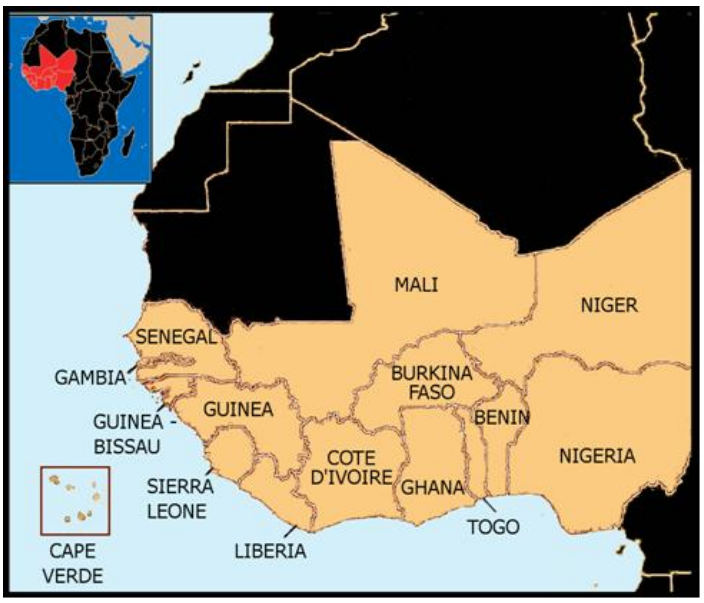
Pathways towards sustainability
Governments in the driver's seat in West-Africa?

Although in the past, development actors have been the main promoters of more sustainable practice in agriculture and chain development, current practice of sustainable agricultural chain development shows that a variety of chain actors and chain supporters own the initiative of converting chains towards sustainability.
In this case we describe how the governments in West-Africa have taken various measures to increase the rice production in the region, aiming to become less dependent on rice imports and thus trying to create economic sustainability in the rice sub-sector.

Case: Rice sub-sector in West AFrica

1. General information



"Underinvestment in agriculture has been the core reason for African hunger and malnutrition", says Jacques Diouf, Director-General of the FAO. For this reason, the African Rice Center and FARM (Fondation pour l'Agriculture et la Ruralité dans le Monde) have investigated the extent to which West Africa is able to feed its own population. They reached the same conclusion: West Africa can be self-sufficient. They also agreed that to this purpose production must improve, local food chains need to be better organized and governments need to create a better climate for the development of local farmers. 90% of the West African food production is realized by family farmers. Hence, to guarantee that in the future the food production will satisfy the demand, family farming will need full attention and support. Although rice cultivation is extensive in West Africa, yields are low. Feeble productivity, in combination with high processing and marketing costs, hamper the competitiveness of local rice on the regional markets. (Bauer *et al*., 2011)

Rice accounts for more than one fifth of the calories consumed worldwide. Even though rice cultivation is usually associated with Asia, rice can also be grown in West Africa during and after the rainy season. Figure 1 illustrates the evolution of the West African rice production from 1961 until 2006. Despite a considerable increase in the production of rice (from 1m up to 6m tons annually), consumption of rice has clearly outpaced production (10m tons annually). (USAID, 2010) To meet this demand, West Africans have to import 40% of their total rice needs, mainly from Thailand and, increasingly, also from Vietnam (Figure 2).

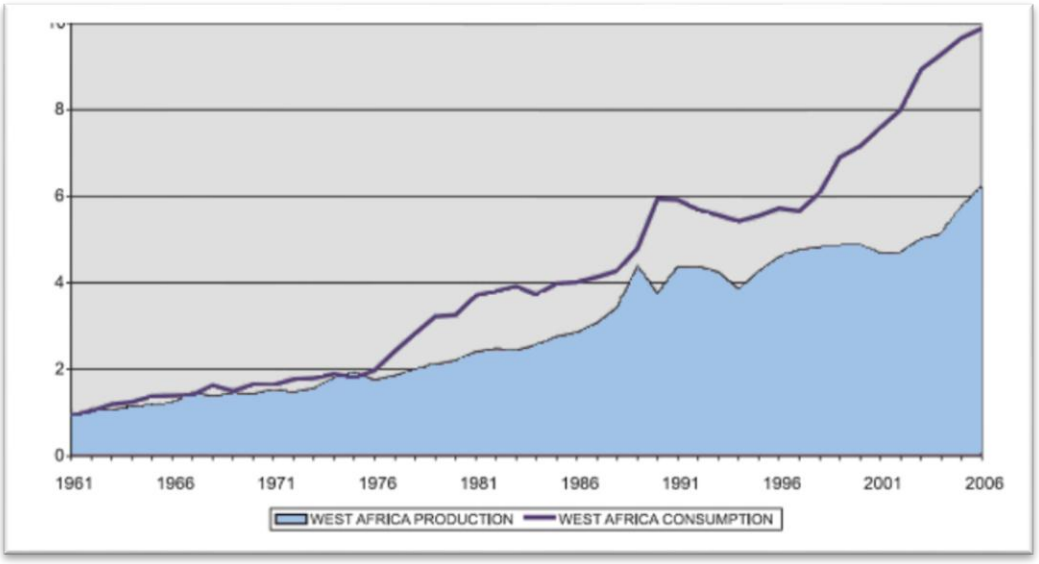


Figure 1: West African rice production (blue area) together with consumption (purple line) in million tons from 1961 until 2006 (USAID, 2010)

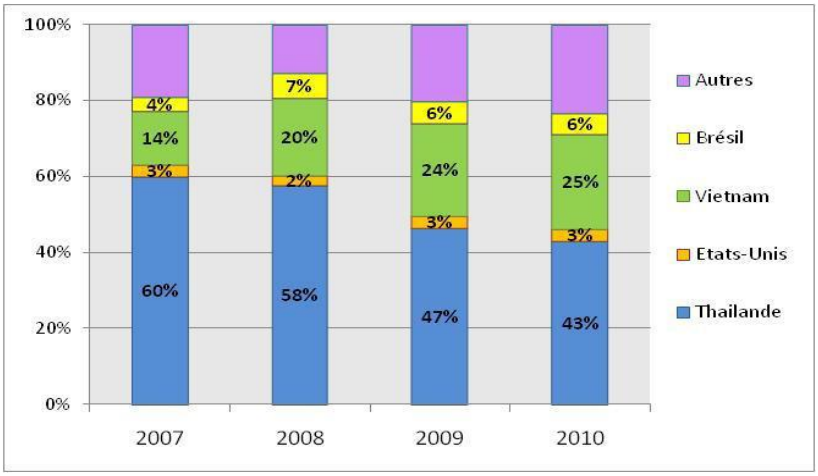


Figure 2: Origin of West African imported rice from 2007 until 2010

Although it has traditionally been a crop that was only used on special occasions and celebrations in West Africa, rice has increasingly become an important staple in people's diets (Bauer *et al*., 2011)

The 4m tons that West Africa has imported in 2006 coincide with 20% of the annual global rice trade, with Benin, Nigeria, Senegal and Ivory Coast taking up the largest chunks of these imports. However, there is a big difference between the West African countries: Senegal, for example, imports almost all his consumed rice, whereas Mali has a sufficiently large production to cover its domestic demand for rice. This difference was also reflected in the effect of the food crisis on these countries: Mali was a lot less affected than Senegal.
Being a landlocked country, Mali has no direct access to goods traded overseas. Therefore, it has invested a lot in infrastructure to facilitate the transportation of rice to local markets. Moreover, the people in Mali have a preference for locally produced rice over imported rice, even

though the latter is cheaper. All these elements have contributed to a strong agricultural sector, able to meet Mali's internal demand for rice. (VECO West Africa, 2010)

Given its production deficit, West African rice exports are negligible. In 2007, exports amounted approximately 103,000 tons, of which only 24,000 tons were exported out of the region, almost all of it by Niger. (USAID, 2009)

In 2008, food prices, including those of rice, soared, causing a food crisis in West Africa. This highlighted its vulnerability as a region depending on imports to meet its internal demand for food. **Improving the rice sub-sector could, therefore, be a step on the way to increased self-sufficiency. The challenge West African governments face, thus, is to improve production quantities while keeping the price of locally produced rice low enough to compete with cheap imported rice. (Bauer *et al*., 2011)**

Ironically, Mali's landlocked nature was actually a benefit in this crisis, as its markets were naturally shielded from too many cheap imports, thereby protecting its rice farmers. It could be suggested, then, that tariffs and subsidies could play a role in protecting and supporting local food producers. (Bauer *et al*., 2011)

The sustainability improvements of West African governments concerning rice cultivation depend on the will and vision of the political authorities who are in charge of these initiatives, as well as on the capacity of local farmer organizations to develop advocacy actions to assure their participation (ROPPA, 2011). Unfortunately, African countries have not invested in developing some essential components of a competitive industry, such as research, rural infrastructure and a stable market environment. (USAID, 2009).

2. Rice cultivation

The Africa Rice Center recognizes 4 major rice production systems in West Africa: irrigated lowland (requires much water), rain-fed lowland, rain-fed upland and mangrove swamp. Table 1 shows the respective share and yield of these 4 systems in West African rice production. The productivity of the different systems varies a lot, with the highest productivity for the irrigated systems in Senegal and Mali. However, these systems are also labour intensive, as they require the construction of river diversions, reservoirs and wells to provide the water for irrigation. Benin and Liberia have the lowest yields because of the predominance of rain-fed rice. (FAO *et.al.*, 2011)

Cultivation system	Share in area of West African rice production	Yield (tons/ha)
Irrigated lowland	15%	4.19
Rain-fed lowland	34%	1.02
Rain-fed upland	38%	1.04
Mangrove swamp	13%	2.08

Table 1: Share in area together with the yield of the 4 rice cultivation systems of West Africa (USAID, 2009)

There are two main rice species: *Oryza sativa* (Asian rice) and *Oryza glaberrima* (West African rice). Rice is mostly grown as an annual crop.

Traditional flooded rice systems have some positive environmental effects like flood reduction, groundwater recharge, reduction of soil erosion, climate control and biodiversity improvement, as explained below. Upland rice cultivation, on the contrary, has no surface water storage and, as such, has very different environmental externalities; most negative impacts are associated with its slash and burn nature. However, upland rice is often relied upon for subsistence and cash generation by the poorest members of society living in remote areas. (UNDP, 2010)

Land preparation and seed choice
For **rice cultivated with irrigation**, the land is prepared by flooding the fields to a depth of 10 centimeters and then cultivating them with rotavator equipped tractors.
For **rain-fed cultivation**, land should be ploughed twice and harrowed once.
Good quality of seeds can increase yields by 5 to 20%.

Production
Crops can be directly seeded or transplanted. Directly seeded crops tend to mature faster than transplanted crops but have more competition from weeds.
In the transplanting system, the time of planting the seedlings is crucial no matter what the ecology. In the rain-fed uplands and lowlands, planting can only start when the rains start.
From germination until maturity takes 120 to 150 days. Fertilizing the rice crop is one of the quickest ways to increase its productivity. However, due to cost and availability, West African farmers rarely apply any fertilizer at all, let alone the optimum type and amount. It is also important to practice appropriate water management throughout the growing period of a rice crop.
Cutting can be done with a sickle. The cut stems are bundled for transport to the threshing place, where final drying to around 12% moisture takes place after threshing. (IRRI, 2011)

Processing
Threshing (getting the grain off the stalk) can be done either immediately or within a day or two. Much threshing is still carried out by hand but there is an increasing use of mechanical threshers. In most countries the bulk of drying of marketed paddy takes place in mills.
Milling is a crucial step in post-production of rice. The basic objective of a rice milling system is to remove the husk and the bran layers, and produce an edible, white rice kernel that is sufficiently milled and free of impurities.
Small-scale farmers generally employ a low level of milling, reaping and threshing because of land fragmentation and limited resources. They either harvest and process rice manually, or pay for harvest, threshing and rice milling. Manual threshing by smallholders leads to poor grain quality. Simple technologies for on-farm storage of paddy rice exist. However, for rice that is to be sold, it appears to be preferable to not store paddy on the farm, but rather to move it expeditiously to the mill for volume storage. (USAID, 2009)

Pests and diseases
The major diseases of rice in West Africa are blast, rice yellow mottle virus (RYMV), leaf scald, brown spot, sheath bight, glume discoloration and bacterial leaf blight. Developing resistant varieties has been the main focus of blast control in the region, but of course also fungicides are useful when the disease breaks through. Furthermore it is of great importance that the farmers themselves remove the infected parts of the rice plants and that they practice in general a good field sanitation. (AfricaRice, 2011)

Environmental impact
First, rice fields temporarily store water and reduce peak discharge of water flows. In hilly and mountainous regions this reduces possibilities of severe flooding downstream, in lowlands and coastal areas, rice fields protect urban areas against overflows from rivers. Furthermore, groundwater is recharged through percolation of water stored within the paddy. The extent depends on soil composition and levels of irrigation or rain. This function can be particularly important to mitigate land subsistence when groundwater is withdrawn from underlying aquifers for other purposes, particularly in hilly regions. In addition, the structural layout of paddy fields can protect much of the surface from soil erosion. Paddy areas in hilly and mountainous areas can further reduce the likelihood of landslides. Soil erosion of surface soils, which contain nutrients, can also contribute to pollution of water sources. Another important positive environmental impact of rice is that the evapotranspiration from a paddy can take a substantial amount of heat, hence have air-cooling properties. By this, rice cultivation can have a positive mitigating effect on the global warming. Documented studies have shown areas where rice fields accounted for 70% of the area can have mid-day temperatures 2°C lower than areas without. A last positive externality is the increase of biodiversity. The reason for this is that rice fields provide habitats for a wide variety of aquatic and terrestrial flora and fauna. However, the latter does not count for irrigated systems. On top of that, these systems use a lot of water, an input that is very scarce these days. Another negative effect is the high release of methane from rice wetlands, which is now believed to be one of the major contributors to global atmospheric methane. Furthermore, the delivery of agrochemicals (fertilizer, pesticides) by the government, although positive for the farmers and their rice yields, has a negative impact on the environment. Interesting solutions in this case are the implementation of Integrated Pest Management and integrating farming like aquaculture. The importance of environmental sustainability is often ignored in policy decisions. Current policies favor subsidized agro-chemicals. (UNDP, 2010)

3. The rice sub-sector of West Africa

3.1. Localization and subsector data

ECOWAS (*Economic Community of West African States*) is a regional group of West African countries, founded in 1975, when 15 countries signed the Treaty of Lagos. Its mission is to promote economic integration in the West African region and to achieve collective self-sufficiency. Together, its members top the world's cocoa production; at present, they also are increasingly collaborating in the field of rice production. (ECOWAS, 2011)
The table below presents data on the rice production in West Africa, with production and yield figures for before and after the food crisis. The picture that emerges is very mixed. Some countries have clearly increased their production, sometimes even doubling it (e.g. Benin), whereas others' production has significantly decreased (e.g. Niger, to a quarter of its 2006 production levels, due to natural disasters). Yields have, in general, augmented, although in most cases only to a limited extent and sometimes showing even a backward trend.
Table 2 shows that Senegal has the lowest self-sufficiency ratio, whereas Guinea and Niger are not only self-sufficient, but they can even export rice. (AfricaRice, 2011)

Country	Population	Production (tons)	Yield (ton/ha)	Self-sufficiency

	2008	2006	2009	2006	2009	2005
Benin	9.600.000	70.972	150.604	2.64	3.74	0.23
Burkina Faso	15.500.000	113.700	213.584	2.57	2.32	0.36
Côte d'Ivoire	19.900.000	715.898	680.000	1.93	1.88	0.42
Gambia	1.800.000	31.024	79.000	1.69	1.08	0.39
Ghana	24.500.000	250.000	391.440	2.00	2.41	0.33
Guinea	9.700.000	1.340.310	1.499.000	1.77	1.72	1.28
Guinea-Bissau	1.800.000	106.000	150.000	1.63	1.79	0.66
Liberia	4.000.000	164.000	292.983	1.26	1.61	0.45
Mali	13.100.000	1.053.240	1.950.810	2.55	2.31	0.80
Niger	15.300.000	78.377	20.117	3.71	1.43	1.10
Nigeria	155.300.000	4.042.000	3.402.590	1.48	1.90	0.64
Senegal	13.000.000	190.493	502.104	2.24	3.60	0.18
Sierra Leone	6.200.000	1.062.320	784.737	1.43	1.50	0.79
Togo	7.000.000	76.284	69.721	2.48	2.22	0.48

Table 2: Population, rice production, yield (FAOSTAT) and self-sufficiency ratio (AfricaRice, 2011) of the ECOWAS countries.

3.2. Problem description

The main problem in the West African rice sub-sector is the lack of self-sufficiency, a costly lesson learned during the 2008 food crisis. When the foreign harvests failed and the rice prices skyrocketed, this led to great shortages of rice (and, consequently, famine) in West Africa. However, West Africa has a great potential of becoming self-sufficient and consuming basically its domestically grown rice. To achieve this, the quality of its rice must improve and the cultivation area must increase. Also, the supply of good qualitative inputs like seeds, fertilizer and pesticides should improve. Farmers need better technologies for drying, threshing and transportation. An additional problem is that most West African consumers prefer the Asian rice above the locally produced rice, as its quality is much better. On top of that, the price of local rice is often higher. (AfricaRice, 2011) The measures taken by the governments to improve the rice sub-sector are often focused on the production unit and on the short term (seed provision, fertilizer distribution campaigns…). Governments face the challenge to focus on sustainable, long-term solutions that protect at the same time small scale rice producers (prices should be high enough) and the consumers in the city (prices should be competitive).

3.3. Subsector actors

3.3.1. Producers

The vast majority of rice producers in West Africa are subsistence farmers growing rain-fed rice for personal consumption. They sell surpluses through friends and family networks or in local markets. In many West African countries, the majority of rice farming is done by women. They do most of the work related to rice planting, wedding, harvesting and processing, while men are more involved in clearing the land and in the production of cash crops.

Commodity farmer organizations exist on multiple levels starting from small local village groups, over communal unions and regional unions to unions on the country level. These national commodity farmer organizations (for example la PNPRM in Mali, UNIRIZ in Benin, ...) are members of the national farmer platforms, and these national farmer platforms are finally member of the regional farmer organization ROPPA. Typically, members of farmer organizations in West Africa collaborate to access agricultural inputs and possibly credit through their farmer organizations, but still sell most of their rice as individuals. (USAID, 2009)

ROPPA (Réseau des Organisations Paysannes et de Producteurs en Afrique de l'Ouest), established in July 2000, is the West-African regional farmer organization that gathers the national farmer platforms of 10 West African countries (Benin, Burkina Faso, Ivory Coast, Gambia, Guinea, Guinea-Bissau, Mali, Niger, Senegal, and Togo). ROPPA's objective is to advocate for farmers interests at the regional and international level, and to form and inform the national member organisations on relevant issues. ROPPA plays for example an active role in the development process of agricultural policies of ECOWAS.
Recently, ROPPA has also formed a regional working group on rice, that offers a regional concertation framework for rice farmer organizations, with the objective to strengthen the professional capacities of their member organizations to participate in national and regional rice policies.

3.3.2. Consumers

Consumer preferences are not the same in the different West-African countries. In Guinee for example consumers prefer local rice, in Senegal they are used to eat broken imported rice, in Benin they like most white non-broken Asian rice,… Asian rice is in some West-African countries preferred due to characteristics such as taste, uniformity, low percentage of broken grains, absence of black dots, absence of foreign substances, and adapted packaging. In countries where consumers prefer this more qualitative Asian rice, it poses a big challenge for rice self-sufficiency.

3.3.3. Supporters

VECO West Africa has helped some rice producing farmer organizations of West Africa to find access to markets, to improve the quality of their rice, to fulfil quality norms and standards, to adapt to the governmental regulations and measures, and so forth. They started in 2002 with the support of the rice chain in Benin (Collines region) and in 2011 VECO expanded her working area with rice chains in Burkina Faso and Niger. Benin, Niger and Burkina Faso share important border markets, where a lot of rice trade takes place. The regional office of VECO West Africa is located in Cotonou. VECO has another regional office in Dakar, from where it coordinates with others rice programmes in Senegal, Mali and Gambia. In most of these countries, VECO is also facilitating advocacy work of national, local and commodity organized farmer organisations *vis-à-vis* government and other chain stakeholders, as well as supporting ROPPA's political activities.

The Africa Rice Center is a leading pan-African research institution with a mission to contribute to poverty alleviation and food security in Africa through research, development and partnership activities in ways that ensure the sustainability of the farming environment. The Center was created in 1971 by 11 African countries. Today its membership comprises 24 countries,

covering West, Central, East and North African regions. Recognizing the strategic importance of rice for Africa and the effective geographic expansion of the Center, the Council of Ministers changed in 2009 its name from West Africa Rice Development Association (WARDA) into Africa Rice Center (AfricaRice). An important achievement of WARDA was the development of the rice variety *Nerica* (New Rice for Africa) in 1997. *Nerica* is a cross between a hardy African rice variety and a high-yielding Asian variety, which makes it both resistant to drought and pests and gives higher yields even with little irrigation or fertilizer. Furthermore, *Nerica* contains more proteins than other types of rice and it matures early, generating quick income. By mid-2003, different types of the *Nerica* variety have been released in 10 West African countries. (AfricaRice, 2011)

Also other sub-regional institutions of rice research (CORAF, FARA, ...) and certain bilateral and multilateral bodies (World Bank, FAO, …) have created initiatives to develop the rice industry and promote local rice. However, the farmer organizations cannot always participate that much in the governance of these initiatives because these institutions are often too much focused on their own goals, such as technological research. For various reasons, technologies and results of their research diffuses really slowly at the level of farmer organizations.

4. West - African governments and their pathways towards sustainability

4.1. Background information

Before 1990 there was no real agricultural policy in West Africa. Through common trade agreements, however, West African countries have been able to set out a framework in which farmers operate and could be protected.

In **1998**, the 8 countries of the West-African Economic and Monetary Union (WAEMOU) Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal and Togo) developed a Common External Tariff (CET) to complete the economic integration and to promote the regional development. A CET implies that the members use the same customs duties, import quotas and preferences for every product entering the zone.

In **2003**, the leaders of the African States decided, on the conference of Maputo, to make agriculture the pillar of development by spending 10% of the states' budget to the financing of the agricultural sector. At the end of that conference, ECOWAS has launched the process of the development of the regional Agricultural Policy, named ECOWAP.

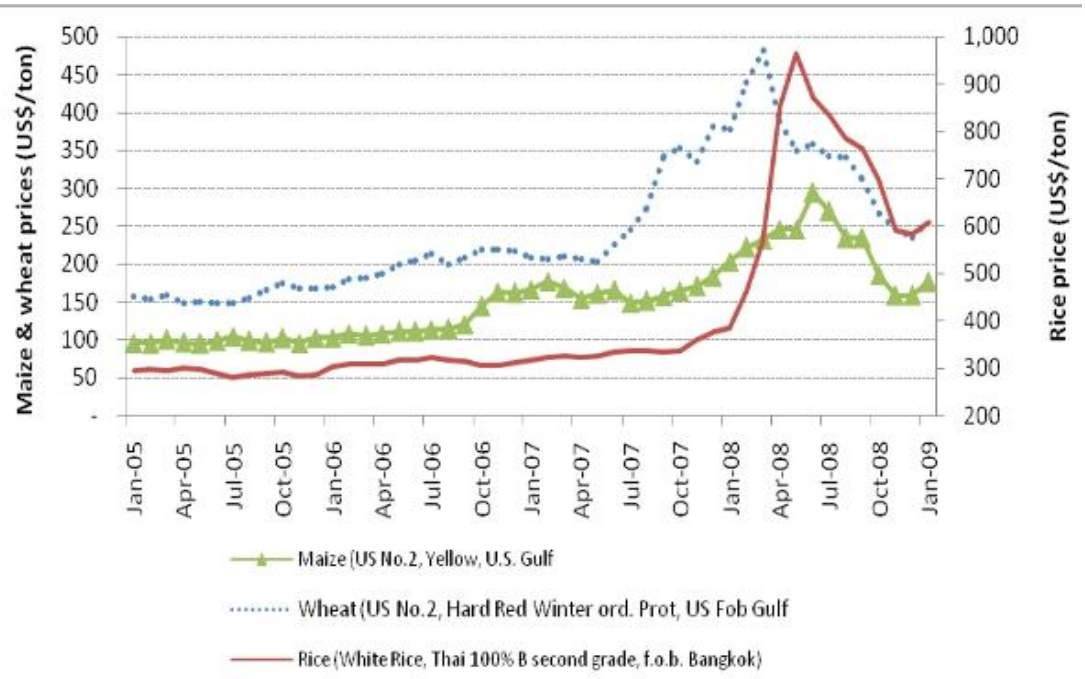
In the same year, the Cotonou Agreement between the European Union (EU) and the ACP countries (African, Caribbean and Pacific group of states) entered into force. ECOWAS, being one of the 7 regional groupings of the ACP countries, defended the West African region in this agreement and negotiated with the EU about the EPA's (European Partnership Agreements), reciprocal trade agreements, meaning that not only the EU provides duty-free access to its markets for ACP exports, but that also ACP countries have to provide duty-free access to their own markets for EU exports, conform to the rules of the World Trade Organization (WTO). Anno 2011, EPA

negotiations between ECOWAS and the EU are still not finalised, due to heavy resistance from governments and farmer organisations to the EPA's.

In **2006**, faced with the challenges and pressure of concluding the EPA with the EU, ECOWAS decided to expand the CET of the WAEMOU to all the 15 countries of ECOWAS. The CET exists of 4 tariff categories with rates at 0% for essential goods, over 5 and 10% to 20% for final consumer goods. The tariff for rice was set on 10%. This low rate offered the city population cheap rice. However, one big rice importing country, Nigeria, has decided to introduce a customs duty of 100% on rice. It should therefore be able to increase domestic production and reduce imports..

With rice prices soaring in the **2008** food crisis (see figure 3), many West African governments abolished import taxes on rice, in order to have enough cheap rice available on their markets. In spite of these measures, shortages abounded all over the region, sparking many riots in urban centres. This tax waiver was just a short-term measure that did not offer a lasting solution for the chronic shortage of domestic rice production to meet demand on the internal markets. (FAO *et.al.*, 2011)

Figure 3: World rice price (left) compared with world maize and wheat prices from 2005 until 2009



ECOWAS and WAEMOU eventually decided to expand the CET with a fifth band, fixed at 35%. For many farmer organizations grouped in ROPPA this was not enough, as they proposed a 50% tariff band on sensitive products, like rice. In fact, it seems they have lost more in this battle, as the rice tariff is still set on 10% (confirmation of this tariff by the heads of state is still pending). (VECO West Africa, 2010)

4.2 Actions undertaken by the governments

The West African governments are, rightly so, concerned about the rice sub-sector. As rice is an important staple food in the region, any fluctuation in supply-demand or market prices can have serious impacts on the economies in the region. Studies in Liberia, for example, found that an increase of 30% of the market price of rice would increase the poverty rate by 64 to 70%. Reducing vulnerability to these kind of external shocks is another important factor that stimulates governments to undertake measures to become self-sufficient in meeting domestic rice demands. (FAO et.al., 2011)

4.2.1 On the level of national policies

As mentioned above, the West African governments have undertaken considerable interventions in the rice subsector in the aftermath of the food crisis of 2008. The solution is quite clear: West Africa needs to increase and improve its local rice production to be more self-sufficient and to secure its food security. Governments have started with the intervention and promotion of the rice value chain. First of all, they tried to limit the negative consequences of the price increase of rice for the consumers on the short and middle long term. Secondly, the governments have tried to improve the production of rice. Certain measures are still in force now, 3 years after the food crisis. (Bauer *et al*., 2011)

Abolition of the taxation reduction of rice imports
To limit the effects of the crisis on the poorest, governments launched programs to mitigate impacts. At the end of 2007, most of the West African countries adopted a reduction of the tax system of rice imports with the goal of bringing in more food during the food crisis. Nigeria suspended his import taxes of 110% during six months (now tax of 32,5%). Also Mali, Ghana, Senegal, Benin and Liberia suspended their import taxes on rice for several months in 2008 or even longer. Such measures were expensive for the governments (e.g. 1.2% of Liberian GDP) and revealed significant gaps in the coverage of social protection systems. Some countries like Guinee and Liberia have also forbidden the export of imported rice.
But these taxation reductions were also disastrous for the self-sufficiency of the West African countries, which made them distort the West African rice subsector. Nigeria, Ghana and Senegal promptly reinstated import duties at the end of 2008, but in Liberia, the import of rice remained duty-free.
Some governments have installed a program to use the income of taxes on imported rice to finance development programs of rice farmers, thus creating positive externalitiesof import. Nevertheless, it is really important for the development of the local rice subsector that these rice imports will not increase to an even bigger market share than it already has now. (AfricaRice, 2009)

Reinforcement of the production capacity and self-sufficiency
On top of these taxation reinstatements, ambitious long-term measures to strengthen self-sufficiency in rice were adopted in 2008. Governments decided to set up ambitious programs to support the agricultural sector, in particular on production level. Donors showed renewed interest in the agricultural sector, like the “food facility program” of the European Union and the “Feed the Future program” of USAID. New relationships between public and private actors are emerging. (Bauer *et al*., 2011) In several countries, governments have furnished some agricul-

tural inputs for rice farmers, so that the rice subsector can expand. Authorities have supported the extension of irrigated areas and have constructed rice mills (Bauer *et al*., 2011).
In **Benin**, the government set up the program PUASA (Programme d'Urgence d'Appui à la Sécurité Alimentaire). It is based on 3 main measures: a better distribution of seeds, the organization of the subsidized supply of fertilizers and the reorganization of abandoned irrigated land. The ambition is to increase production of rice from 72.960 ton in 2007 to 385.000 ton in 2015. To reach these goals the governmental budget for the agricultural sector has doubled between 2007 and 2009 and currently amounts to 12% of the national budget. (VECO West Africa, 2010)
In **Senegal**, the self-sufficiency program is called the PNAR (Programme National d'Autosuffisance en Riz). It aims for making the rice subsector self-sufficient by 2015. The main goal here is the sustainable intensification of the irrigation of rice cultivation in the river valley of Senegal (which represents 70% of the national rice production).
In **Nigeria**, the government launched a national strategy in 2010 for the development of rice with the aim of reducing the rice imports and tripling the production from 2008 by 2018.
Also the **Mali**an government has organized a campaign 'Initiative Riz' during 2008 and 2009 to improve the rice cultivation. The program involved the improvement of the access of rice farmers for inputs and credit. In 2009, they also launched a new strategy for the development of rice cultivation, the SNDR (Stratégie Nationale de Développement de la Riziculture). (FAO *et.al.*, 2011)

While investment in the rice sector is clearly needed, Peter Timmer, a renowned food policy expert, argues that many of the government rice initiatives focus almost exclusively on production to the exclusion of complementary initiatives in processing and marketing, which are important to determining domestic rice prices. (USAID, 2009)

4.2.2 On the level of regional policies

In the aftermath of the food crisis of 2008, also ECOWAS and the WAEMOU developed some short term initiatives to strengthen the regional rice offer. ECOWAS promoted for example the setting up of a rice industry in Ségou, several economic actors got a financial aid from ECOWAS, … But ROPPA criticizes these initiatives as having only limited effects on the ground, implementation is really not on scheme, farmer organisations are not well informed or involved.

4.2.3 On the research level

The West African governments have not invested a lot in research towards sustainable rice cultivation. However, this would have been beneficial for the long-term production. Unlike Asian countries, African countries have not invested in developing an enabling environment that permits a low-cost rice food system, leaving them vulnerable to fluctuations in world markets. To keep pace with the rise in demand, intensification or improvements in yield are essential. Supporters of the rice subsector, like the FAO (Food and Agriculture Organization), IRRI (International Rice Research Institute), IFAD (International Fund for Agricultural Development) and Africa Rice Center have, on the contrary, invested a lot in rice research towards better seed, fertilizer, technologies, post-harvest and marketing. (USAID, 2009)

4.2.3 On the farmer’s level

Subsidized inputs
In recent years, West African governments have subsidized seeds and fertilizer as well as credit to producers, although not at the levels agreed in the Maputo declaration (10% of GDP). The government of Mali started to subsidize seeds, fertilizer and credit grant in their 'Initiative Riz' of 2008-2009. In Benin, government agencies distributed improved seeds. The states of Benin and Nigeria also contributed to private investments, by financing the construction of new rice mills.

Rice purchases
Following the rise of the rice prices in 2008, this crop represents a smaller share of food aid. Some agencies have increased their purchases of local rice and are buying directly from farmer organizations, signalling their willingness to support market access for local rice producers. (Bauer *et al*., 2011) The Malian and Nigerian governments, for example, started after the food crisis with the implementation of government purchases from smallholder farmers. In Mali, the OMA (l'Office des Marchés Agricoles) has bought in 2010 more than 37 000 tons of rice, exerting a large influence on the price of rice. (FAO *et.al*., 2011)

4.3 Impact

The reaction of African governments to the rice crisis has been to launch programs and policies to promote local production. It is difficult to assess the impacts of these programs as they are ongoing.

4.3.1 Institutional sustainability

Regional collaboration insufficient to boost production
The increase in production has not, as of yet, led to a lasting reduction in the region's dependence on international imports. Under the influence of a demographic increase and problems with access to land, rice farmers are still struggling. There is a need for a debate about the regulation of rice prices and about commercial politics on the level of ECOWAS, with the goal to coordinate the national politics and to promote a regional approach of the rice sub-sector. Previous policies did not help local rice producers to secure a significant market share. Imported rice still represents more than 20% of agricultural imports and half of the total rice consumption. Beyond the large volume involved, the Nigerian rice market is even more attractive than other West African markets, because Nigeria imports high-value (parboiled) rice rather than rice of lower quality typically imported into the other countries of the sub-region. (Bauer et al., 2011)
Although the production increased, the increase in consumption remains at 5 to 6% per year, a rate that is too high for local production to make a lasting impact on self-sufficiency in the region. (FAO *et.al*., 2011)
It is important to note here that the lack of harmonisation of rice support policies within the ECOWAS region, can create internal competition and internal "rice dumping" that can destabilize national production in the same way as imports.

4.3.2 Economic sustainability

Production has risen (insufficiently)

Following the measures taken by the West African governments in 2008 to improve the rice subsector, the annual rate of increase of West African rice production has risen from 3.8% to 5.4%. This increase is mainly due to an increase of rice cultivation land and the subsidized agricultural inputs like seeds, fertilizer and equipment. The area increase was mainly seen in Nigeria, Mali and Senegal. The production increase differs greatly between all the West African countries. In Mali, for example, the production is estimated to be increased by 30% in 2009 because of the support measures towards inputs for rice farmers. Accordingly, the West African governments have taken a lot of measures to increase the rice production, but they are not focusing on improving the rice chain, in the sense that they did not work yet on the alignment of the different chain actors. Local rice is for example often not available in supermarkets. Also, productivity has not increased much (only 0.1%). The production increase is therefore almost only due to an area increase. (USAID, 2009) The increase, however, is not keeping pace with the growth in demand, let alone enough to fill the supply-demand gap.

Rice farmers get micro-credit of the government
Almost 15% of the agricultural assets are gained through credits from microfinance institutions, initiated by the government. This is a good move of the West African governments because it is always hard for smallholder farmers to get credit because of the high risks of their job to failure. However, the interest rates are not low enough, being between 5 and 20%. (VECO West Africa, 2010)

4.3.3 Ecological sustainability

Environmental services
The encouragement of the governments towards the increase of the rice area can bring along some environmental services. However, these are mainly limited to rain-fed lowlands and mangrove cultivation systems, and do not focus on the irrigated systems that the governments actively support.

4.3.4 Social/cultural sustainability

Better livelihood for local rice farmers
As a consequence of the credit and inputs that the West African governments provided for the rice farmers, their rice production increased. The governmental program that uses the income of taxes on imported rice to finance development programs of rice farmers has, however not good on the long-term for the self-sufficiency, a positive impact on the livelihood of local farmers (Bauer *et al.*, 2011). A question that remains is how these income increase and livelihood improvements can be sustained over longer periods as they are highly induced by government subsidies.

Women get a higher economic power
Because rice is a crop that is traditionally cultivated by women, the initiative of the governments to support the rice sector also lead to a higher economic power of women. They can contribute more in the daily decisions made in local farmer families and by this their livelihood also increases. (FAO *et.al.*, 2011) However, when rice is not a major part of the diet, the production is mainly done by men and only the post-harvest activities are the domain of women. So, it is not

clear that, with an expansion of areas planted, rice would necessarily remain under the control of women. (USAID, 2009)

Documents that can be requested

- Soule, G. (2011). Etude: “Accès aux marches transfrontaliers de cinkanse et de malanville pour les produits d’agriculture durable”. Vredeseilanden Country Offices West Africa, Cotonou. p. 121.

- VECO West Africa (2011). Chain intervention framework 2011-2013. Vredeseilanden Country Offices West Africa, Cotonou. p. 10.

- VECO (2011). Impact Assessment: Report Data Collection; Programme 2008-2013. Vredeseilanden Country Offices, Leuven. p. 20.

References

- AfricaRice (2011). Viewed August 2011, http://www.africarice.org.

- AfricaRice (2009). Report of the research division. Africa Rice Center, Cotonou. p. 79.

- Bauer, J.M.; Cissé, M.; Ibrahim, L.; Soumaré, P. and Mendez del Villar, P. (2011). Rice crisis, market trends, and food security in West Africa. p. 4.

- ECOWAS (2011). Viewed August 2011, www.ECOWAS.com.

- FAO, WFP, CILSS, Cirad, FEWS Net (2011). Crise rizicole, évolution des marchés et sécurité alimentaire en Afrique de l’Ouest. p. 61.

- ICTSD (International Centre for Trade and Sustainable Development) (2008). ECOWAS CET: the imperatives of Nigeria's fifth band. ICTSD. Trade Negotiations Insights, Geneva. Vol. 7 (4).

- IRRI (International Rice Research Institute) (2011). Viewed August 2011, http://irri.org.

- Khush, G. (1997). Origin, dispersal, cultivation and variation of rice. Plant Molecular Biology 35:25-34.

- Soule, G. (2011). Etude: “Acces aux marches transfrontaliers de cinkanse et de malanville pour les produits d’agriculture durable”. Vredeseilanden Country Offices West Africa, Cotonou. p. 121.

- VECO (2011). Impact assessment framework: Data collection tool. Vredeseilanden Country Offices, Leuven. p. 20.

- VECO West Africa (2011). Chain intervention framework 2011-2013. Vredeseilanden Country Offices West Africa, Cotonou. p. 10.

- ROPPA (2006). Niamey Call for West African food sovereignty. The Forum, Niamey. p. 4.

- ROPPA (2011). Termes de Référence de la 1ère session de Bureau Exécutif du Cadre Régional de Concertation des Organisations des Producteurs de Riz (CRCOPR). ROPPA, Cotonou. p. 9.

- UNDP (2010). Sustainable Rice Production Systems: Scoping Paper. United Nations Development Programme, New York City. p. 20.

- USAID (2009). Global Food Security Response: West Africa Rice Value Chain Analysis. United States Agency for International Development, Washington D.C. p. 83.

- USAID (2010). Does the Value Chain Approach have Relevance for Food Security. United States Agency for International Development, Washington D.C. p. 14.