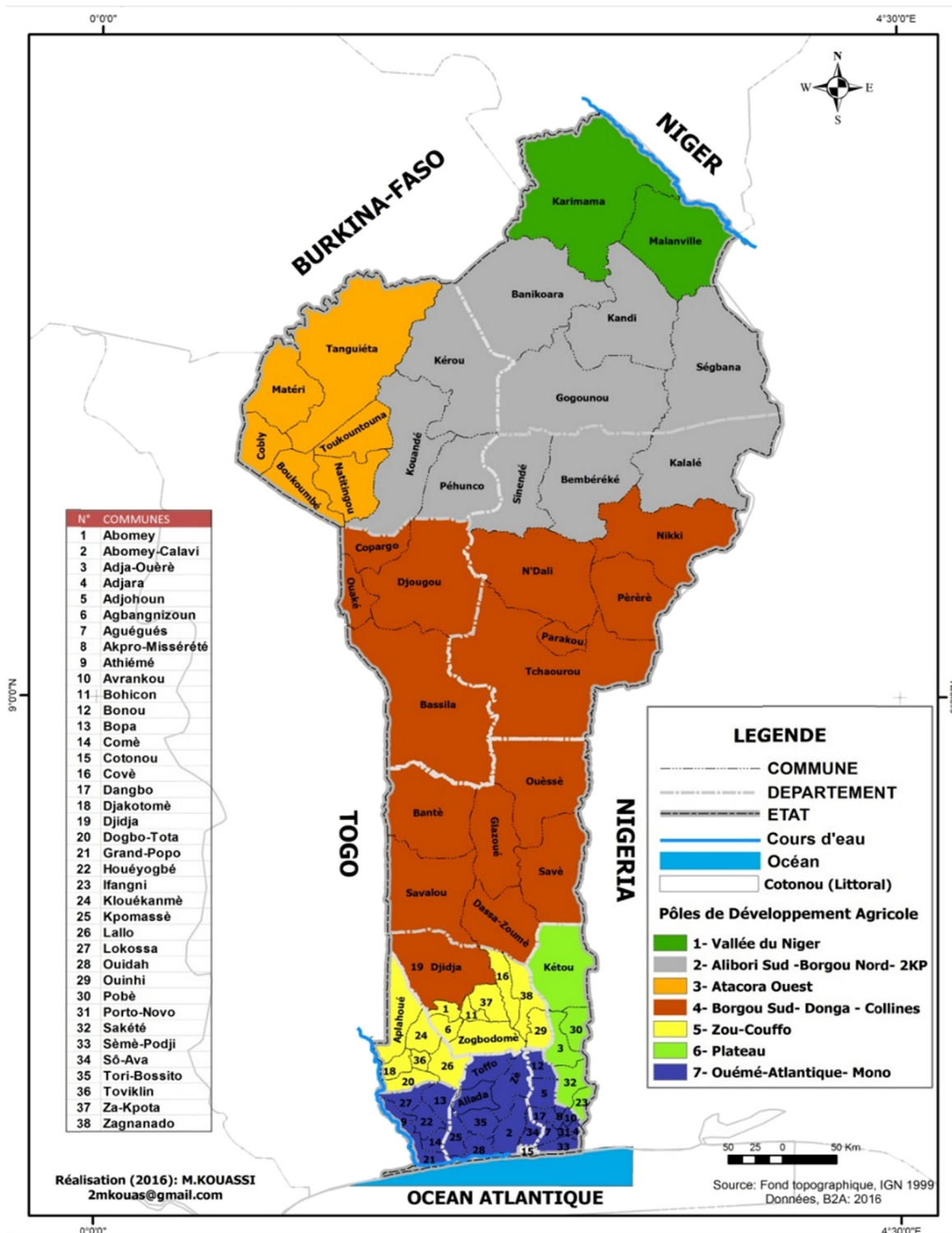
After the revolutionary period, which was marked by the October 1972's political discourse of labor valuation under a collectivism development orientation,<sup>5</sup> the country's contemporary agricultural policy took shape in 1991 with the adoption of the Letter of Declaration of Rural Development Policy (LDPDR). The LDPDR was completed in 1999 by the Rural Development Policy Statement (DPDR), which clarifies the conditions for the withdrawal of the State from production, processing and marketing functions. In July 2001, the Strategic Plan for Agricultural and Rural Development (SDDAR) was designed and became operational with the development of the Strategic Operational Plan (PSO). These strategic policy documents for agricultural development ambitioned to address poverty reduction, empowerment of rural women, increased food security, job creation, restoration of macroeconomic balances and conservation of the ecological heritage ([MAEP, 2007](#)). The PSO consisted of 14 sub-sectoral and cross-cutting action plans, grouped into five major programs namely: (i) improvement of agricultural productivity, (ii) rural infrastructure, (iii) sustainable management of resources (iv) support for the development of agricultural markets and (v) administration and management of services ([MAEP, 2007](#)).

From 2002, Benin adhered at the continental level to the Comprehensive Africa Agricultural Development Program (CAADP) of the New Partnership for African Development (NEPAD). The Economic Community of West African States (ECOWAS) was responsible for implementing CAADP/NEPAD in West Africa. It developed and adopted in 2005 a regional agricultural policy (ECOWAP). To this end, it has opted for a concerted approach in the Regional Agricultural Development Plan (RAIP). Through the subsidiarity principle, it puts nations at the center of their development, by supporting member countries to develop and adopt their respective National Agricultural Investment Plans (NAIPs). Benin's NAIP is the national operationalization of CAADP and ECOWAP. The Strategic Plan for boosting the agricultural sector (PSRSA) and the NAIP formed the backbone of Benin's recent agricultural policy until the April 2016 presidential elections.

The Government Action Program (PAG), which is an overall development policy strategy for different sectors of the national economy, was adopted in 2017. The agricultural component of this program is particularly geared towards developing sustainable agricultural value chains and markets and is based on a "territorialisation" of the rural sector. It is a new approach for guiding state interventions in agriculture, with the aim of producing more impacts in terms of poverty alleviation and food security enhancement. With this in mind, the country is now subdivided into Agricultural Development Poles (PDAs) according to their competitive advantages ([Fig. 1](#)).

PDAs cut across boundaries of the former agroecological zones that were defined only according to their agronomic potentials, based mostly on soils' suitability for crop production. In addition to the issue of increasing crop yield, the concept of PDA embraces the possibility of beneficial marketing of agricultural and livestock products, while promoting ecological sustainability. In [Table 1](#), the agricultural specialization of each PDA and the targeted value chains are specified. The State is now seeking to better direct

<sup>5</sup>The collectivism orientation, as sourced from the former Soviet Union, finally failed because of its hidden rejection by the large majority of Beninese people who is fundamentally individualist.



**Figure 1** Map of Benin showing the 7 poles of agricultural development. Source: IGN, 1999. Fond topographique de la carte du Bénin; and B2A (2016). Volet Agricole du Programme d'Action du Gouvernement (PAG), reported by MAEP (2017). Agricultural value chains: Geographic areas and constraints.

private investment in the agricultural sector and to promote the competitiveness of various sub-sectors on the basis of competitive advantages of the new zones thus defined. It is mainly about developing and securing reliable and profitable market outlets, if possible via contract-farming mechanisms at favorable prices for farmers in the sustainable value chains targeted by PDAs. Among value chain actors, agricultural processing units will receive more attention because they have been the neglected link in food crops'

**Table 1** Agricultural development poles and targeted value chains in Benin

No	PDA	Agricultural specialization	Targeted value-chains
1	Vallée du Niger	Rice lowlands and swamps	Rice, vegetable crops (tomato, onion, potato, okra)
2	Alibori Sud -Borgou Nord-2KP *	Cotton basin zone	Cotton, maize, meat, milk, table egg
3	Atacora Ouest	Cotton and food crops zone	Cotton, rice, maize, meat, milk, table egg
4	Borgou Sud, Donga - Collines	Cotton-food crops-cashew zone	Cashew, cotton, rice, maize, cassava, meat, milk and table egg
5	Zou-Couffo	Fruits and food crops zone	Citrus, rice, maize, cassava, meat, milk and table egg
6	Plateau	Oil palm and food crops zone	Oil palm, maize, cassava, rice
7	Ouémé-Atlantique, Mono	Fisheries and vegetable gardening zone	Aquaculture (fish), pineapple, rice, market gardening, maize, cassava, meat, milk and table egg

Source: MAEP (2017). Agricultural value chains: Geographic areas and constraints.

value-chains for decades. Although many public agricultural projects addressed food processing in the past, they did not substantially direct financial resources towards promoting private investment, especially by small and medium-sized enterprises (SMEs). The weak economic and institutional environment was not favorable. As a result, the expected positive relationship between agricultural production and food security was only slightly verified, while that between cotton production and human development was rather strongly negative and significant at the 5% level (Honfoga and Aoudji, 2013). Today, the agricultural component of PAG aims to reverse this trend.

### Analyzing Agricultural Policy Changes in Benin under Food Security Lenses

The key question is: how did agricultural policy implementation influence food security in Benin overtime? The attention of agricultural policy for food security can be traced out in the following five main episodes after the colonial era:

- (i) Quite little state support to the food subsector during the independence era (1960–71), when foreign exchange earning with export crops (oil palm, cotton, coffee) was still the focus.
- (ii) A strong emphasis on strengthening food self-sufficiency through rural farm cooperatives during the revolutionary period, phase 1 (1972–80).
- (iii) The shift to cotton-based cropping systems as a backbone for foreign exchange earnings and food security during the revolutionary period, phase 2 (1981–89). The SONAPRA parastatal was created in 1983 to promote both cotton and food crops, and the food sector was liberalized later in 1988 to enable greater focus of the parastatal on cotton.
- (iv) A higher emphasis of agricultural policy on the cotton industry, resulting in a confused attention for food security through too many projects during the democratic period, phase 1 (1990–2005) and a rapid increase of the country's rice import dependency today. In 2014, rice importation almost tripled from 560,550 metric tons (MT) in 2012 to 1,398,102 MT in 2014, against 234,145 MT produced and 6185 MT exported,<sup>6</sup> meaning an import dependency rate of 86%.
- (v) The democratic period, phase 2 (2006–15), characterized by a decreased annual growth in per capita production of the main traditional food crops (except cassava), the promotion of local rice production to enhance food security, as well as emerging export crops (soya beans, pineapple, cashew nuts, and shea nuts) to sustain the country's modus vivendi of export earnings under an agricultural diversification agenda, while trying to recover cotton production.

It is important to notice that during each crisis in the cotton sector, food crops suffered because inputs were (and are still) available and accessible only for cotton farmers' cooperatives, under a biased regulation in favor of cotton. Until today, access to agricultural inputs (fertilizers and pesticides) and the purchase of seed cotton are locked by the private monopoly, which has been in control of both sub-sectors for more than 15 years up to now and owns most of the privatized cotton ginning factories. Thus, even the recently initiated agricultural diversification policy with the support of the World Bank remains dependent on that regulation which, in practice, does not allow free trade of specific inputs for other crops and discourages independent private investment in other sectors.

Adegbidi (2002) revealed earlier that several food security-oriented projects implemented by the State didn't meet the expectations. They include, among others, the cassava project, the project for local interventions for food security, the agricultural input-and-output market liberalization project, the project for jobless people insertion into agriculture, etc. Honfoga (2012) reported that programs/projects such as the Agricultural Value Chains Development Support Project (PADFA), the Agricultural Mechanization Promotion Project, and the Food Security Support Emergency Program (PUASA) in response to the 2008 food crisis did contribute to increasing food production, but market access remained limited for farmers who experienced huge depression in farm gate prices and high post-harvest losses. More structurally, the national program for food security (PNSA) was implemented – within the framework of overall strategic plan for agriculture (PSRSA) – in continuity of the Special Program for Food Security (PSSA) and the Project for Food Security and Agricultural Intensification (PSAIA). Adjovi-Ahoyo et al. (2011) observe that there was a lack of coherence and continuity in strategic and policy choices during the past three decades, although some progress could be noticed.

<sup>6</sup>Source: <http://benin.opendataforafrica.org/emcqbq/statistiques-agricoles-benin>.

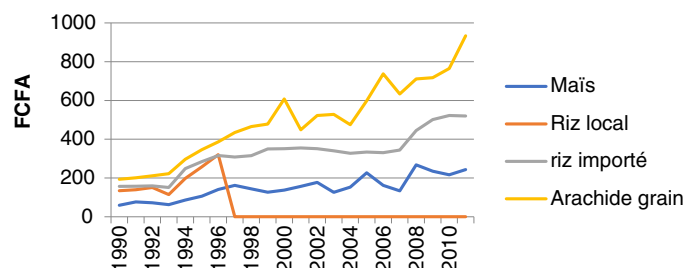
**Table 2** Average per capita production and growth rates of cassava, maize and cotton between the revolutionary and democratic periods in Benin

	Cassava	Maize	Seed cotton
<b>1972–90 (18 years of Revolution)</b>			
Average production (kg)	175.1	79.1	13.7
Annual growth rate (%)	0.7	3.3	11.3
<b>1990–2016 (26 years of Democracy)</b>			
Average production (kg)	325.5	107.9	39.5
Annual growth rate (%)	3.5	2.1	4.4

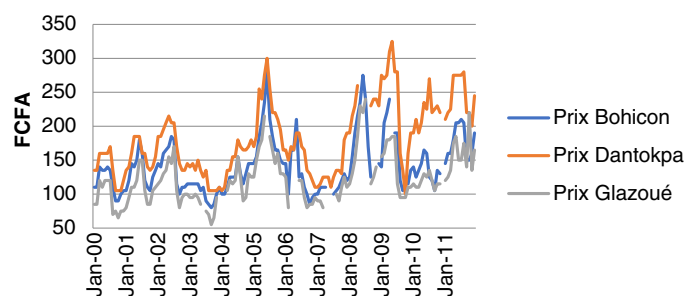
Source: Calculated by the author using data from FAOStat visited on 14 June 2018.

With FAO data, we now observe that per capita production of major crops almost doubled between the revolutionary (1972–90) and the democratic (1990–2016) periods. However, annual growth didn't improve. It decreased from 3.3% to 2.1% for maize, and from 11.3% to 4.4% for seed cotton. On the contrary, it increased from 0.7% to 3.5% for cassava, which is not grown in rotation with cotton and does not suffer the international market turmoil of the latter, the growth rate of which decreased from 11.3% to 4.4% (Table 2). This indicates a significant slowing-down of the agricultural sector's response to public policies.

Actually, the trend in total food production hides post-harvest losses that remained as high as 30%. Concurrently, consumers' access to domestic food market access did not improve significantly. Prices of locally-produced foods rose steadily since the 1994 CFA devaluation until recently (Figs. 2 and 3), while domestic markets became dumped with "cheap" imported low-quality food. In our opinion, overall the 25-year democratic period in Benin was marked largely by erratic and rent-seeking agricultural policy reforms, with reduced access to food in spite of an increase in food production. Regarding seed cotton production after several crises, a spectacular recovery is being observed since 2016, as a result of new incentives to producers. However, cotton farmers rather responded by increasing cultivated area instead of intensifying their production systems. On the livestock side, Benin producers now face the avalanche in their domestic market of highly subsidized meat imported from Europe, Brazil and China.<sup>7</sup> The prospect



**Figure 2** Trends in food prices in Dantokpa market, 1990–2011. Legend translation: maïs = maize; riz local = local rice; riz importé = imported rice; arachide grain = groundnuts. Source: Honfoga, B.G., 2012. Policy Analysis of Traditional Food Production and Marketing in Benin. A Consultancy Report for Bioversity International, Benin Station.



**Figure 3** Trends in maize prices in Dantokpa, Bohicon Glazoué Markets, 2000–11. Legend translation: maïs = maize; riz local = local rice; riz importé = imported rice; arachide grain = groundnuts. NB: Dantokpa is the main urban market of agricultural products, and Glazoué is the main rural assembly market in the central part of the country. Bohicon is an urban retail market in the centre. Source: Honfoga, B.G., 2012. Policy Analysis of Traditional Food Production and Marketing in Benin. A Consultancy Report for Bioversity International, Benin Station.

<sup>7</sup>On the opposite, Nigeria recently banned meat importation on his territory to protect his farmers. Under the ECOWAS agreement, importers from member-countries should normally show a certificate of origin to prove that their product has been manufactured in their countries or within the sub-region, and a common external tariff applies to imports from other regions. But informal traders and smugglers are violating those rules, hence the Federal Government's decision to ban importation of some sensitive products such as meat. Local producers of rice and palm oil are also protected with high levies up to 50%.

for sustainably curbing down that trend after 2016 is still uncertain. However, the newly elected President promises to promote domestic profitable agricultural value-chains for sustaining food security and poverty reduction in all regions of the country.

## **Economic Paradigms Behind Agricultural and Food Policy**

### **Economic Paradigms Behind Agricultural Policy in West Africa**

State support for the agricultural sector in West Africa largely depends on the economic models advocated by donors from developed countries. These models differ from one bilateral donor or group of donors to another, and they have changed over the years. In general, the history of contemporary agricultural development in Africa witnesses the implementation of policies backed by three main economic paradigms or models (Hall, 2009; Schweigman, 2003):

- (a) The state-only model, where a strong sectoral ministry dominates the problem-solving process from up to downstream;
- (b) The neoliberal model, where the participation of the private sector is strongly promoted in a context where only the state still provides the sovereign functions of regulation, monitoring of quality control and promotion of equity in a free market environment. Public-private partnerships are strongly encouraged in the design and implementation of agricultural development policies and programs;
- (c) The skill model, close to the endogenous development model, where the sectoral ministry ensures that coordination and intermediation enables the smooth functioning of markets without marginalizing the poor. This is the inclusive development model.

The model adopted by a country at a moment depends on (i) the political orientation of the government, (ii) the means available and the inclination of its donors for one paradigm or another, (iii) the benefit/cost ratio of the actions envisaged at national level, and (iv) the qualitative development that can be expected at the level of the beneficiary rural populations. Quite often, local experts fail to raise these latter two concerns during the consultations with donors. The empowerment model, most prominent today in the context of participatory poverty reduction, is advocated by supporters of the endogenous development. This model expresses the results of changing approaches in agricultural research and development, where the paradigms of technology transfer (ToT), production/farming systems research (FSR), and participatory research (RPF) have succeeded one another in rural areas, the latter emphasizing innovation and learning centered on the populations (CAADP, 2011). It is also a reflection of philosophical and economic thinking, from traditional approaches of technology transfer (ToT) to agricultural knowledge and information systems (AKIS), and to Agricultural Innovation Systems (AIS) in order to support a new green revolution in Africa (CAADP, 2012).

According to this model, investments in agricultural development must be properly sequenced: first, it is necessary to develop production technologies of staple crops, management capacities of producers and institutional capacities (coordination, political mediation) of other actors in the agricultural sector. Technological support must be differentiated from the outset according to the resource endowment of beneficiaries. In the beginning, poor small producers need simple but effective technologies (improved seeds, fertilizers, soil and water conservation methods) and social protection (group insurance). Mechanization and motorization must first target only the big producers. This will ensure food for people at affordable prices and ensure sustainable food security. Secondly, there is a need to invest in coordinating and stimulating private markets in order to enhance competition and promote high value-added crops or to encourage the subsequent orientation of small-scale producers to more remunerative activities outside the agricultural sector. In the long term, this sequencing of investments shifts the actors towards the neo-liberal model, with a tendency towards agricultural modernization and devolution of production to technically equipped farmers, with a strong organizational capacity and with a clear market orientation. With the consequent support of the state (credit and basic infrastructure), these producers of the future will no longer be poor small producers or subsistence farmers of yesterday.

In any case, Schweigman (2003) and Atampugre (1996) suggested that African countries abandon the exclusive actor (state) model, which excludes non-state actors and where the state leads alone all initiatives from end to end and supports all the costs. Schweigman (2003) deliberated in substance on African agriculture as follows: "Nature should not be blamed for the stagnation of food production in Africa. There is sufficient evidence to conclude that the 'exclusive actor illusion' (i.e. the state or a single ministry can and must do everything) is the main reason for this stagnation. Opportunities to increase food security and sustainable agricultural development depend on true interaction between different actors. This is certainly not new, but it is at the heart of the problem."

### **Major Economic Approaches of Food Policy-Making in Benin**

While the above analysis applies well to Benin as a West African State, the main economic approaches of food policy-making over-time in the country may be identified as follows:

- The Dual food sector economy, whereby agricultural policy has put emphasis on state farms (crops and livestock) *cum* smallholder farms with huge input subsidies. This ran from the independence period until mid-1980s;
- The liberalization (state withdrawal) economy, with non-subsidized smallholder-based food self-sufficiency from mid-1980s to late 1990s;
- The move from food self-sufficiency to sustainable food security: agricultural diversification and sustaining food crops' value-chain development, from late 1990s to early 2000s;
- Donor-driven investments in emerging food crops with still a strong foreign exchange agenda (rice, soya beans, pineapple, cashew nuts), from early 2000s to 2010;
- The new move towards nutritional security: enhancing diversified animal husbandry and vegetable farming, from early 2010 up to now.

## Conclusion

Overall the 25-year democratic period in Benin was marked largely by erratic and rent-seeking agricultural policy reforms. Progress achieved towards food security during the last three decades in Benin was significant on production but access to safe and nutritious food remained limited. The main reasons include: donor-dependency approach of governance, uncontrolled liberalism and rent-seeking behaviour of civil servants in various decision-making positions. The prospect for reducing food insecurity and poverty among rural communities in the decade 2015–25 lies in a healthy governance system, a renewed state support to farmers through more inclusive approaches and a dedicated promotion of private investments in the framework of the empowerment model.

## References

- Adegbidi, A.A., 2002. Dynamique de la pauvreté au Bénin. MIMAP Network Annals.
- Adjovi-Ahoyo, N., Glin, L.C., Azandegbe, D., 2011. Analyse des interventions du pouvoir public dans le secteur agricole au Bénin de 1960 à nos jours. Rapport de Consultation pour le Conseil d'Analyse Economique du Président de la République. Cotonou, Bénin.
- Atampugre, N., 1996. Au-delà des lignes de pierres. L'impact Soc. d'un projet de Conservation des Eaux du Sol dans le Sahel. Oxfam, United Kingdom and Ireland.
- CAADP, 2011. Policy Brief no. 4: Farmer first: Shifting paradigms in agricultural technology development, March 2011.
- CAADP, 2012. Point info no. 7: From technology transfer to innovation systems: supporting a green revolution in Africa, March 2012.
- Hall, A., 2009. Challenges to strengthening agricultural innovation systems: where do we go from here? In: Scoones, I., Thompson, J. (Eds.), *Farmer First Revisited: Innovation for Agricultural Research and Development Rugby: Practical Action*.
- Honfoga, B.G., 2012. Policy Analysis of Traditional Food Production and Marketing in Benin. A Consultancy Report for Bioversity International, Benin Station.
- Honfoga, B.G., Aoudji, K.N.A., 2013. Links between agriculture and human development in Benin, a contribution to UNDP's report on national human development 2015. UNDP, Cotonou.
- IGN (1999). Fond topographique de la carte du Bénin. Institut Géographique National (IGN). Ministère du Cadre de Vie et du Développement Durable (MCVDD), Bénin.
- MAEP, 2007. Plan Stratégique Opérationnel. MAEP, Cotonou, Bénin.
- MAEP, 2017. Agricultural value chains: Geographic areas and constraints. MAEP, Cotonou, Bénin.
- Schweigman, C., 2003. La sécurité alimentaire : opportunité ou responsabilité, ou l'illusion de l'acteur exclusif. CDS Report No. 19, Groningen, 28p.

## Relevant Websites

- 'Benin population': <https://fr.actualitix.com/pays/ben/benin-population-rurale.php>.
- 'Future agricultures': [www.future-agricultures.org](http://www.future-agricultures.org).
- 'Future agricultures': <http://www.futureagricultures.org/farmerfirst/papers.html>.
- 'FAO look at Benin agriculture': <http://www.fao.org/docrep/009/j2623f/j2623f07.htm>.
- 'World Bank population outlook': <https://donnees.banquemondiale.org/indicateur/SP.RUR.TOTL.ZS>.