



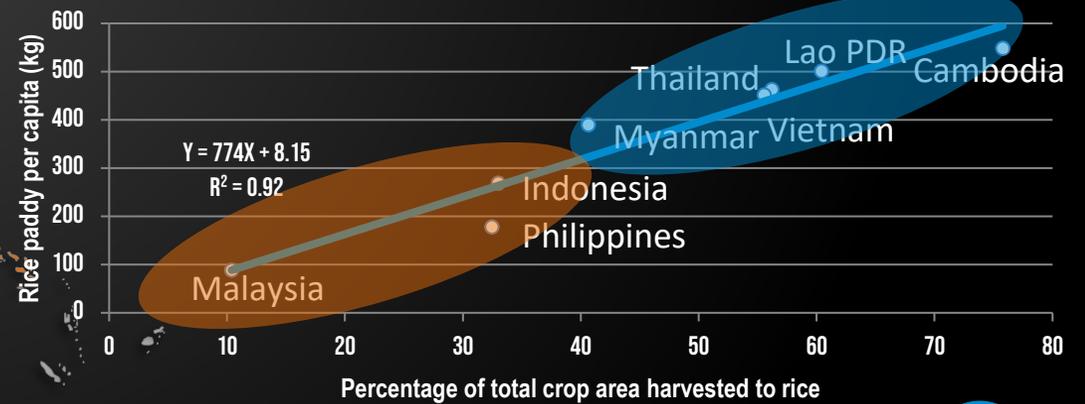
Upgrading rice value chains to increase competitiveness of domestic vis-à-vis imported rice in Africa

Matty Demont,
*CGIAR Flagship Leader “Upgrading Rice Value Chains”
International Rice Research Institute (IRRI), Los Baños, Philippines*

Global Context

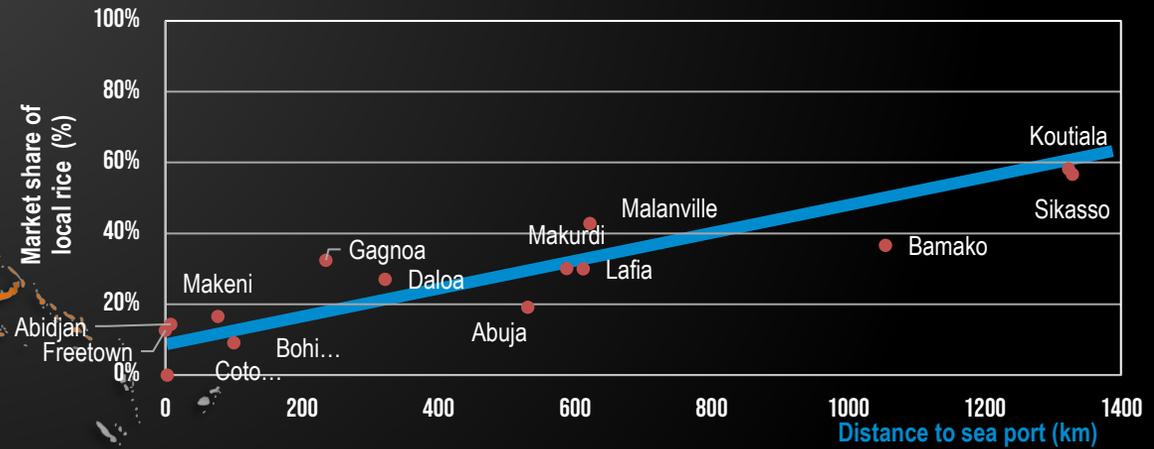
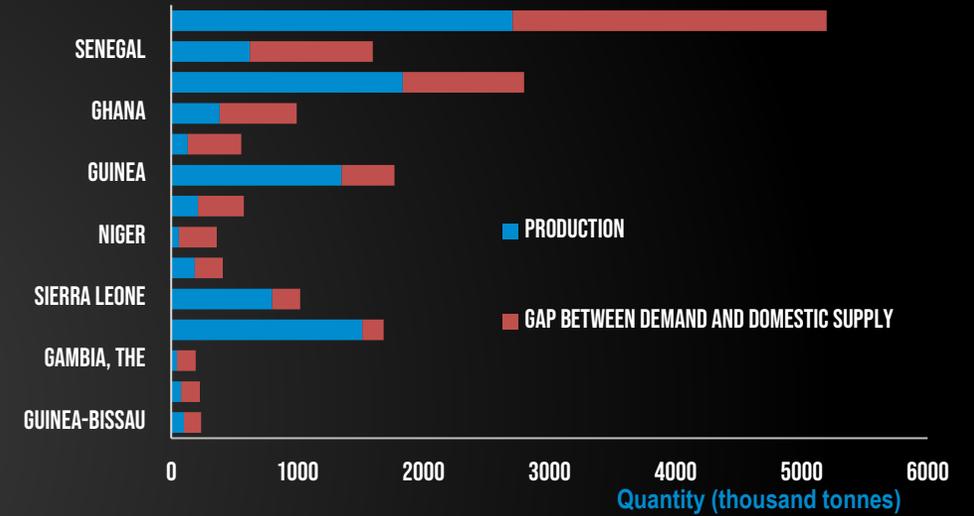
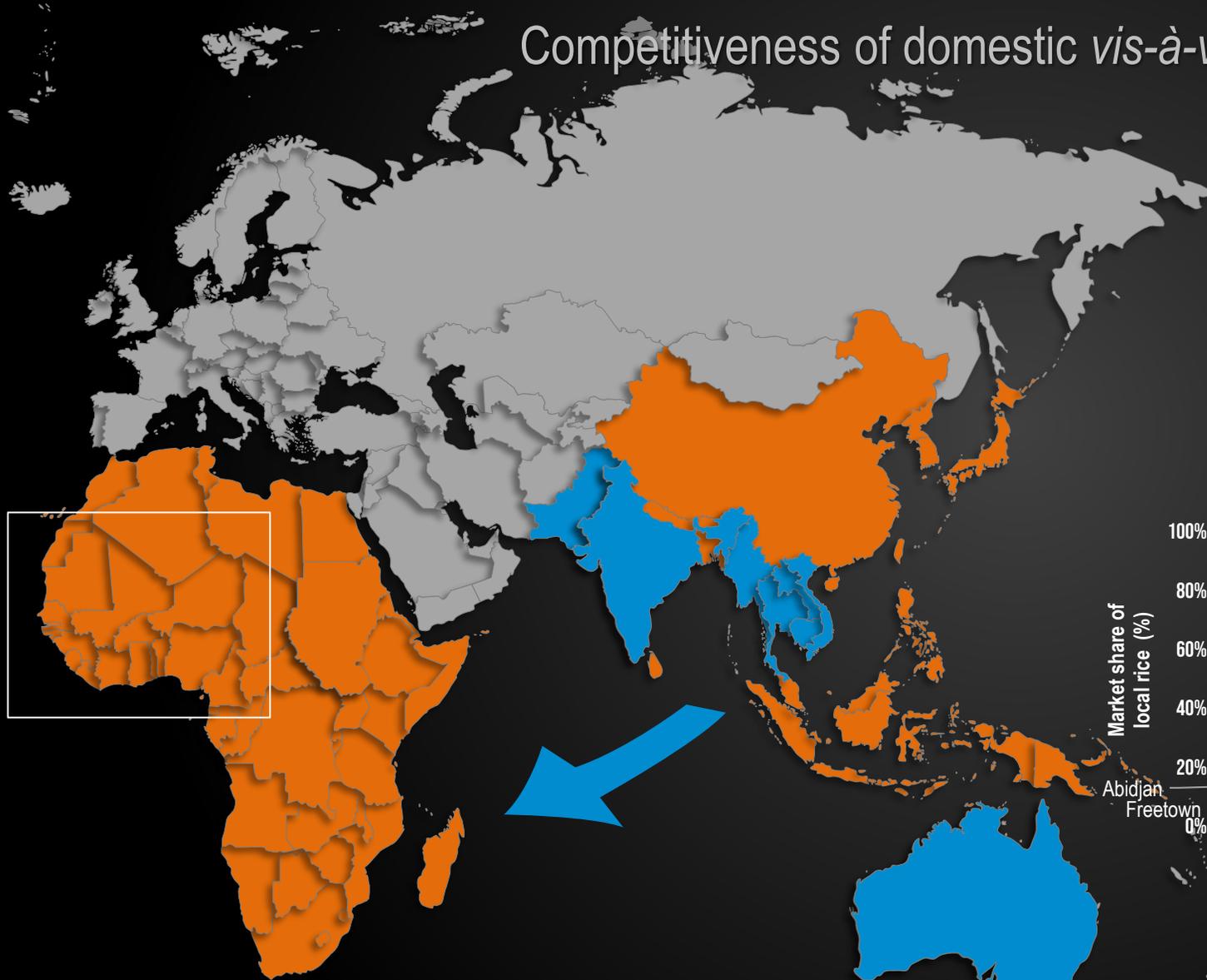


PHP/kg milled rice	Philippines	Indonesia	Thailand	Vietnam
Drying cost	0.26	0.62	0.33	0.52
Transport cost	2.09	2.22	1.08	1.76
Milling cost	1.38	1.22	0.89	0.93
Storage cost	0.19	0.40	0.20	0.23
Packaging cost	0.45	0.24	0.14	0.22
Cost of working capital	0.27	0.28	0.09	0.11
Total marketing cost	4.63	4.97	2.73	3.78
Returns above major cost	4.43	0.65	2.54	0.77
Gross marketing margins	9.06	5.61	5.27	4.55



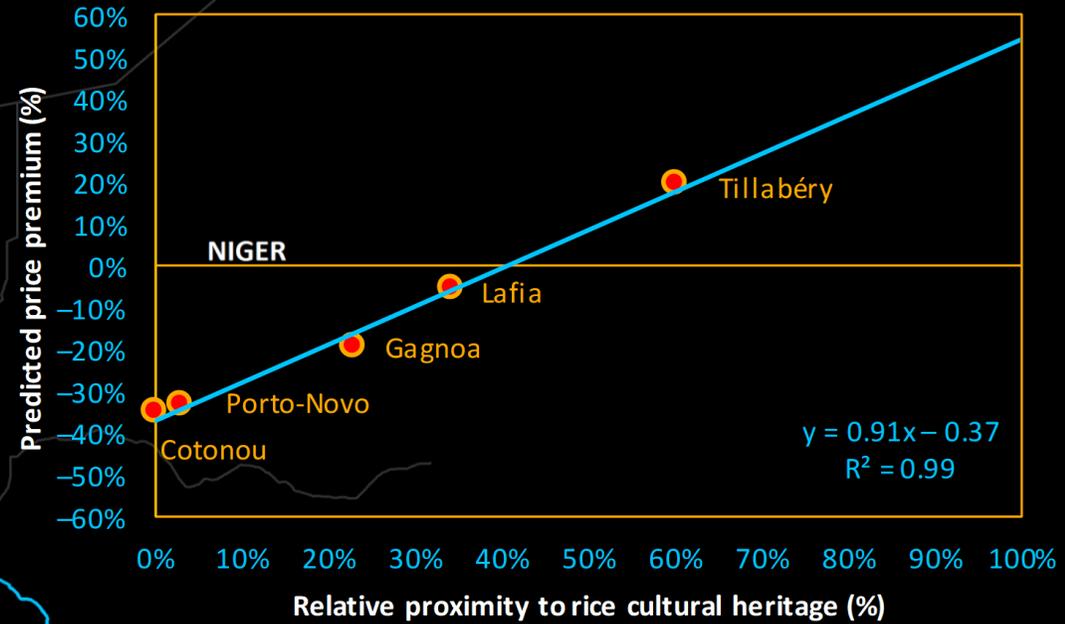
West Africa

Competitiveness of domestic *vis-à-vis* imported rice



West Africa

Comparative advantage in demand



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Comparative Advantage in Demand and the Development of Rice Value Chains in West Africa

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The boundaries are not authoritative and do not reflect any stance on the part of IRRI.

Segmentation



Group 1 countries

Coastal countries with dominant consumer preferences for imported rice

Examples: Mauritania , northern Senegal (Dakar, Senegal River Valley), Liberia, Côte d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon

Group 2 countries

Coastal countries with dominant consumer preferences for local rice thanks to cultural heritage (rice domestication along Niger river in West Africa and Indianization in East Africa)

Examples: Senegal (Casamance), The Gambia, Guinea, Sierra Leone, Tanzania, Mozambique, Kenya, Madagascar

Group 3 countries

Landlocked countries

Examples: Mali, Niger, Burkina Faso, Central African Republic, DR Congo, Ethiopia, Uganda, Rwanda, Zambia

National Rice Development Strategies

Policy Sequencing and the Development of Rice Value Chains in Senegal
 Matty Demont and Amy C. Rizzotto
 In response to the world food crisis in 2008, Senegal developed a producer national food self-sufficiency programme. However, the critical question is not whether the programme can meet its ambitious target of self-sufficiency in rice production by 2015, but, if at least, how will domestic rice reach urban markets, where consumers generally prefer imported rice for its superior grain quality. Information collected through interviews and a stakeholder workshop advances the argument that policy sequencing will be crucial in order to upgrade rice quality and to be preceded by investments in post-harvest grain quality before sector-wide marketing strategies can be adopted that chain competitiveness of domestic rice to imported rice.

Key words: Policy sequencing, food security, food quality, food investment, value chain, economic development, self-sufficiency, consumer, import substitution

1. Introduction
 Since independence in 1960, the demand for rice in Senegal has risen on average (Bassett et al., 2012). With a growing urban population and 1990s rice outlook, and a growing urban population, it is clear that rice is a key crop for Senegal. In 2011, rice consumption surpassed wheat to become the staple food. In 2011, rice consumption surpassed wheat to become the staple food. In 2011, rice consumption surpassed wheat to become the staple food.

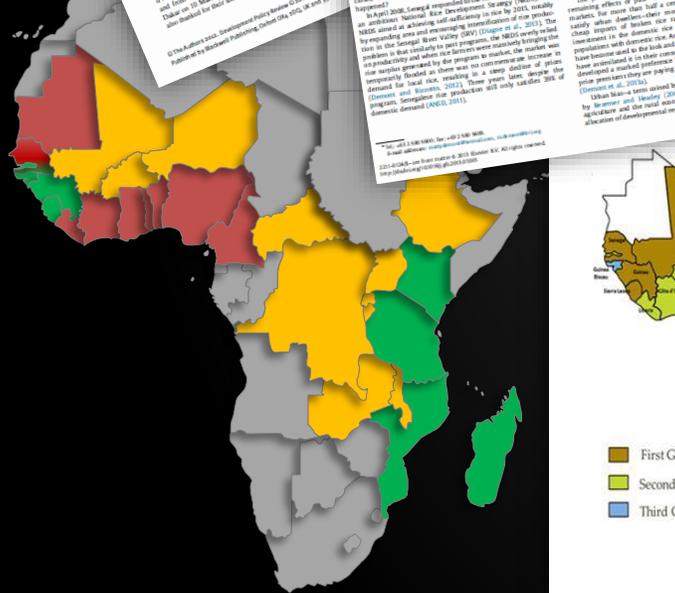
Table 1. Investment portfolios implemented by 19 African member countries of the CARD that have submitted national rice development strategies (NRDS)

Country	Total investment (10 ⁶ US\$ ^a)	Time horizon	Supply-shifting investments			Demand-lifting investments					Other ^c
			Area expansion, irrigation & infrastructure	R&D, extension, innovation, capacity building	Intensification, access to land, seed, credit, inputs, mechanization	Processing (milling, parboiling) & storage capacity	Quality upgrading, capacity building, governance	Branding, labeling, identity creation, certification	Value chain upgrading, MIS ^b , market infrastructure, linkages	Promotion, advertising, communication, awareness creation	
Group 1: Coastal countries characterized by dominant consumer preferences for imported rice											
Benin	x	2008-18	x	x	x	x	-	-	x	-	x
Cameroon	382	2008-18	33%	14%	36%	9%	-	-	1%	-	7%
Côte d'Ivoire	954	2012-16	16%	5%	63%	13%	-	x	2%	1%	x
Ghana	x	2008-18	x	x	x	x	x	x	x	-	x
Nigeria	x	2008-18	x	x	x	x	x	x	x	x	x
Senegal	348	2009-11	79%	1%	20%	-	-	-	-	-	x
Togo	x	2008-18	x	x	x	x	x	-	-	-	x
Group 2: Coastal countries characterized by dominant consumer preferences for local rice											
Guinea	1,300	2008-18	41%	1%	39%	x	x	x	x	-	20%
Kenya	x	2008-18	x	x	x	x	-	-	-	-	x
Madagascar	x	2008-18	x	x	x	-	-	-	x	-	x
Mozambique	357	2008-11	x	x	x	x	x	x	x	-	x
Sierra Leone	57	2009-18	73%	14%	x	x	-	-	10%	-	4%
Tanzania	x	2008-18	x	x	x	x	x	-	-	-	x
Group 3: Landlocked countries											
Burkina Faso	517	2008-18	54%	6%	20%	17%	-	-	-	-	3%
Ethiopia	x	2009-19	x	x	x	x	x	-	-	x	x
Mali	1,600	2008-18	49%	3%	48%	x	-	-	x	-	x
Rwanda	157	2011-18	39%	9%	15%	8%	1%	-	28%	-	1%
Uganda	x	2008-18	x	x	x	x	x	x	x	-	x
Zambia	x	2011-15	x	x	x	x	x	x	x	-	x

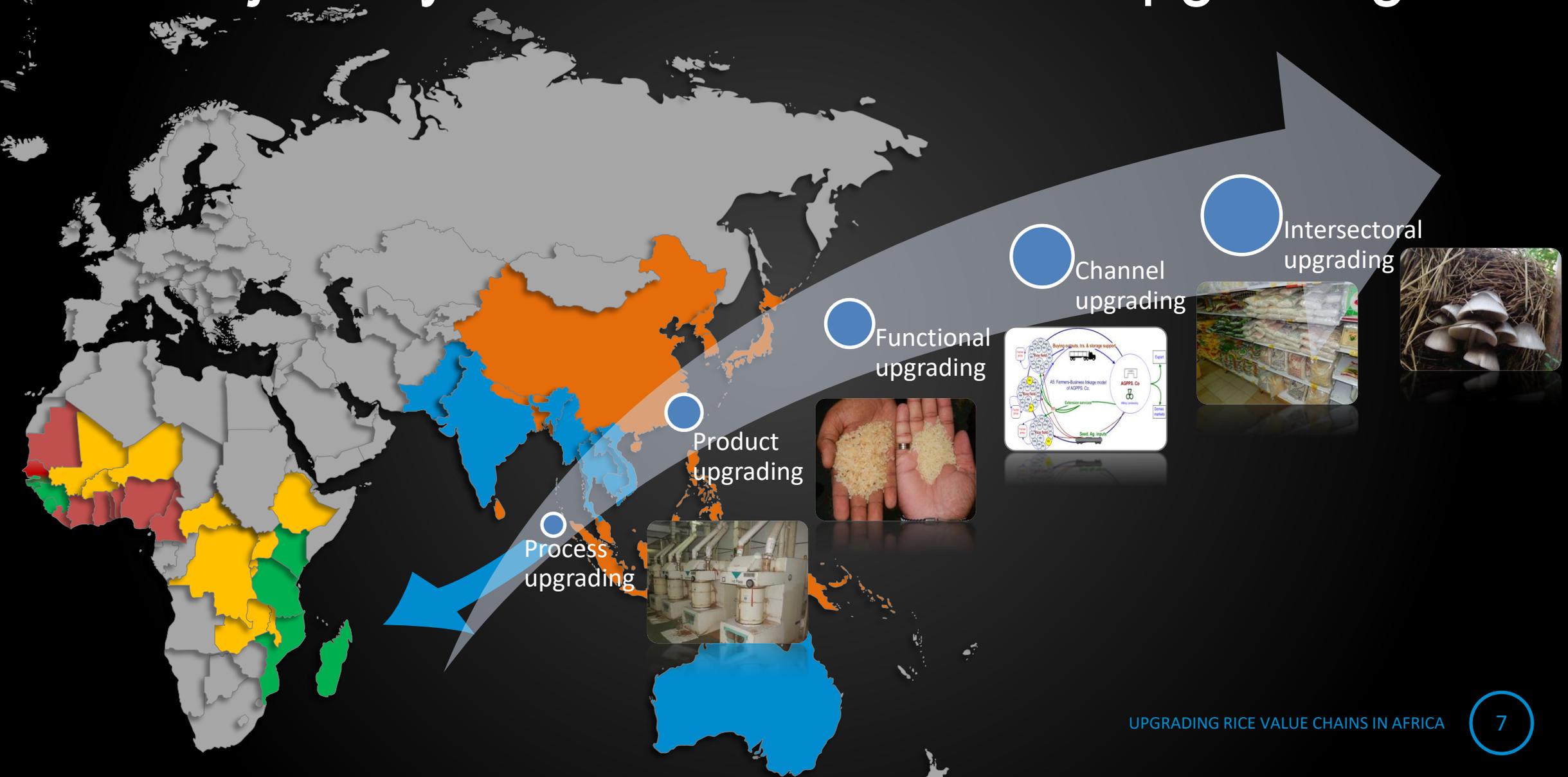
Notes: The symbol "x" indicates that the investment is planned, but no detailed budget has been provided in the NRDS document. A dash indicates that the investment is missing or not convincingly elaborated in the NRDS document. In some cases, the investment shares may not add up to 100% due to rounding.

Sources: NRDS documents published on the CARD (2012) web portal

- First Gro
- Second Group Countries
- Third Group Countries



Trajectory of Rice Value Chain Upgrading



Market Experiments

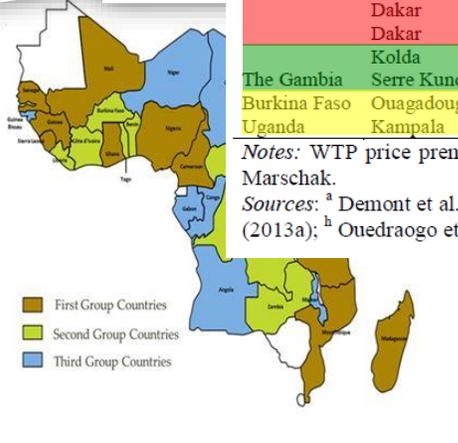
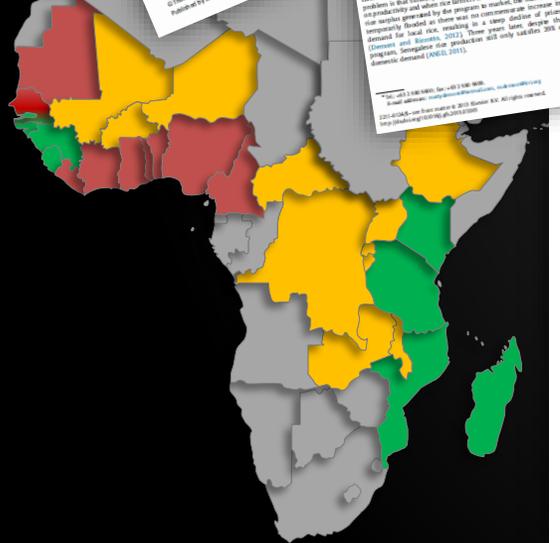
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Reversing urban bias in African rice markets: A review of 19 National Rice Development Strategies
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Upgrading rice value chains: Experimental evidence from 11 African markets
 Matty Demont^{a,*}, Maimouna Ndour^b
^a International Rice Research Institute (IRRI), Los Baños, Laguna, Philippines
^b African Rice Center (AfricaRice), Senegal, Senegal

Table 1
 Consumers' willingness to upgrade (WTU) standard rice to rice with superior intrinsic and extrinsic quality attributes and relative price premiums (WTP) they are willing to pay for these attributes in 11 African cities.



Country	City	Year	Methodology	Sample size	Origin	Type	Willingness to upgrade (WTU)				Willingness to pay (WTP)				Source	
							Intrinsic Variety	Extrinsic Processing	Extrinsic Label	Extrinsic Info	Intrinsic Variety	Extrinsic Processing	Extrinsic Label	Extrinsic Info		
Benin	Glazoué	2009	Vickrey	100	Local	Parboiled	85–98%								a	
	Cotonou	2011	Vickrey	135	Local	Parboiled	95%			0–2%			14–30%	16%	4–8%	b
	Malanville	2011	Vickrey	135	Local	Parboiled	87%			7–17%			18%		6–13%	b
Cameroon	Yaoundé	2012	Vickrey	120	Local	Mixed	75–89%						17–39%			c
Mauritania	Nouakchott	2009	Vickrey	50	Local	Mixed	32–54%	6%					34–38%	4%		c
	Nouakchott	2009	Vickrey	50	Import	100%B	62–81%	–6%					25–26%	2%		c
Senegal	Saint-Louis	2008	Vickrey	99	Local	Mixed	47–75%	–2%					43–47%	6%		d
	Saint-Louis	2012	BDM	121	Local	F100%B								17%		e
	Dakar	2009	Vickrey	100	Local	Mixed	27–73%	5%					32–40%	4%		f
	Dakar	2011	Vickrey	120	Import	100%B	58–63%					36–44%				c
	Dakar	2012	BDM	120	Local	F100%B								16%		f
The Gambia	Kolda	2012	Vickrey	120	Import	100%B	86–88%						22–35%			g
	Serre Kunda	2010	Vickrey	100	Import	100%B	54–67%		14%				32–33%	2%		e
Burkina Faso	Ouagadougou	2012	Vickrey	120	Import	5%B	52%	12–19%				25%	2–11%			h
Uganda	Kampala	2011	Vickrey	120	Local	Mixed	67–83%						22–35%			c

Notes: WTP price premiums are averaged over auction rounds and expressed relative to the price of standard rice. B = broken; F = fragrant; BDM = Becker-DeGroot-Marschak.
 Sources: ^a Demont et al. (2012); ^b Zossou et al. (2013); ^c Unpublished dataset; ^d Demont et al. (2013c); ^e Costello et al. (2013); ^f Demont et al. (2013b; 2013c); ^g Demont et al. (2013a); ^h Ouedraogo et al. (2013).

Market Experiments

+ opportunities - challenges

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Key words: Policy sequencing, food security, food quality, food investment, value chain, economic development, self-sufficiency, consumer, import substitution

1 Introduction
 Since independence in 1960, the demand for rice in Senegal has risen on average (Bassett et al., 2012). With a growing urban population, rice consumption has increased from 1.2 million metric tons in 1960 to 2.5 million metric tons in 2010. The average per capita rice consumption is 100 kg per year. The average per capita rice consumption is 100 kg per year. The average per capita rice consumption is 100 kg per year.

Global Food Security
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^aInternational Rice Research Institute (IRRI), Metro Manila, Philippines
^bParadise, Paradise, Berlin
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1. INTRODUCTION
 West Africa is currently witnessing rapid growth in rice consumption due to population growth, urbanization, and rising per capita income. In the region, rice has become a highly strategic commodity. In the region, rice has become a highly strategic commodity. In the region, rice has become a highly strategic commodity.

TABLE 6
FACTORS DETERMINING CONSUMERS' REVEALED PRICE PREMIUMS FOR UPGRADED DOMESTIC RICE RELATIVE TO IMPORTED RICE, AND STATED DEMAND FOR DOMESTIC RICE ON FIVE WEST AFRICAN URBAN MARKETS

Variable	Revealed price premium	Propensity of buying		Stated demand	
		Coefficient	Partial effect	Coefficient	Quantity demanded
Morning	-0.021 (0.019)	-0.078 (0.210)	-0.005	-1.969 (4.700)	-0.949
Taste premium local rice	0.281 (0.076)***	0.181 (0.926)	0.012	7.870 (18.449)	3.792
Taste premium imported rice	-0.351 (0.045)***	-1.037 (0.399)***	-0.067**	-18.822 (12.383)	-9.069
WOM premium local rice	0.470 (0.064)***	0.188 (0.700)	0.012	11.532 (15.243)	5.556
WOM premium imported rice	-0.489 (0.032)***	-0.286 (0.264)	-0.019	-3.478 (9.417)	-1.676
Distance to port (100 km)	0.042 (0.002)***	0.076 (0.033)**	0.005**	1.952 (0.703)***	0.941***
Distance to center of origin (100 km)	-0.014 (0.004)***	-0.126 (0.065)*	-0.008*	-13.495 (1.530)***	-6.502***
Mandé	0.159 (0.049)***	n.a. ^a	n.a. ^a	24.206 (9.513)***	11.663**
Female	-0.088 (0.021)***	-0.195 (0.242)	-0.013	-20.011 (5.563)***	-9.642***
Formal education	0.007 (0.024)	0.162 (0.247)	0.010	7.663 (6.015)	3.692
Age	0.000 (0.001)	-0.001 (0.011)	-0.000	0.155 (0.234)	0.075
Income per capita	0.000 (0.000)	0.000 (0.000)	0.000	0.001 (0.002)	0.000
Household size	0.000 (0.001)	-0.007 (0.012)	-0.000	-3.855 (0.572)***	-1.858***
Cleanliness	-0.040 (0.020)**	0.251 (0.244)	0.016	-10.086 (5.073)**	-4.860**
Whiteness	-0.018 (0.021)	0.336 (0.236)	0.022	-5.672 (4.972)	-2.733
Head rice recovery	-0.050 (0.027)*	-0.215 (0.264)	-0.014	-2.441 (8.472)	-1.176
Slenderness	-0.049 (0.021)**	-0.488 (0.229)**	-0.032**	0.612 (5.317)	0.295
Unstickiness	-0.013 (0.022)	-0.213 (0.245)	-0.014	1.019 (5.688)	0.491
Taste	-0.015 (0.022)	0.253 (0.232)	0.016	-1.358 (5.501)	-0.654
Aroma	-0.014 (0.020)	-0.084 (0.222)	-0.005	3.969 (5.259)	1.912
Softness	-0.080 (0.025)***	-0.112 (0.264)	-0.007	-3.327 (7.589)	-1.603
Swelling capacity	-0.075 (0.027)***	-0.536 (0.312)*	-0.035*	-8.143 (6.451)	-3.924
Other attributes ^b	-0.105 (0.031)***	-0.518 (0.293)*	-0.034*	-37.030 (10.425)***	-17.842***
Constant	-0.086 (0.069)	3.159 (0.980)***	-	184.069 (19.393)***	-
Number of observations	693	686	686	662	662
R ² and pseudo R ²	0.564	0.178	-	-	-
Sigma (error variance)	-	-	-	41.499 (2.162)***	-

■ First Group Countries
 ■ Second Group Countries
 ■ Third Group Countries

Segmented Policy Strategy

Policy sequencing and investment priorities

Group 1 countries

1. Product (undifferentiation), process & channel upgrading
2. Productivity upgrading
3. Demand-lifting (differentiation): branding & promotion

Group 2 countries

1. Productivity upgrading
2. Product (differentiation), process & channel upgrading
3. Export markets

Group 3 countries

1. Productivity upgrading
2. Product, process & channel upgrading
3. Upgrading internal marketing infrastructure
4. Regional value chain approach

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Key words: Policy sequencing, food security, food quality, food investment, value chain, economic development, self-sufficiency, consumer, import substitution

1. Introduction
 Since independence in 1960, the demand for rice in Senegal has risen on average (Bassett et al., 2012). With a growing urban population and 1990s rice outlook, it is necessary to pursue a strategy that seeks to increase productivity in rice production during 2010-2020. In 2011, rice consumption surpassed 1 million tonnes (FAO, 2011). The domestic supply is insufficient to fulfill the demand of 92 kg per capita consumption.

2. Introduction
 In May 2008, world rice prices spiked, leading to a global food crisis. In Senegal, the government responded by increasing rice production. However, in subsequent years, the international market has remained volatile. In April 2010, the world rice price spiked again, leading to a second global food crisis. In Senegal, the government responded by increasing rice production. However, in subsequent years, the international market has remained volatile. In April 2010, the world rice price spiked again, leading to a second global food crisis. In Senegal, the government responded by increasing rice production. However, in subsequent years, the international market has remained volatile.

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1. Introduction
 West Africa is currently witnessing rapid growth in rice production due to population growth, urbanisation, and rising income levels. However, the demand for rice is not only increasing in quantity but also in quality. This has led to a shift in consumer preferences towards higher quality rice varieties. This paper examines the comparative advantage in demand and the development of rice value chains in West Africa. It argues that the development of rice value chains in West Africa is not only a matter of increasing production but also of improving the quality of the rice and the services provided to consumers. This paper examines the comparative advantage in demand and the development of rice value chains in West Africa. It argues that the development of rice value chains in West Africa is not only a matter of increasing production but also of improving the quality of the rice and the services provided to consumers.



■ First Group Countries
 ■ Second Group Countries
 ■ Third Group Countries

State of rice value chain upgrading in 15 countries in West Africa, 2009–2019

Country	Number of investments in industrial and semi-industrial mills that were operational in 2019	Aggregate upgraded milling capacity (t/h)	Origin of investments	Vertical coordination		Import exposure		Average annual rice supply 2009–2018 (10 ³ tons)
				Contract farming (producers)	Vertical integration (ha)	Natural import barriers	2008 import bill (10 ⁶ US\$)	
Nigeria ①	24 industrial mills	177	FDI, DPI	>3,000	>20,400	None	772	3,512
Senegal	15 industrial & semi-industrial mills	60	FDI, DPI	3,500	3,590	None	645	438
Ghana ②	1 industrial mill 3 semi-industrial mills	26	FDI, DPI	4,000	750	None	216	333
Mali	4 industrial mills 2 industrial mills 1 semi-industrial mill	20	FDI, DPI	n.a.	2,200	Physical & cultural	66	1,360
Côte d'Ivoire	1 semi-industrial mill	15	PI, DPI	(experimental)	–	Cultural	472	1,024
Burkina Faso	1 industrial mill 1 semi-industrial mill	7	DPI	140	–	Physical	56	194
Liberia	2 semi-industrial mills	4	DPI, PI	–	–	None	75	174
Niger	2 semi-industrial mills	4	PI	–	–	Physical	126	194
Sierra Leone	1 semi-industrial mill	2	DPI	–	1,300	Cultural	85	668
Benin	17 ESOP	–	DPI	140	–	None	185	132
Togo	15 ESOP	–	DPI	>100	–	None	9.3	86
Guinea ③	–	–	–	–	–	Cultural	153	1,248
Mauritania	–	–	–	–	–	None	77	119
Gambia	–	–	–	–	–	Cultural	28	36
Guinea-Bissau	–	–	–	–	–	Cultural	10	107

OUTCOME INDICATORS

DRIVERS

Drivers of investment

Table 4
Determinants of aggregate upgraded milling capacity in 15 countries in West Africa (stepwise linear regression).

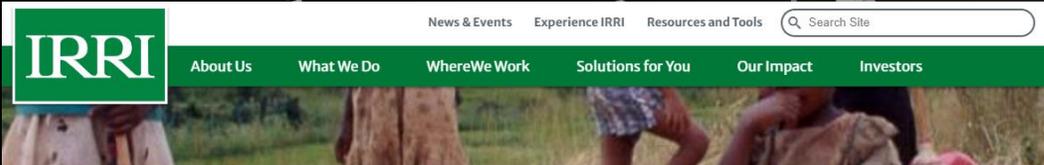
Variable	Coefficient	SE	P-value
2008 import bill (10 ⁶ USD)	0.061	0.026	0.042**
Average annual milled rice production (2009–2019, 10 ³ tons)	0.032	0.006	0.000***
Cultural import barriers (dummy)	-24.168	8.992	0.021**
Constant	-2.773	6.792	0.691

Notes: Sample size = 15; $R^2 = 0.910$; Adjusted $R^2 = 0.886$; SE: standard error. Cultural and physical import barriers are captured through dummies. Variance inflation factors (VIF) are in the range of 1.20–2.29 with a mean VIF of 1.90. A Breusch-Pagan/Cook-Weisberg test for heteroscedasticity generates a P-value of 0.774. Significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Source: Data compiled in Table 2.

- We captured heterogeneity in investment in rice value chain upgrading among 15 West African countries through the following outcome indicator: **aggregate milling capacity** of upgraded industrial and semi-industrial mills (t/h) (total in West Africa = 315 t/h)
- Heterogeneity in upgrading can be explained for **89%** through two drivers and an enabling factor:
 - **Driver 1 = Supply:** Average annual paddy supply (2009–2018): One million ton more of milled rice availability increases upgraded milling capacity by 32 t/h; **PRICE/COST COMPETITIVENESS**
 - **Driver 2 = Demand:** 2008 import bill: A 100 million US\$ higher import bill increases upgraded milling capacity by 6 t/h; **QUALITY COMPETITIVENESS**
 - **Enabling factor = limited comparative advantage in demand:** Geographical or genealogical proximity to rice cultural heritage preserves indigenous preferences for local rice and decreases upgraded milling capacity by 23 t/h; **CULTURAL COMPETITIVENESS**
 - **Landlockedness:** No significant effect

COVID-19: Support the “Hidden Middle”



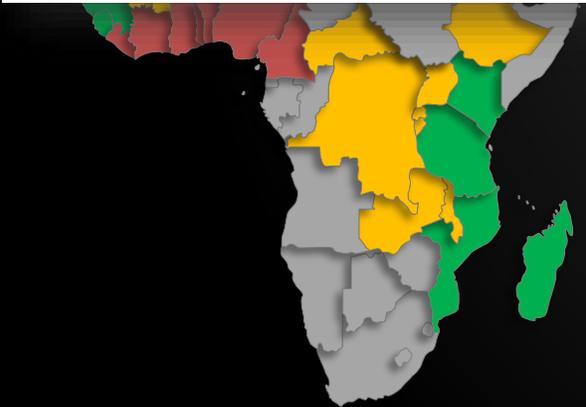
COVID-19 and food security | Limiting the impact of the crisis on rice value chains in West Africa

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JOINT PRESS RELEASE
30 July 2020

Rice plays a strategic role in food security in West Africa, but the region increasingly relies on imports, and local value chains face constraints in terms of technology, finance and coordination. In an article published in *Global Food Security*, scientists from CIRAD, AfricaRice, and the International Rice Research Institute (IRRI) propose different policy options to reduce the impacts of the COVID-19 pandemic on rice value chains in West Africa. To increase the resilience of local value chains, policymakers need to focus on supporting millers, especially by facilitating their access to credit.



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Policy options for mitigating impacts of COVID-19 on domestic rice value chains and food security in West Africa

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ABSTRACT

Rice plays a strategic role in food security in West Africa. However, the region increasingly relies on rice imports due to a growing and structural deficit, and domestic value chains face constraints in technology, finance and coordination. As a result, West Africa is very vulnerable to international and local trade disruptions, such as the ones currently inflicted by the COVID-19 pandemic. We build on evidence of the current state of domestic rice value chains upgrading in West Africa to anticipate the impacts of the COVID-19 pandemic on rice value chains' resilience and their capacity to sustain food security in the region. Several policy options are proposed to help West African governments mitigate the impacts of the COVID-19 crisis on food security.

1. Context

Food insecurity remains prevalent in West Africa. During 2009–2018, the number of undernourished people in the region almost doubled from 32 to 56 million or 15% of the West African population, while globally, it decreased from 842 to 822 million (FAO et al., 2019). Rice increasingly plays a strategic role in food security in West Africa, where annual per capita consumption levels rose five-fold in the last six decades and are currently the highest on the continent. Production increased during the same period (USDA, 2019), but as a result of rapid demographic growth (2.7% annually) and diet changes, the region increasingly relies on rice imports (Mendez del Villar and Languet, 2015). This renders West Africa very vulnerable to international trade disruptions such as the ones currently inflicted by the corona virus disease (COVID-19) crisis. A prolonged pandemic can cause price increases due to disruptions in distribution chains and trade flows. World rice prices have been continuously increasing over the 12-month period March 2019–March 2020, featuring a step upward sloping trend since the outbreak of the COVID-19 pandemic in December 2019 (Fig. 1). In May 2020, this upward slope was interrupted for the first time, but it is uncertain at this point how rice prices will evolve from here onwards as a second wave of the pandemic is not excluded.

The increase in rice imports in West Africa is partly due to the low quality of locally produced rice which is largely supplied by fragmented, traditional value chains with little coordination between farmers, millers and traders. Sourcing paddy is mostly done through spot market transactions with little quality differentiation. As a result, domestic rice is often an inferior substitute for imports and domestic and global rice markets are poorly integrated (Demont, 2013). Apart from higher quality standards and lower variability and heterogeneity in rice quality, import value chains have other competitive advantages such as their superior dynamism and capitalization, thanks to better access to finance (Mendez del Villar and Languet, 2015). Consequently, when rice prices spike on the world market, domestic rice value chains fail to rapidly respond and compete against import value chains.

Farmed field experiments have revealed that local rice struggles to compete with imports even if its quality is upgraded to import standards (Demont et al., 2017). To meet these quality standards and satisfy urban consumers, rice value chains require substantial investment in modernization through process, product, functional (e.g., vertical coordination such as contract farming or vertical integration) and channel upgrading (e.g., expanding domestic value chains into import-biased urban markets) (Demont, 2013). Integration of domestic rice in import channels (wholesale and retail) is however challenging (Mendez del

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- Policy options developed for rice value chain upgrading and increasing resilience of rice value chains to COVID-19 pandemic in West Africa
- Key message: support the “Hidden Middle” between production and consumption in rice value chains
- Provide financial support to rice millers as crucial intermediaries in providing food security in West Africa
- World Trade Organization published our policy brief in *Trade for Development News*

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Mitigating the impacts of COVID-19 on domestic rice value chains and food security in West Africa

by Aminou Arouna, Guillaume Soullier, Patricio Mendez del Villar and Matty Demont / in Op-ed

8 Policy Lessons for NRDS 2.0

1. West African rice has increasing difficulties **competing** against imported rice
 - The more urban consumers value characteristics of **imported** Asian rice
 - The **larger** the household it needs to feed
 - The more rice shopping is undertaken by **women**
 - The closer to the **port**
 - The further the geographical and genealogical distance from rice **cultural heritage**
2. **Import-biased** coastal countries with a seaport close to a major consumption zone (capital) and remote from rice cultural heritage need to allocate more resources to rice value chain upgrading to:
 - Increase **quality-based competitiveness** of domestic rice relative to imported rice
 - Better integrate domestic rice markets into **global markets** with more elastic demand, increase smallholders' participation & improve livelihoods
3. There is substantial evidence of **investment** in rice VC upgrading in import-biased coastal countries with a seaport close to a major consumption zone and remote from rice cultural heritage, e.g., upgrading most dynamic in **Nigeria** and **Senegal**
4. Less evidence of investment in rice VC upgrading in coastal countries with **comparative advantage in demand** and landlocked countries
5. In those countries, in medium-long run, investment will be required to **maintain** comparative advantage in demand
6. Policy makers need to find an optimal mix between encouraging productivity, demand and value chain upgrading to foster **crowding-in of private investment** (e.g., FDI)
7. During COVID-19, policy makers need to support the **"hidden middle," i.e. rice millers** as crucial intermediaries in providing food security in West Africa
8. In the long run, policy makers need to enable crowding-in of investments that build **resilience** of rice value chains against future pandemics/climate change

Further Reading

1. Arouna *et al.* 2021. Moving toward rice self-sufficiency in sub-Saharan Africa by 2030: Lessons learned from 10 years of the Coalition for African Rice Development, *World Development Perspectives*, 21:100291.
2. Arouna *et al.* 2020. Policy options for mitigating impacts of COVID-19 on domestic rice value chains and food security in West Africa. *Global Food Security*, 26:100405.
3. Britwum *et al.* 2020. Confronting genetic gains with markets: Retrospective lessons from New Rice for Africa (NERICA) in Uganda. *Outlook on Agriculture*, 49(4):298–310.
4. Soullier *et al.* 2020. The state of rice value chain upgrading in West Africa. *Global Food Security*, 25:100365.
5. Soullier *et al.* 2019. The modernization of the rice value chain in Senegal: A move toward the Asian Quiet Revolution? *Development Policy Review*, 12459.
6. Soullier *et al.* 2018. Impacts of contract farming in domestic grain chains on farmer income and food insecurity. Contrasted evidence from Senegal. *Food Policy*, 79:179–198.
7. Fiamohe *et al.* 2018. How can West African rice compete in urban markets? A demand perspective for policy makers. *EuroChoices*, 17(2):51–57.
8. Diagne *et al.* 2017. What is the value of rice fragrance? Consumer evidence from Senegal. *African Journal of Agricultural and Resource Economics*, 12(2):99–110.
9. Demont *et al.* 2017. Comparative advantage in demand and the development of rice value chains in West Africa. *World Development*, 96:578–590.
10. Akoa Etoa *et al.* 2016. Consumer valuation of an improved rice parboiling technology: Experimental evidence from Cameroon. *African Journal of Agricultural and Resource Economics*, 11(1):8–21.
11. Demont *et al.* 2015. Upgrading rice value chains: Experimental evidence from 11 African markets. *Global Food Security*, 5:70–76.
12. Fiamohe *et al.* 2015. Assessing the effect of consumer purchasing criteria for types of rice in Togo: a choice modeling approach. *Agribusiness*, 31(3):433–452.
13. Mendez del Villar *et al.* 2015. West African rice development: beyond protectionism versus liberalization? *Global Food Security*, 5:56–61.
14. Naseem *et al.* 2013. Economic analysis of consumer choices based on rice attributes in the food markets of West Africa—the case of Benin. *Food Security*, 5:575–589.
15. Demont *et al.* 2013. Can local African rice be competitive? An analysis of quality-based competitiveness through experimental auctions. In French [Le riz africain peut-il être compétitif? Une analyse de la compétitivité-qualité par la méthode des enchères expérimentales] *Cahiers Agricultures*, 22(5):345–352.
16. Demont. 2013. Reversing urban bias in African rice markets: A review of 19 National Rice Development Strategies. *Global Food Security*, 2(3):172–181.
17. Demont *et al.* 2013. Reversing urban bias in African rice markets: Evidence from Senegal. *World Development*, 45:63–74.
18. Demont *et al.* 2013. Experimental auctions, collective induction and choice shift: Willingness-to-pay for rice quality in Senegal. *European Review of Agricultural Economics*, 40(2):261–286.
19. Demont *et al.* 2012. Policy sequencing and the development of rice value chains in Senegal. *Development Policy Review*, 30(4):451–472.
20. Demont *et al.* 2012. Consumer valuation of improved rice parboiling technologies in Benin. *Food Quality and Preference*, 23(1):63–70.

Value of rice production in US\$/ha (Nelson, 2010)



Thank you!
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