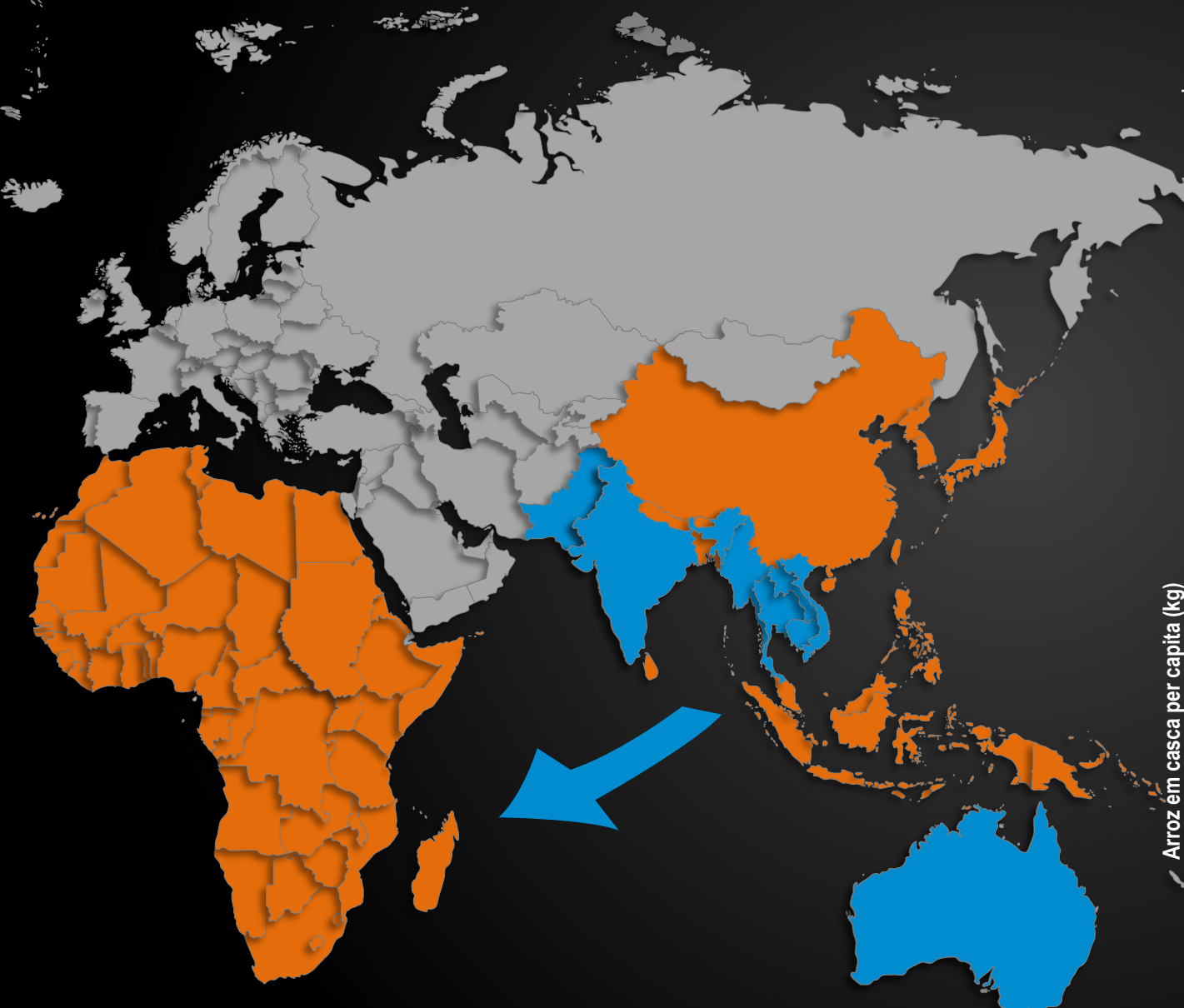


# Modernização das cadeias de valor do arroz para melhorar a competitividade do arroz nacional em relação ao arroz importado em África

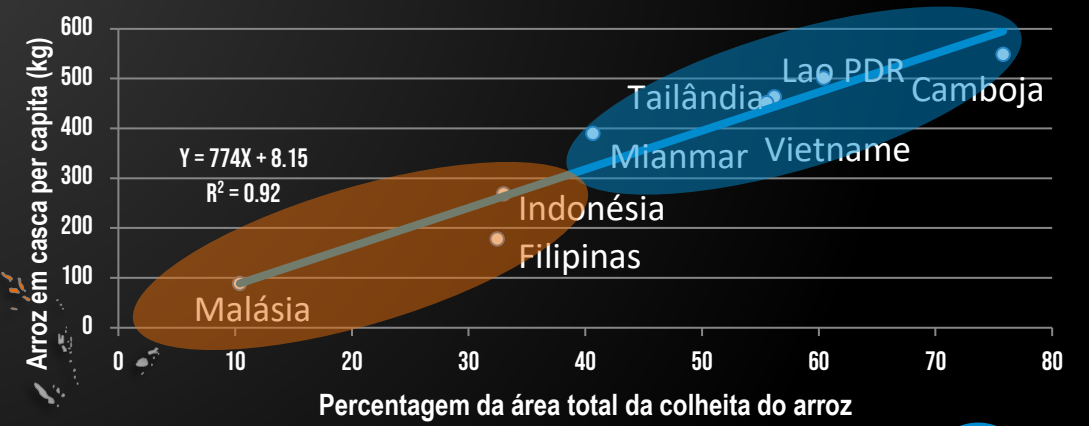
Matty Demont,

*Líder Emblemático do CGIAR "Modernização das Cadeias de Valor do Arroz".  
Instituto Internacional de Pesquisa do Arroz (IRRI), Los Baños, Filipinas*

# Contexto Global

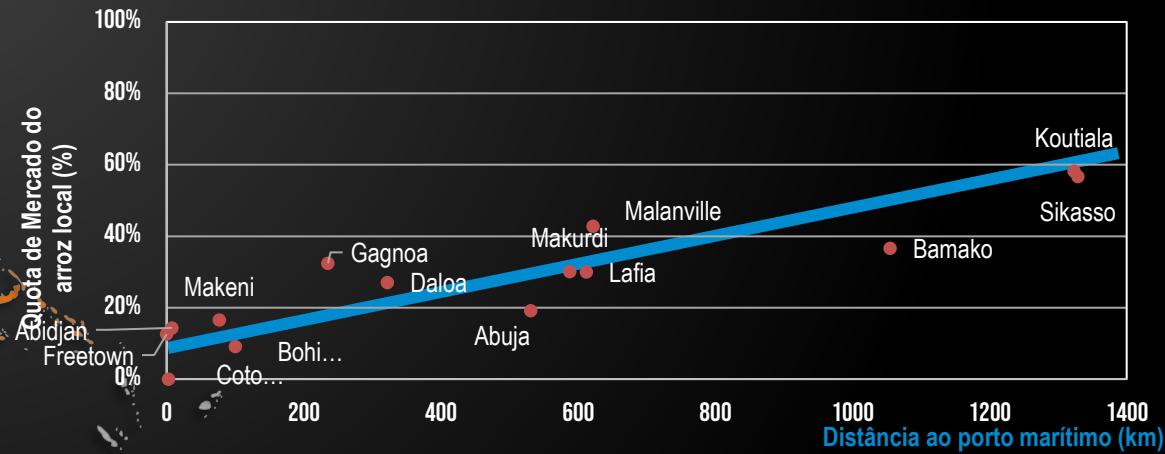
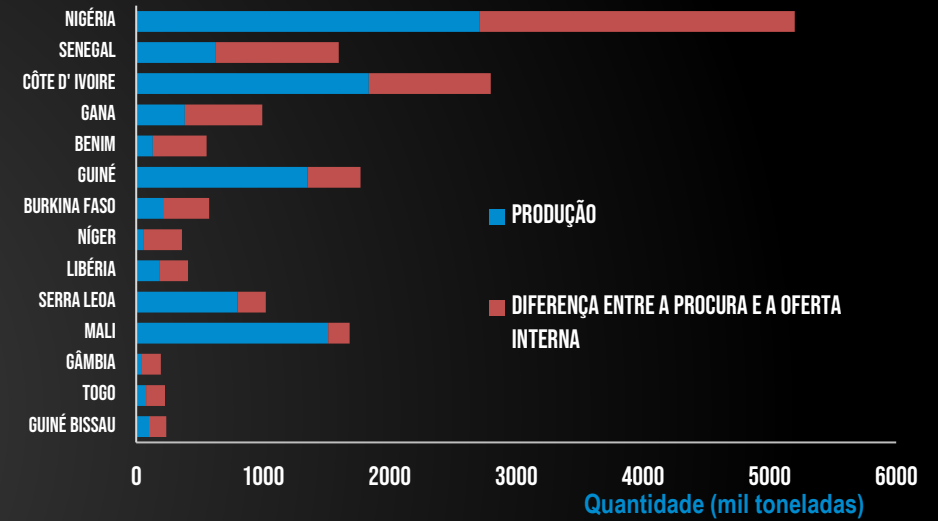


PHP/kg de arroz processado	Filipinas	Indonésia	Tailândia	Vietname
Custo de secagem	0,26	0,62	0,33	0,52
Custos de transporte	2,09	2,22	1,08	1,76
Custo de descasque	1,38	1,22	0,89	0,93
Custo de armazenamento	0,19	0,40	0,20	0,23
Custo de embalagem	0,45	0,24	0,14	0,22
Custo do capital de produção	0,27	0,28	0,09	0,11
Custo total de comercialização	4,63	4,97	2,73	3,78
Retornos acima do custo principal	4,43	0,65	2,54	0,77
Margens de comercialização brutas	9,06	5,61	5,27	4,55



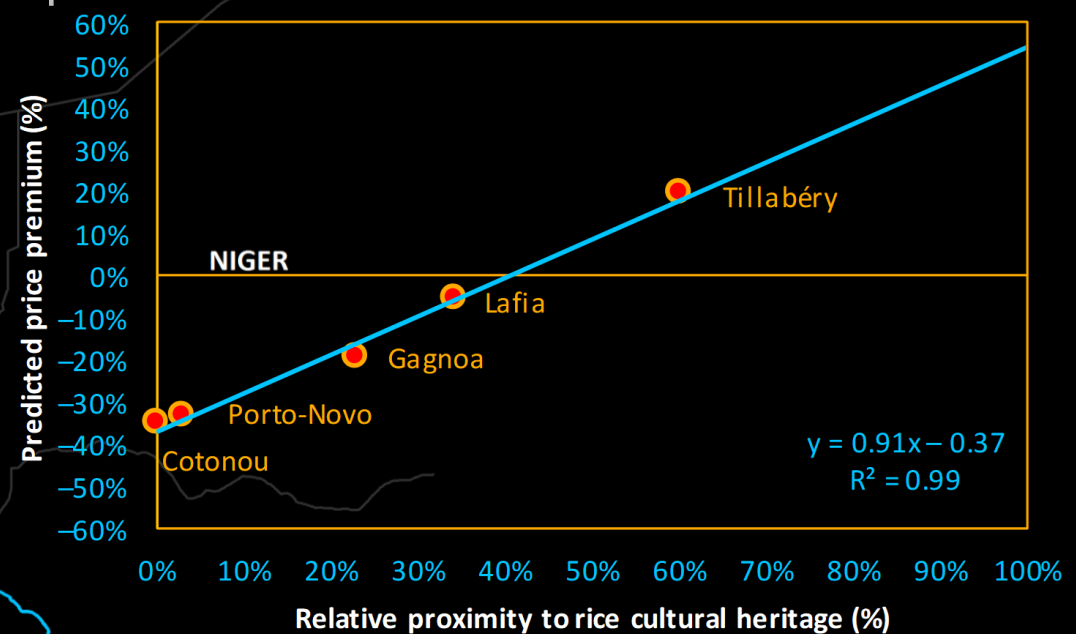
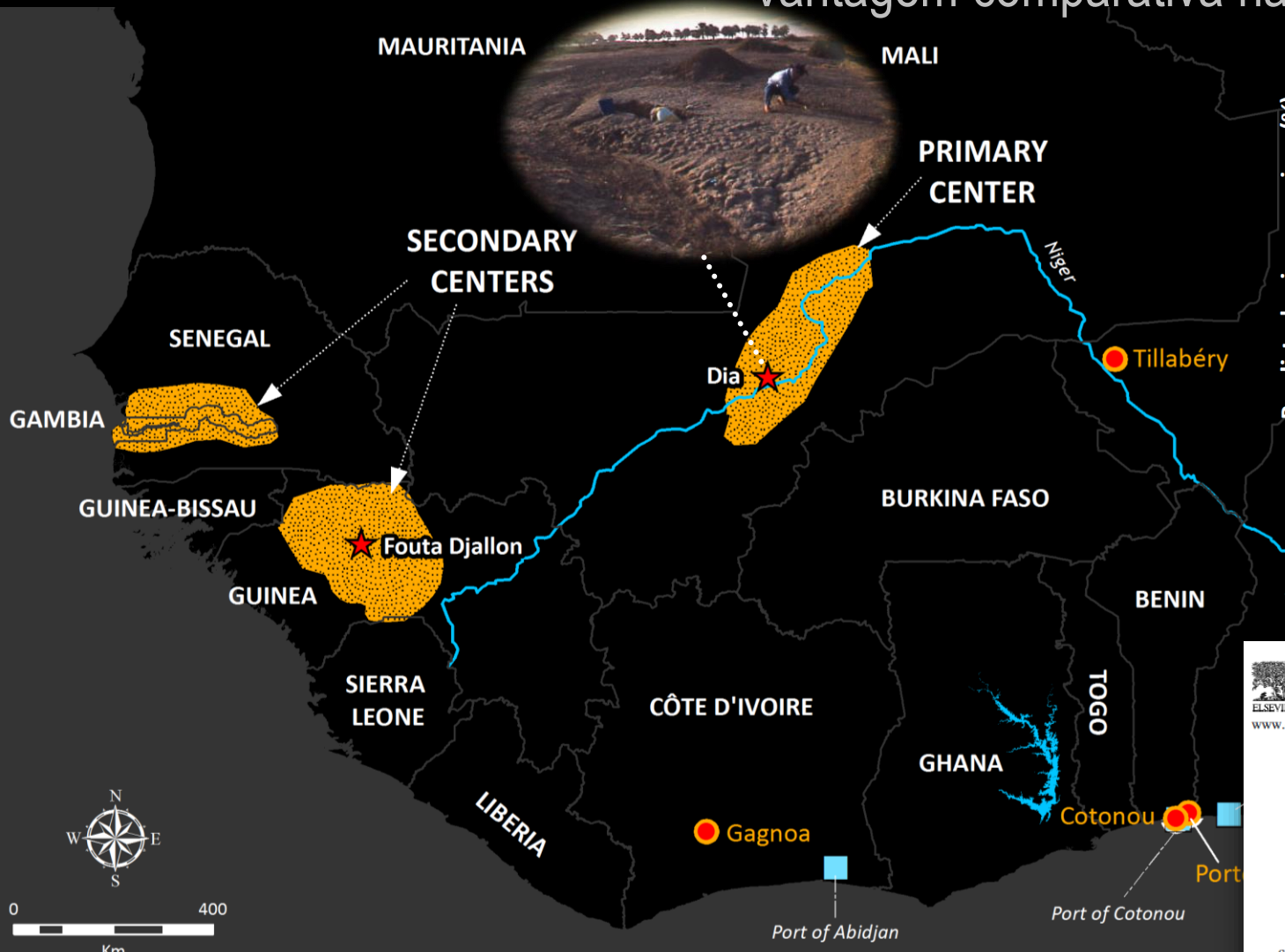
# África Ocidental

Competitividade do arroz nacional em relação ao arroz importado



# África Ocidental

Vantagem comparativa na procura



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World Development Vol. 96, pp. 578–590, 2017  
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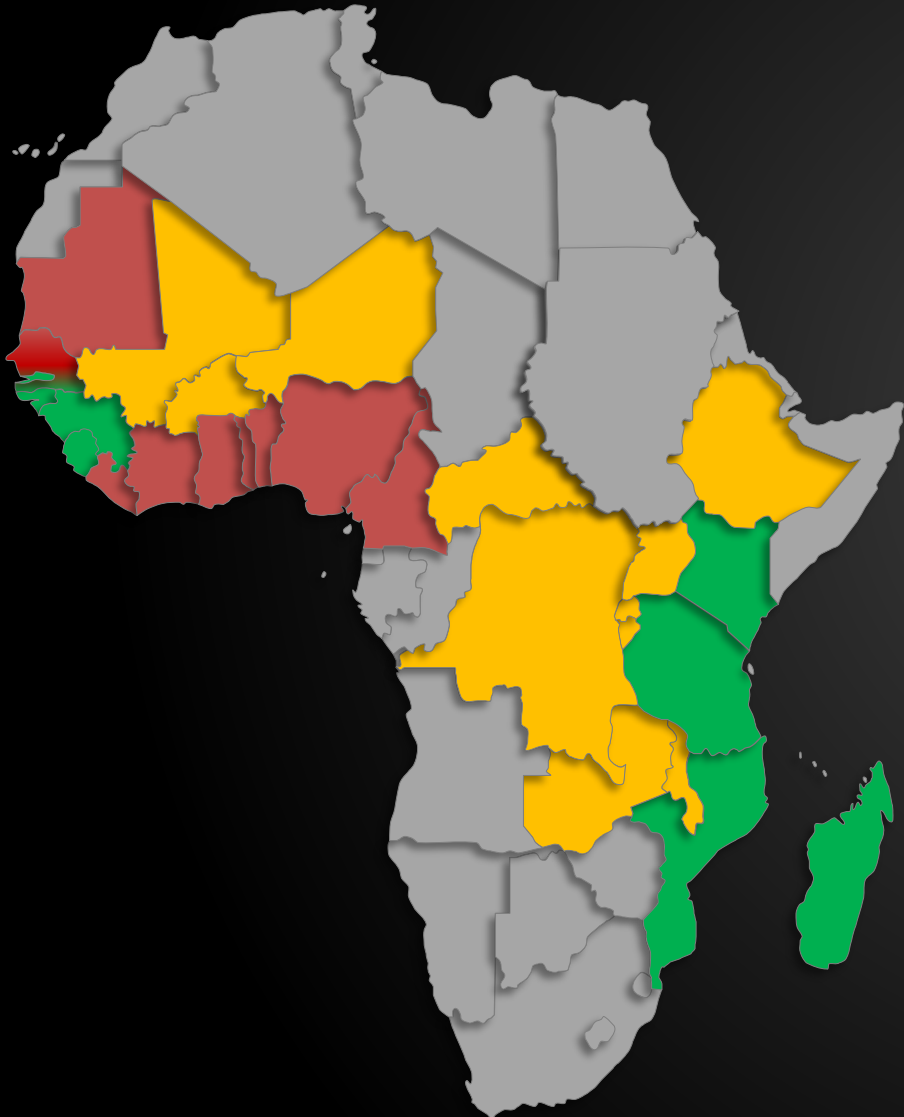
<http://dx.doi.org/10.1016/j.worlddev.2017.04.004>

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

MATTY DEMONT<sup>a</sup>, ROSE FIAMOHE<sup>b</sup> and A. THIERRY KINKPÉ<sup>c\*</sup>

<sup>a</sup> International Rice Research Institute (IRRI), Metro Manila, Philippines  
<sup>b</sup> Africa Rice Center (AfricaRice), Cotonou, Benin  
<sup>c</sup> Laboratory of Analysis and Research on the Economic and Social Dynamics (LARESD), University of Parakou, Parakou, Benin

# Segmentação



## Países do Grupo 1

*Países costeiros com preferências dos consumidores dominantes para o arroz importado*

Exemplos: Mauritânia , norte do Senegal (Dakar, Vale do Rio Senegal), Libéria, Costa do Marfim, Gana, Togo, Benim, Nigéria, Camarões

## Países do Grupo 2

*Países costeiros com preferências dos consumidores dominantes pelo arroz local devido ao património cultural (domesticação de arroz ao longo do rio Níger na África Ocidental e indianização na África Oriental)*

Exemplos: Senegal (Casamança), Gâmbia, Guiné, Serra Leoa, Tanzânia, Moçambique, Quênia, Madagáscar

## Países do Grupo 3

*País sem litoral*

Exemplos: Mali, Níger, Burkina Faso, República Centro Africana, República Democrática do Congo, Etiópia, Uganda, Ruanda, Zâmbia

# Estratégias Nacionais de Desenvolvimento do Arroz

**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, a critical question is not whether the programme can meet its ambitious target of self-sufficiency in rice production by 2015, but, if it does, how will domestic rice reach urban markets, where consumers generally prefer imported rice and a stabilizer. Working advances the argument that policy interventions will be crucial in order to upgrade rice productivity and to be preceded by investments in post-harvest grain quality and 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 need to increase rice production, it is clear that rice is a key crop for Senegal. The government's target is to produce 2.2 million tonnes of rice by 2015, a 2.5-fold increase over the 2008 level (Ministry of Agriculture, 2011). The Senegalese government's national strategy to increase rice production is to invest in post-harvest grain quality and to be preceded by investments in post-harvest grain quality and before sector-wide marketing strategies can be adopted that chain competitiveness of domestic rice to imported rice.

**Abstract**  
 This article examines the impact of the 2008 world food crisis on rice production in Senegal. It discusses the impact of the 2008 world food crisis on rice production in Senegal. It discusses the impact of the 2008 world food crisis on rice production in Senegal. It discusses the impact of the 2008 world food crisis on rice production in Senegal.

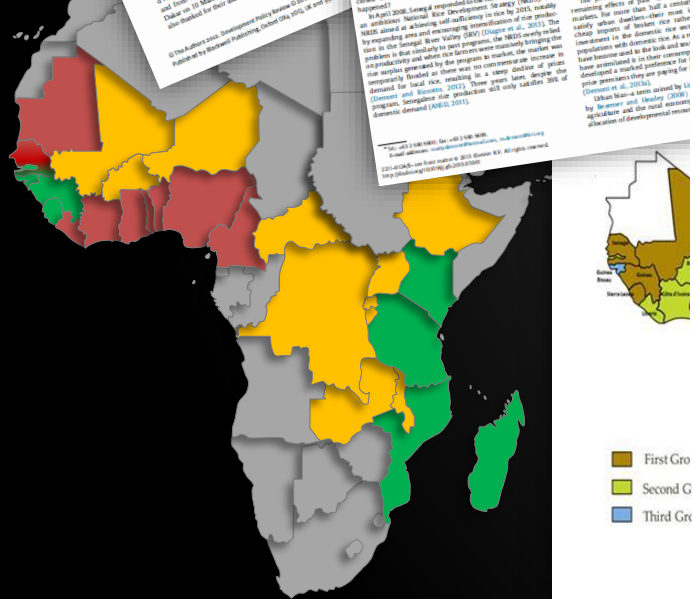
**Table 1. Investment portfolios implemented by 19 African member countries of the CARD that have submitted national rice development strategies (NRDS)**

Country	Total investment (10 <sup>6</sup> US\$ <sup>a</sup> )	Time horizon	Supply-shifting investments				Value-adding investments			Demand-lifting investments		Other <sup>c</sup>
			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 <sup>b</sup> , market infrastructure, linkages	Promotion, advertising, communication, awareness creation		
<b>Group 1: Coastal countries characterized by dominant consumer preferences for imported rice</b>												
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	-	-	x	
<b>Group 2: Coastal countries characterized by dominant consumer preferences for local rice</b>												
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	
<b>Group 3: Landlocked countries</b>												
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	

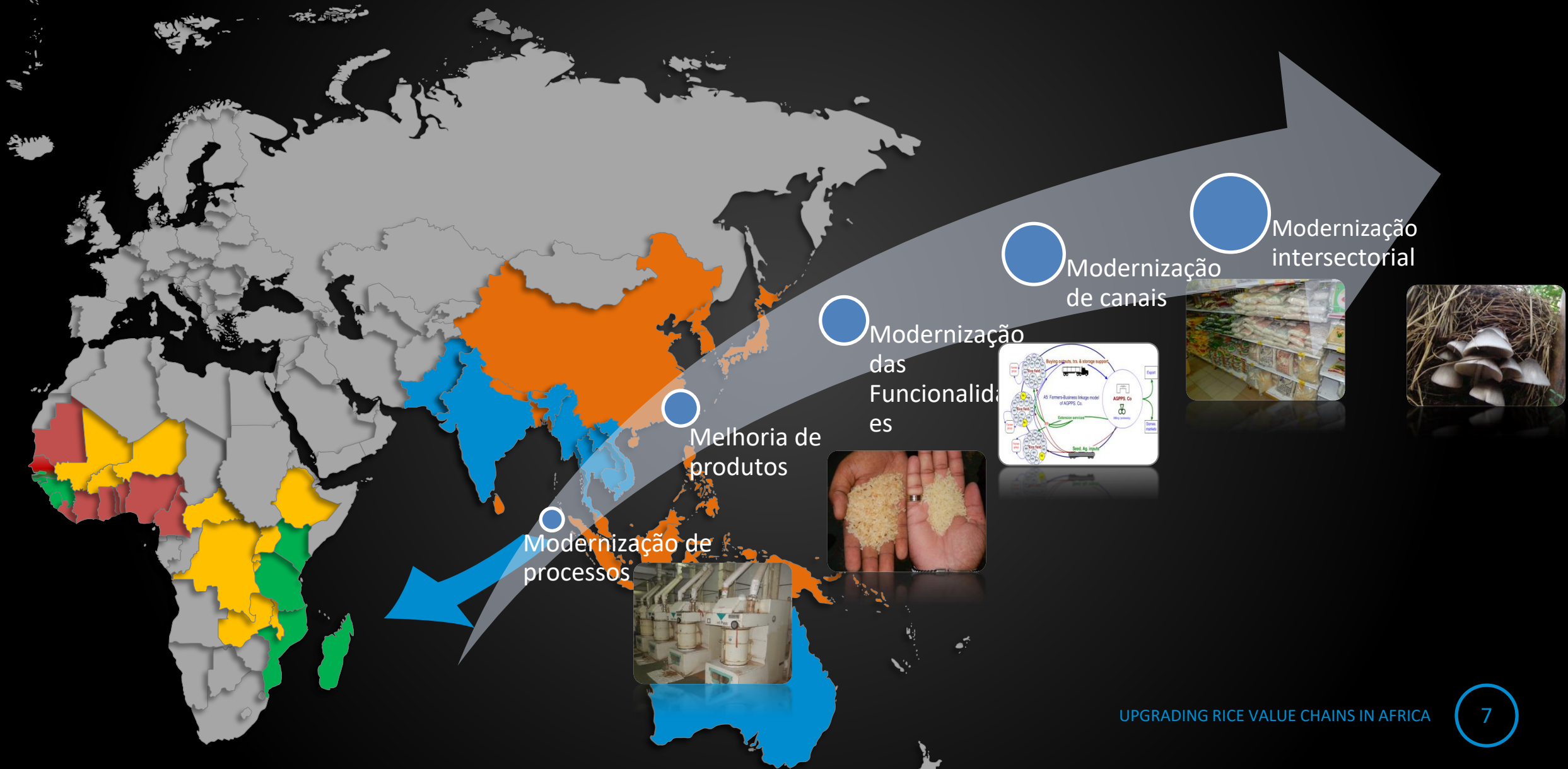
**Notes:** The symbol "x" indicates that the investment is planned, but no detailed budget has been provided in the NRDS document. A dash indicates that the investment is missing or not convincingly elaborated in the NRDS document. In some cases, the investment shares may not add up to 100% due to rounding.

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

- First Gro
- Second Group Countries
- Third Group Countries



# Trajectória de Modernização da Cadeia de Valor do Arroz



# Experiências do Mercado

**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 2013, 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 productivity gains will be crucial in order to upgrade rice value chains. Policy sequencing will be crucial in order to upgrade rice value chains progressively. Any large-scale investments in post-harvest grain quality to be preceded by investments in post-harvest grain quality. Policy sequencing will be crucial in order to upgrade rice value chains progressively. Any large-scale investments in post-harvest grain quality to be preceded by investments in post-harvest grain quality. Policy sequencing will be crucial in order to upgrade rice value chains progressively. Any large-scale investments in post-harvest grain quality to be preceded by investments in post-harvest grain quality.

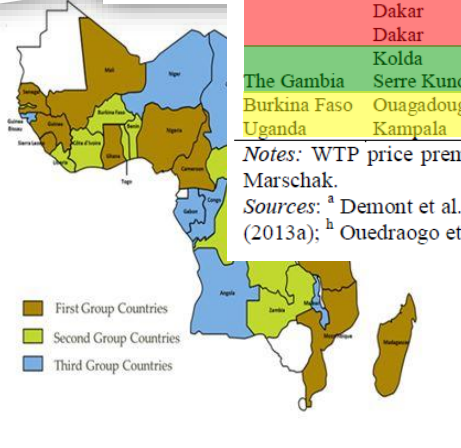
**Reversing urban bias in African rice markets: A review of 19 National Rice Development Strategies**  
 Matty Demont<sup>a,b</sup>  
<sup>a</sup>Walter de Gruyter Institute, Berlin, Germany  
<sup>b</sup>International Rice Research Institute (IRRI), Los Baños, Laguna, Philippines  
 ABSTRACT  
 Development in poor countries is often hampered by urban bias. Policy in that supply-side development, will only be effective if it is implemented in a market for abundant rice. The market for abundant rice is often found in rural areas, where government intervention is needed to ensure that the benefits of rice production are not captured by urban consumers. This paper reviews 19 national rice development strategies to identify those that are most likely to reverse urban bias. The strategies are grouped into three categories: (i) those that focus on increasing rice production, (ii) those that focus on increasing rice processing, and (iii) those that focus on increasing rice marketing. The paper concludes that the most effective strategies are those that focus on increasing rice production and marketing, and that government intervention is needed to ensure that the benefits of rice production are not captured by urban consumers.

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 Upgrading rice value chains: Experimental evidence from 11 African markets  
 Matty Demont<sup>a,\*</sup>, Maimouna Ndour<sup>b</sup>  
<sup>a</sup>International Rice Research Institute (IRRI), Los Baños, Laguna, Philippines  
<sup>b</sup>Walter de Gruyter Institute, Berlin, Germany  
 ABSTRACT  
 This article reports on the results of an experiment conducted in 11 African cities to measure 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.

**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		Extrinsic		Intrinsic		Extrinsic		
							Variety	Processing	Label	Info	Variety	Processing	Label	Info	
Benn	Glazoué	2009	Vickrey	100	Local	Parboiled	85–98%				14–30%		a		
	Cotonou	2011	Vickrey	135	Local	Parboiled	95%		0–2%		16%		b		
	Malanville	2011	Vickrey	135	Local	Parboiled	87%		7–17%		18%		b		
	Yaoundé	2012	Vickrey	120	Local	Mixed	75–89%				17–39%		c		
Cameroon	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:** <sup>a</sup> Demont et al. (2012); <sup>b</sup> Zossou et al. (2013); <sup>c</sup> Unpublished dataset; <sup>d</sup> Demont et al. (2013c); <sup>e</sup> Costello et al. (2013); <sup>f</sup> Demont et al. (2013b; 2013c); <sup>g</sup> Demont et al. (2013a); <sup>h</sup> Ouedraogo et al. (2013).





# Experiências do Mercado

+ oportunidades – desafios

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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 and expenditure are increasing rapidly and 1990s, rice output failed to increase as the urban population grew quickly and in relatively new to produce during 2000-2010. National rice production in Senegal has been declining since 2000, with a sharp decline in 2011. In 2011, rice consumption surpassed supply in Senegal. In 2011, rice consumption surpassed supply in Senegal. In 2011, rice consumption surpassed supply in Senegal.

**Global Food Security**

Reversing urban bias in African rice markets: A review of 19 National Rice Development Strategies

Upgrading rice value chains: Experimental evidence from Senegal

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

MATTY DEMONT\*, ROSE YIANGHE<sup>b</sup> and A. THIERRY KINKPE<sup>b</sup>

\*International Rice Research Institute (IRRI), Metro Manila, Philippines  
<sup>b</sup>Parsons, Paris, France

**1. INTRODUCTION**

West Africa is currently witnessing rapid growth in rice consumption due to population growth, urbanisation, and rising per capita income. In Senegal, rice consumption has increased from 1.2 million metric tons in 2000 to 1.8 million metric tons in 2010. This growth has led to a significant increase in the demand for rice, which has not been met by local production. This has led to a significant increase in the demand for rice, which has not been met by local production.

**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. <sup>a</sup>	n.a. <sup>a</sup>	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 <sup>b</sup>	-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 <sup>2</sup> and pseudo R <sup>2</sup>	0.564	0.178	-	-	-
Sigma (error variance)	-	-	-	41.499 (2.162)***	-

# Estratégia de Políticas segmentadas

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**How Can West African Rice Compete in Urban Markets? A Demand Perspective for Policymakers**  
Matty Demont, Rose Yamorhé, Maimouna Ndour, and Eric Tollu  
Consumer bias quest against local rice in African markets: a demand perspective for policymakers

**Upgrading rice value chains: Experimental evidence from 11 African markets**  
Matty Demont<sup>1</sup>, Maimouna Ndour<sup>2</sup>  
<sup>1</sup>Walter de Gruyter Institute, Berlin, Germany; <sup>2</sup>Walter de Gruyter Institute, Berlin, Germany

**First Group Countries**  
**Second Group Countries**  
**Third Group Countries**

## Sequenciamento de políticas e prioridades de investimento

### Países do Grupo 1

- Melhoria de produtos (indiferenciação), modernização de processos e canais
- Melhoria de produtos
- Aumento da procura (diferenciação): atribuição e promoção de marca

### Países do Grupo 2

- Melhoria da produtividade
- Melhoria de produtos (diferenciação), modernização de processos e canais
- Mercados de exportação

### Países do Grupo 3

- Melhoria da produtividade
- Melhoria de produtos, modernização de processos e canais
- Melhoria das infra-estruturas de comercialização interna
- Abordagem da cadeia de valor regional

# Modernização da cadeia de valor do arroz, 2009–2019

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**Key words:** Policy sequencing, food security, food quality, food investment, value chain, economic development, self-sufficiency, 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 need to improve its rice self-sufficiency, the government has been pursuing a rice self-sufficiency strategy. In 2008, rice consumption per capita was 105 kg, the highest in Sub-Saharan Africa (SSA). However, the average per capita consumption of 92 kg in SSA is still far below the 150 kg per capita consumption of 92 kg in SSA.

**2. Introduction**  
 In May 2008, world rice prices spiked, and the price of rice in Senegal rose from 1000 CFA franc per 50 kg to 1200 CFA franc per 50 kg. This price increase led to a 20% increase in the price of rice in Senegal. The government responded by increasing the price of rice in Senegal from 1000 CFA franc per 50 kg to 1200 CFA franc per 50 kg. This price increase led to a 20% increase in the price of rice in Senegal.

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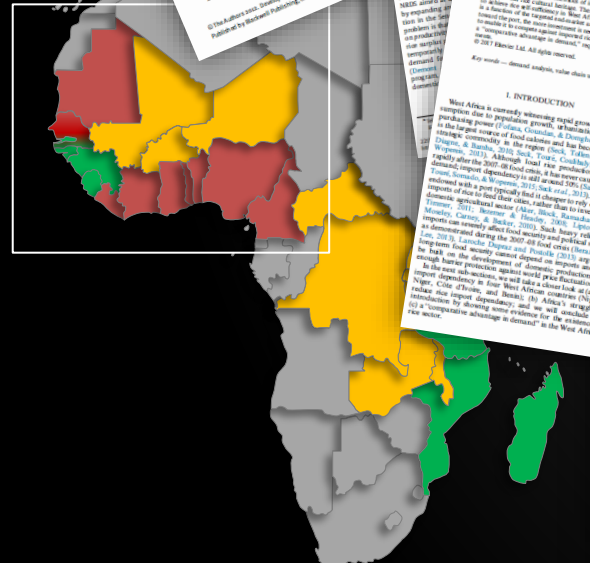
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 Matty Demont<sup>a,b</sup>  
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**Upgrading rice value chains: Experimental evidence from 11 African markets**  
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**Comparative Advantage in Demand and the Development of Rice Value Chains in West Africa**  
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**How Can West African Rice Compete in Urban Markets? A Demand Perspective for Policymakers**  
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Global Food Security 25 (2020) 100365  
 Contents lists available at ScienceDirect  
**Global Food Security**  
 journal homepage: www.elsevier.com/locate/gfs

**The state of rice value chain upgrading in West Africa**  
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**ABSTRACT**  
 Following the food price crisis in 2008, African governments implemented policies aiming at crowding in investment in rice value chain upgrading to help domestic rice compete with imports. We assess the state of rice value chain upgrading in West Africa by reviewing evidence on rice millers' investment in semi-industrial and industrial milling technologies, contract farming and vertical integration during the post-crisis period 2009–2019. We find that upgrading is more dynamic in countries with high rice production and import bills and limited comparative advantage in demand. However, scaling of upgrading faces several challenges in terms of vertical coordination, technology, finance and policies. Our assessment can help value chain actors and policy makers refine upgrading strategies and policies to increase food security in West Africa.

**Keywords:** Rice, Value chain, Upgrading, Africa, Contract farming, Milling

**1. Introduction**  
 The food price crisis in 2008 redirected international attention towards domestic food value chains' (VCS) capacity and resilience in providing food security in developing countries (World Bank, 2008). In West Africa, the attention turned towards rice VCS because rice is the most important calorie source in this region (Macauley and Ramadita, 2015). To address chronic hunger through macro-nutrient self-sufficiency, African policy makers developed targeted National Rice Development Strategies (NRDS) under the Coalition for African Rice Development (CARD, 2019). However, while domestic rice production increased after the crisis, domestic rice VCS never managed to catch up with consumption, leading to an increasing gap that is satisfied through imports (Mendez del Villar and Lançon, 2015). Therefore, policy makers were urged to revisit their *productivité* NRDS and create a favorable enabling environment for crowding in private sector investment in VC upgrading (Demont, 2013).  
 A decade after the 2008 food price crisis, it is time to make an assessment of the current state of rice VC upgrading in West Africa. Are domestic rice VCS being upgraded in this region, and if they are, what type of investments have been conducted and where? In particular, there is little information about investments in new processing technologies that would help domestic rice compete with imports quality- and cost-wise. Therefore, this paper attempts to document the technological and coordination changes that have been implemented at processing level in rice VCS in West Africa over the last decade. In particular, we compile and review evidence of public and private investment in upgraded processing facilities, contract farming schemes and vertical integration in 15 West African countries. We also assess the opportunities and challenges encountered in rice VC upgrading. Our assessment may help policy makers at national and regional levels and VC actors revisit and refine upgrading strategies and policies during the revision of the NRDS under the Coalition for African Rice Development (CARD, 2019). To identify, collect and validate evidence of investment in rice VC upgrading in the 15 West African countries (Table 2), we followed three stages. First, we conducted a non-systematic review of peer-reviewed and non-peer reviewed literature. We initiated our literature review with a focused search of economic studies through Ecnolit using the following keywords: rice; value chain; investment; mill; processing; contract; vertical integration; and the names of the 15 West African countries. The keywords aimed at identifying investments in semi-

**2. Method**  
 To identify, collect and validate evidence of investment in rice VC upgrading in the 15 West African countries (Table 2), we followed three stages. First, we conducted a non-systematic review of peer-reviewed and non-peer reviewed literature. We initiated our literature review with a focused search of economic studies through Ecnolit using the following keywords: rice; value chain; investment; mill; processing; contract; vertical integration; and the names of the 15 West African countries. The keywords aimed at identifying investments in semi-

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https://doi.org/10.1016/j.gfs.2020.100365  
 Received 18 April 2019; Received in revised form 25 February 2020; Accepted 2 March 2020  
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Ponto de situação sobre a modernização da cadeia de valor do arroz em 15 países da África Ocidental, 2009-2019

País	Número de investimentos em fábricas industriais e semi-industriais que estavam operacionais em 2019	Capacidade agregada de descasque melhorada (t/h)	Origem de investimentos	Coordenação vertical		Exposição às importações		
				Agricultura por contrato (produtores)	Integração vertical (ha)	Obstáculos naturais à importação	factura de importação de 2008 (106 USD)	Fornecimento médio anual de arroz 2009-2018 (103 toneladas)
<b>1</b> Nigéria	24 fábricas industriais	177	IDE, DPI	>3,000	>20,400	Nenhum	772	3512
Senegal	5 fábricas industriais e semi-industriais	60	IDE, DPI	3.500	3590	Nenhum	645	438
<b>2</b> Gana	1 fábrica industrial 3 fábricas industriais e semi-industriais	26	IDE, DPI	4.000	750	Nenhum	216	333
Mali	4 fábricas industriais	20	IDE, DPI	maioria	3.200	Física e cultural	66	1,360
Costa do Marfim	2 fábricas industriais 1 fábrica industrial e semi-industrial	15	PI, DPI	10 (experimental)	-	Cultural	412	2,024
Burkina Faso	1 fábrica industrial 1 fábrica industrial e semi-industrial	7	PI, DPI	140	-	Físico	56	194
Libéria	2 fábricas industriais e semi-industriais	4	PI, DPI	-	-	Nenhum	75	174
Níger	2 fábricas industriais e semi-industriais	4	PI	-	-	Físico	126	194
Serra Leoa	1 fábrica semi-industrial	2	PI, DPI	-	1.300	Cultural	85	668
Benim	17 ESOP	-	PI, DPI	140	-	Nenhum	185	132
Togo	15 ESOP	-	PI, DPI	>100	-	Nenhum	9,3	86
<b>3</b> Guiné	-	-	-	-	-	Cultural	153	1,248
Mauritânia	-	-	-	-	-	Nenhum	77	119
Gâmbia	-	-	-	-	-	Cultural	28	36
Guiné Bissau	-	-	-	-	-	Cultural	10	107

**INDICADORES DO RESULTADO:**

**FACTORES**

# Factores de investimento

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

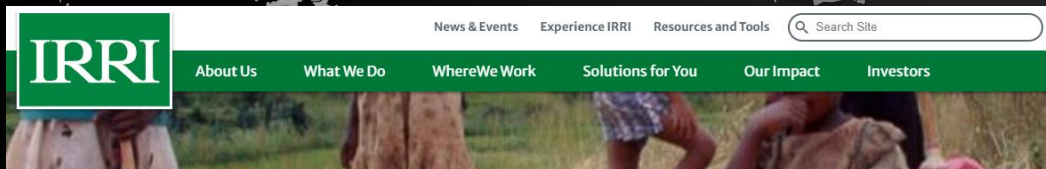
Variable	Coefficient	SE	P-value
2008 import bill (10 <sup>6</sup> USD)	0.061	0.026	0.042**
Average annual milled rice production (2009–2019, 10 <sup>3</sup> tons)	0.032	0.006	0.000***
Cultural import barriers (dummy)	-24.168	8.992	0.021**
Constant	-2.773	6.792	0.691

*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.

- Detectámos heterogeneidade de investimento na modernização da cadeia de valor do arroz entre 15 países da África Ocidental através do seguinte indicador de resultados: melhoria da **capacidade agregada de descasque** nas fábricas industriais e semi-industriais (t/h) (total na África Ocidental = 315 t/h)
- A heterogeneidade na modernização pode ser explicada em 89% através de dois factores e um determinante:
  - **Factor 1 = Fornecimento:** Fornecimento médio anual de arroz em casca (2009-2018): Um milhão de toneladas adicionais de disponibilidade de arroz processado aumenta a capacidade de processamento em 32 t/h; **COMPETITIVIDADE-PREÇO/CUSTO**
  - **Factor 2 = Procura:** Factura de importação de 2008: Uma factura de importação de 100 milhões de USD mais elevada aumenta a capacidade de processamento em 6 t/h; **COMPETITIVIDADE-QUALIDADE**
  - **Determinante = vantagem comparativa limitada na procura:** A proximidade geográfica ou genealógica ao património cultural do arroz preserva as preferências indígenas pelo arroz local e diminui a capacidade de processamento em 23 t/h; **COMPETITIVIDADE CULTURAL**
  - **Sem litoral** - Sem efeito significativo

# COVID-19: Apoiar o "Meio Oculto"



## 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.



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

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#### ARTICLE INFO

**Keywords:**  
 Food security  
 Food policy  
 Foodborne zoonotic pathogens  
 Trade disruption  
 Impact  
 West Africa

#### 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 chain 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 Lançon, 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 steep 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 Lançon, 2015). Consequently, when rice prices spike on the world market, domestic rice value chains fail to respond and compete against import value chains.

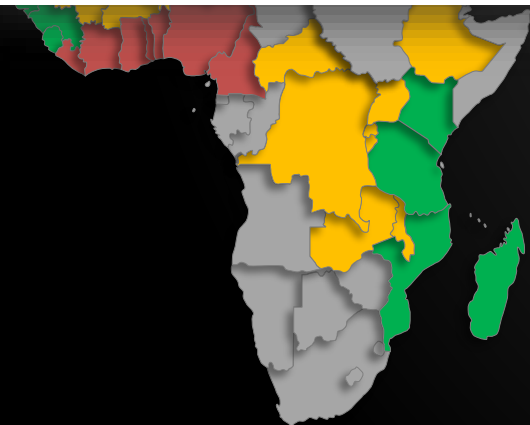
Farmed field experiments have revealed that local rice struggles to compete with imports even if its quality is upgraded to import standards (Demont et al., 2017). To meet these quality standards and satisfy urban consumers, rice value chains require substantial investment in modernization through process, 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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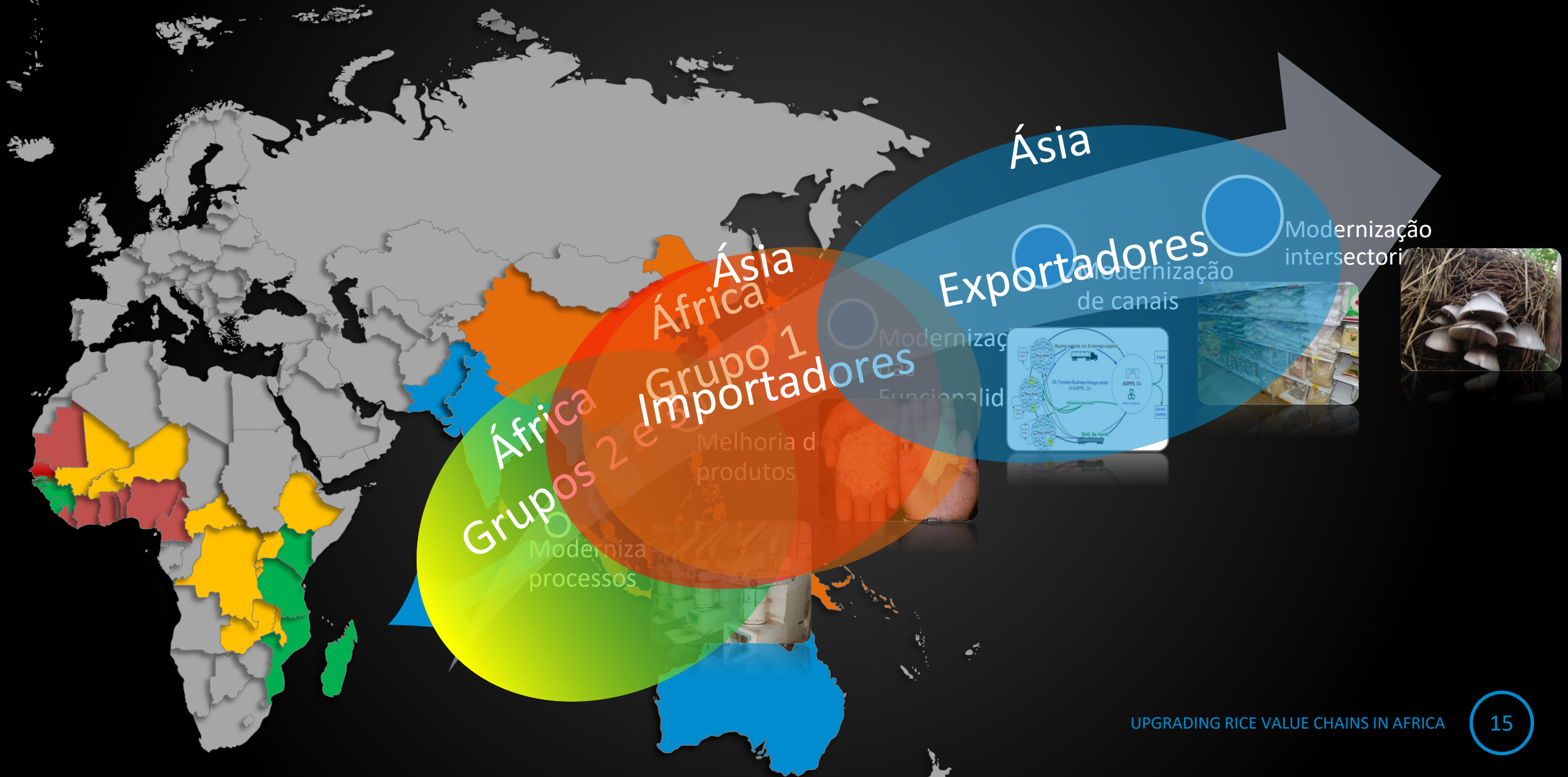
<https://doi.org/10.1016/j.gfs.2020.100405>  
 Received 15 May 2020; Received in revised form 30 June 2020; Accepted 2 July 2020  
 Available online 9 July 2020

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- Opções políticas concebidas para modernizar a cadeia de valor do arroz e aumentar a resiliência das cadeias de valor do arroz à pandemia da COVID-19 na África Ocidental
- Mensagem principal: Apoiar o "Meio Oculto" entre a produção e o consumo nas cadeias de valor do arroz
- Prestar apoio financeiro às fábricas de descasque de arroz como intermediários cruciais para a segurança alimentar na África Ocidental
- A Organização Mundial do Comércio publicou o nosso informe político no *Informe Político sobre o Comércio para o Desenvolvimento*



# Trajectória de Modernização da Cadeia de Valor do Arroz



# 8 Lições Políticas para NRDS 2.0

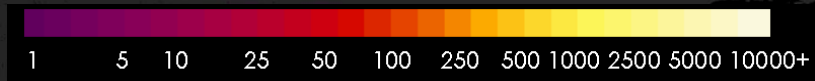
1. O arroz da África Ocidental tem dificuldades crescentes **em competir** com o arroz importado
  - Quanto mais os consumidores urbanos valorizam as características do **arroz asiático importado**
  - **Maior será** a necessidade alimentar para o agregado familiar
  - Maior é a decisão de compra tomada pela mulher
  - Mais próximo do **porto**
  - Maior será a distância geográfica e genealógica do património cultural do arroz
2. Os países costeiros com um porto marítimo próximo de uma grande zona de consumo (capital) e afastados do património cultural do arroz deverão alocar mais recursos para a modernização da cadeia de valor do arroz com vista a:
  - Aumentar a **competitividade baseada na qualidade do arroz nacional** em relação ao arroz importado
  - Integrar melhor os mercados nacionais de arroz nos **mercados globais** com uma procura mais flexível, aumentar a participação de pequenos agricultores e melhorar os meios de subsistência
3. Há provas substanciais de **investimento** na valorização da CV do arroz nos países costeiros de importação com um porto marítimo próximo de uma grande zona de consumo e afastados do património cultural do arroz, por exemplo, a valorização mais dinâmica na **Nigéria e no Senegal**
4. Menos provas de investimento na valorização da CV do arroz nos países costeiros com **vantagem comparativa na procura** e nos países sem litoral
5. Nesses países, a médio prazo, será necessário investimento para **manter** a vantagem comparativa da procura
6. Os decisores políticos devem encontrar uma combinação ideal entre incentivar a produtividade, a procura e a modernização da cadeia de valor para promover **a participação de investimentos privados** (por exemplo, IDE)
7. Durante a COVID-19, os decisores políticos devem apoiar **o "Meio Oculto", ou seja, as fábricas de descasque de arroz** como intermediários cruciais para a segurança alimentar na África Ocidental
8. A longo prazo, os decisores políticos devem permitir uma aglomeração de investimentos que aumentem a **resiliência** das cadeias de valor do arroz contra futuras pandemias/alterações climáticas



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Valor da produção do arroz em USD/ha (Nelson, 2010)



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RESEARCH  
PROGRAM ON  
Rice

SEMINÁRIO DA CARD SOBRE “O IMPACTO DA COVID-19 E COMPETITIVIDADE DO ARROZ”, 25 DE  
FEVEREIRO DE 2021.

UPGRADING RICE VALUE CHAINS IN AFRICA

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