



# MAFAP SPAANA

Monitoring African Food and Agricultural Policies  
Suivi des politiques agricoles et alimentaires en Afrique

## **ANALYSIS OF INCENTIVES AND DISINCENTIVES FOR RICE IN NIGERIA**

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July 2013



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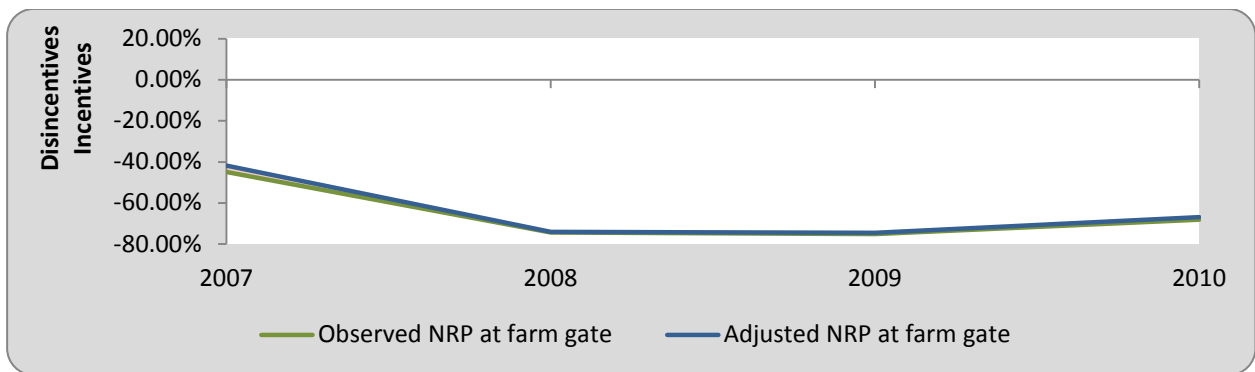
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## SUMMARY OF THE NOTE

Product: Rice  
Period analyzed: 2007 – 2010  
Trade status: Net importer in all years

- Largest rice producer in West Africa.
- Low productivity compared to neighbouring countries.
- 4<sup>th</sup> most consumed crop in terms of calories (from 2000 to 2007).
- Nigeria is the 2<sup>nd</sup> largest importer of rice in the World. Rice is mainly imported from Thailand, Brazil, India, USA, UAE over the period 2006-2010.
- Rice sector policies aim to foster the production and decrease dependence from international imports through 1) the *Presidential Initiative on increased Rice Production (2002-2007)* and 2) the *Nigerian National Rice Development Strategy (2009-2018)*.



The observed Nominal Rate of Protection (NRP, green line) indicates that rice farmers have received disincentives under the prevailing cost structure in the value chain. The adjusted NRP (blue line) captures the effects of market inefficiencies on farmers. The area in red (between the green and the blue line) shows the cost that these inefficiencies represent for producers. In the case of Nigeria, preliminary results show that the rice market seems to be efficient.

- There are significant disincentives for farmers, the traders attract most of the incentives from national policies.
- The trend observed during the period analysed indicates that reduced import tariffs are associated with more pronounced disincentives for farmers.
- Since self-sufficiency and import substitution in the rice sector are current priorities of the Nigerian Government, the causes of such disincentives at farmers' level should be further investigated and monitored.

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## 1. PURPOSE OF THE NOTE

This technical note aims to describe the market incentives and disincentives for rice in Nigeria. The note is a technical document and serves as input for the MAFAP Country Report.

For this purpose, yearly averages of farm-gate and prices at the point of competition are compared with reference prices calculated on the basis of the price of the commodity in the international market. The price gaps between the reference prices and the prices along the value chain indicate the extent to which incentives (positive gaps) or disincentives (negative gaps) are present at the farm-gate and traders level. In relative terms, the price gaps are expressed as Nominal Rates of Protection (NRP). These key indicators are used by MAFAP to highlight the effects of policy and market development gaps on prices.

The note starts with a brief review of the commodity's production and consumption as well as trade and policies affecting the commodity. It also provides a detailed description of how the key components of the price analysis have been obtained. Using this data, the MAFAP indicators are then calculated and interpreted in light of existing policies and market characteristics. The analysis is commodity and country specific and covers the period 2005-2010. The indicators have been calculated using available data from different sources for the period 2007-2010 and are described in Chapter 3.

The outcomes of this analysis can be used by those stakeholders involved in policy-making for the food and agricultural sector. They can also serve as input for evidence-based policy dialogue at the country or regional level.

This technical note is not to be interpreted as an analysis of the value chain or detailed description of production, consumption or trade patterns. All information related to these areas is presented merely to provide background on the commodity under review, help understand major trends and facilitate the interpretation of the indicators.

All information is preliminary and still subject to review and validation.

## 2. COMMODITY CONTEXT

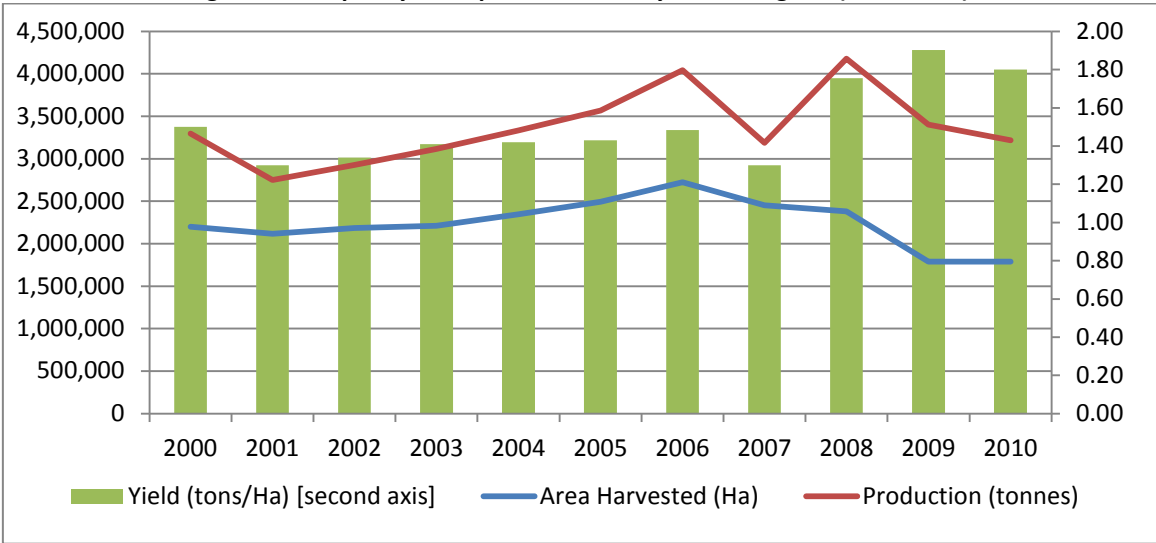
Most rice farmers in Nigeria are smallholders (90 percent of total), applying a low-input strategy to agriculture, with minimum input requirements and low output (USAID 2011, IFAD 2009). Nigeria rice productivity is among the lowest within neighbouring countries, with average yields of 1.51 tonne/ha. Nigeria is the largest rice producing country in West Africa, but is also the second largest importer of rice in the World. Current policy initiatives aim at prioritizing the rice sector and decreasing dependence from international imports, fostering production and supplying agricultural inputs.

### PRODUCTION

Rice is grown in approximately on 3.7 million hectares of land in Nigeria, covering 10.6 percent of the 35 million hectares of land under cultivation, out of a total arable land area of 70 million hectares. 77 percent of the farmed area of rice is rain-fed, of which 47 percent is lowland and 30 percent upland. The range of grown varieties is diverse and includes both local (such as Dias, Santana, Ashawa, Yarsawaba, and Yarkuwa) and enhanced varieties of traditional African rice (such as NERICA) (Bayou 2009).

Paddy rice production has been increasing between 2001 and 2006, followed by a decline in 2007 and a positive peak in 2008. From 2008 to 2010 production statistics show a decreasing trend in production, associated with a decline in area harvested between 2006 and 2010. This trend resulted into higher yields between 2008 and 2010, despite declining production (see Figure 1). Increasing production between 2002 and 2006 can be explained as result of the implementation of the Presidential Initiative on increased Rice Production, although decreasing production between 2008 and 2010 is not in line with policies aimed at the development of the rice sector during those years, such as the National Rice Development Strategy and the Federal Market Stabilization Programme (Erenstein 2003).

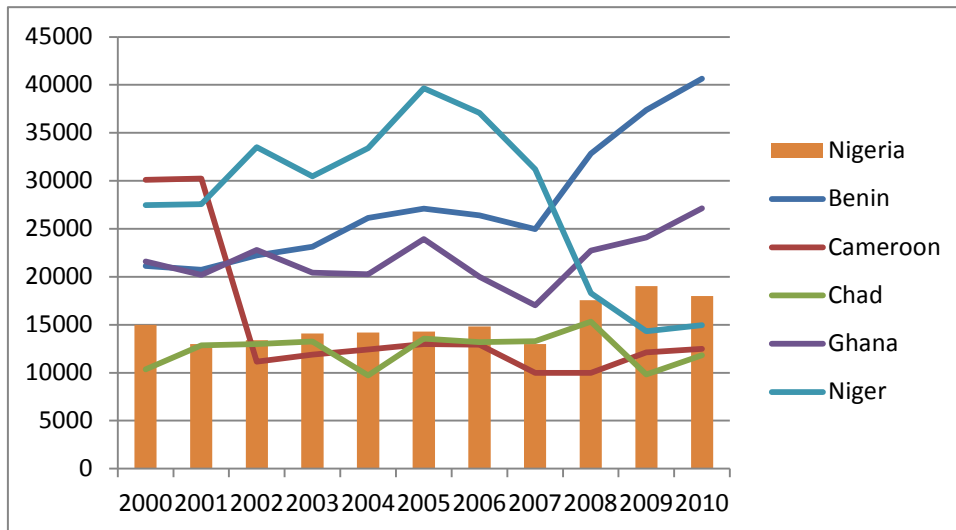
Figure 1: Rice paddy area, production and yields in Nigeria (2000-2010)



Source: FAOSTAT (2012)

Despite the recent relative increase in yields, yielding performance remains below potential. Compared to those of neighboring countries in the region (Benin, Cameroon, Chad, Ghana and Niger), Nigerian rice yields are among the lowest, superseded by yields in Benin, Ghana and Niger (see Figure 2, below).

**Figure 2: Rice Paddy Yields in selected West African Countries (Hg/Ha)**



Source: FAOSTAT

As shown in Table 1, rice yields are between 46 percent and 56 percent below their potential for different production systems (Ezedinma 2005). Rain-fed agriculture is the main production systems used, while irrigated rice is the best performing in terms of yields (3.5 TONNE/ha), followed by rain-fed lowland (2.2 TONNE/ha) and mangrove swamp (2 TONNE/ha) (Table 1). Rice production in low land with wet soil zone is favored within the country, given its resistance to drought. Some of the inefficient agricultural practices are low input application, and poor plant husbandry and post-harvest handling (M. Kebbeh, 2003).

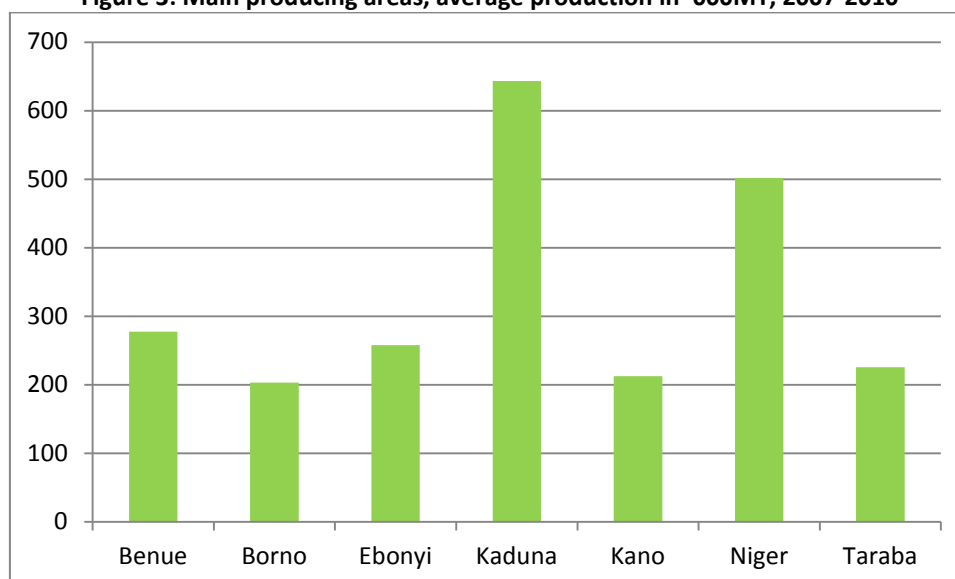
**Table 1: Rice Production systems in Nigeria, 2005**

Production ecology	Major States Covered	Estimated Share of National Rice-Farmed Area	Share of Total Domestic Production	Average Yield/ha in tonne	Potential Yield/ha in tonne
<b>Rain-fed Upland</b>	Ogun, Ondo, Abua, Osun, Ekiti, Oyo, Edo, Delta, Niger, Kwara, Kogi, Sokoto, Kebbi, Kaduna, FCT, and Benue	30%	17%	1.7	3.5
<b>Rain-fed Lowland (aka "Fadama")</b>	Adamawa, Ebonyi, Ondo, Ekiti, Edo, Delta, Rivers, Bayelsa, Cross River, Akwa Ibom, Lagos, all major river valleys	47%	53%	2.2	5
<b>Irrigated</b>	Adamawa, Niger, Sokoto, Kebbi, Borno, Benue, Kogi, Anambra, Enugu, Ebonyi, Cross River, Kano, Lagos, Kwata, Akwa, Ibom, Ogun	17%	27%	3.5	6-7
<b>Deep Water Floating</b>	Flooded areas: Rima Valley in Kebbu State and deep floofef areas of Delta State	5%	3%	1.3	2.5
<b>Mangrove Swamp</b>	Ondo, Delta, Edo, Rivers, Bayelsa, Cross River, Akwa Iborn	1%	1%	2	4

Source: Ezedinma 2008

The main areas of rice cultivation in the country include the middle belt and Northern states of Benue, Kaduna, Niger and Taraba, as well as the South Eastern states of Enugu, Cross River and Ebonyi. Kaduna is the main producing state, followed by Niger, Benue, Ebonyi, Taraba, Kano and Borno (see Figure 3). The latter seven states account for over 67 percent of total rice production in the country.

**Figure 3: Main producing areas, average production in '000MT, 2007-2010**



Source: NBS



## CONSUMPTION/UTILIZATION

On average (2000-2007), rice is the 4th most important crop in terms of calories consumed, following sorghum, millet and cassava (Table 2). Rice is both a food and a cash crop for farmers, contributing to smallholders revenues in the main producing areas. WARDA estimates that per capita rice consumption in Nigeria has nearly doubled between the 1980s and 2006, growing from 15.4 kg/year to 25.4 kg/year (WARDA 2006).

**Table 2: Food Crops Consumption (Kcal/capita/day)**

	2000	2001	2002	2003	2004	2005	2006	2007	Average
<b>Sorghum</b>	351	309	330	334	335	341	357	343	337
<b>Millet</b>	285	250	260	272	284	282	284	320	280
<b>Cassava</b>	295	288	223	232	242	253	272	252	257
<b>Rice (Paddy Equivalent)</b>	219	246	221	224	233	222	220	211	224
<b>Yams</b>	201	197	204	201	200	200	194	219	202
<b>Maize</b>	152	169	176	183	193	202	193	219	186
<b>Wheat</b>	126	120	128	116	108	135	145	153	129
<b>Plantains</b>	38	38	40	41	43	45	47	49	43
<b>Sweet Potatoes</b>	36	36	37	38	40	42	44	30	38
<b>Groundnuts (Shelled Eq)</b>	39	38	40	36	38	37	36	36	38

Source: FAOSTAT

FAOSTAT food commodity balance sheets for paddy in Nigeria, as shown in Table 3, indicates that 91 percent of paddy produced is for food while approximately 7 percent is wasted and 2 percent is used as seed. Consumption of available rice/paddy fluctuates between 32.79 and 31.14 kg per capita between 2007 and 2010.

**Table 3: Paddy commodity balance in Nigeria (tonne)**

	2000	2001	2002	2003	2004	2005	2006	2007	Average
<b>Production (I)</b>	3,298,000	2,752,000	2,928,000	3,116,000	3,334,000	3,567,000	4,042,000	3,186,000	3,277,875
<b>Import Quantity (II)</b>	1,189,766	2,662,577	1,860,853	2,407,194	2,107,807	1,777,743	1,466,798	865,171	1,792,239
<b>Stock Variation (III)</b>	0	-293,233	0	-598,195	-200,000	-207,143	-285,714	1,012,857	-71,429
<b>Export Quantity (IV)</b>	0	20,857	72,730	2,181	3	6,568	3,755	377	13,309
<b>Domestic supply quantity (V: I+II+III-IV)</b>	4,487,766	5,100,487	4,716,123	4,922,817	5,241,804	5,131,032	5,219,329	5,063,651	4,985,376
<b>Seed (VII)</b>	105,850	109,250	110,500	117,400	124,700	136,250	122,550	119,100	118,200
<b>Waste (VIII)</b>	336,061	313,821	315,066	344,094	357,995	375,927	414,271	344,512	350,218
<b>Food (X: V-VI-VII-VIII-IX)</b>	4,045,856	4,677,416	4,290,557	4,461,323	4,759,109	4,618,855	4,682,509	4,600,038	4,516,958

Source: FAOSTAT

Overall, consumers' preferences have tended to shift away from traditional food towards rice, particularly in urban areas, where rice consumption is increasing the most. The shift in consumer's preferences is due to rising urbanization patterns, population and income growth, as well as changes in family occupational structures. Changing preferences among consumers are currently influenced by factors such as rice cost, ease and time of preparation (Odoemena, 2008; UNIDO 2011). As a result, rice consumption is particularly growing in cities such as Lagos, Abuja and Makurdi (yearly

consumption of 64, 64 and 72 kg/capita, respectively), where most of the urban consumption is met by imports, while demand is projected to grow 15 percent between 2010 and 2018 (USAID 2009).

Domestic rice is normally semi-milled brown rice, de-hulled, not-polished, has great color variation and might contain different varieties in the same bag. In general, there is limited investment in the processing of local rice in Nigeria, and specifically in packaging and improved technology for cleaning paddy and de-stoning (USAID 2009, IITA 2005). Imported Rice is generally processed milled rice. Domestic rice is normally 20-30 percent less expensive than imported rice. The main determinants in price difference between consumed and imported rice are: appearance, the cleanliness, swelling capacity, taste and the homogeneity of the imported rice (Ogadinma 2009). However, despite the price and quality differential, there is still an overall acknowledgment of higher organoleptic properties of local rice (Lançon et al, 2003).

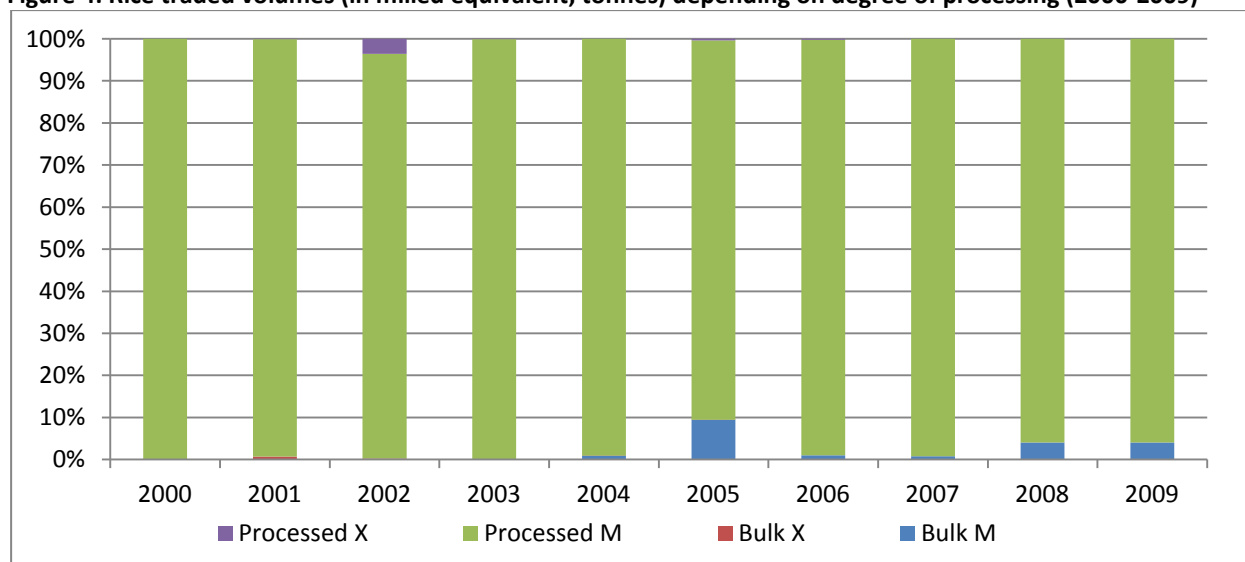
Consumers prefer parboiled rice whether imported or local. Nigeria is the main market in West Africa for parboiled rice, while other countries have a preference for regular milled white rice (USDA FAS, 2005-2010). However, while parboiled rice is particularly appreciated in Nigeria, taste varies across states. For example, non-parboiled rice is preferred in Ekiti state, while parboiled is preferred in Niger state (the second most producing state in Nigeria). Overall, imported rice is preferred to the locally grown rice, based on its superior quality (Diagne, 2011).

In general, the marketing segment of high quality consumers, mostly in urban areas, is mainly concerned with quality and less sensitive to price changes, while consumers of local rice are normally more price sensitive (USAID 2009).

## MARKETING AND TRADE

Most rice traded in Nigeria is milled (94 percent of total imports), broken (6 percent), paddy or husked, although the two latter are traded in significantly lower quantities (less than 0 percent, 0.01% in average between 2000 and 2009) (Figure 4, below). Additionally, milled rice is the sole processed category reported by export statistics; although the exported quantities are negligible both in the processed and bulk category (see Figure 4).

**Figure 4: Rice traded volumes (in milled equivalent, tonnes) depending on degree of processing (2000-2009)**



Note: Bulk rice refers to paddy and husked [HS 100610 and 100620] while processed refers to milled and broken [HS 100630 and 100640]. Milled conversion ratios used 0.67 for paddy and 0.80 for husked

Source: FAOSTAT Trade Statistics

While export statistics are not reported by Global Trade Atlas (GRA) and UNCOMTRADE, FAOSTAT provides some information on export flows. All three data sources are reported below, to show all information available on exports, and confirm they are negligible for the purposes of our analysis (Table 4).

**Table 4: Total import and Export flows of rice, in milled equivalent (tonne)**

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Imports	Rice Broken	45,527	4,550	3,984	700	32,279	10,303	156	219,142	19,585	19,585
	Rice Husked	30	20	8	1	12,805	109,720	10,083	9,633	8,219	8,219
	Rice Milled	740,000	1,765,500	1,232,410	1,600,000	1,350,000	1,040,320	963,140	985,770	186,202	186,202
	Rice, paddy	187	0	11	0	8	11	7	9	470	470
Exports	Rice Milled	0	1,500	45,701	1,450	1	4,367	2,497	251	46	46
	Rice, paddy	0	12,463	2,685	1	1	1	0	0	0	0

Note: Bulk rice refers to paddy and husked [HS 100610 and 100620] while processed refers to milled and broken [HS 100630 and 100640]. Milled conversion ratios used 0.67 for paddy and 0.80 for husked

Source: FAOSTAT Trade Statistics

For imports, UNCOMTRADE is the best source since it shows trading partners as well as the value and quantity of imported rice. While FAOSTAT presented inconsistencies and sometimes underestimations of the trade flows, GTA and UNCOMTRADE often reported similar statistics to each other, as shown in Table 5 below. However, UNCOMTRADE was ultimately selected over GTA, since its data covers a broader timeframe (2006-2010) as opposed to GRT (2007-2010).

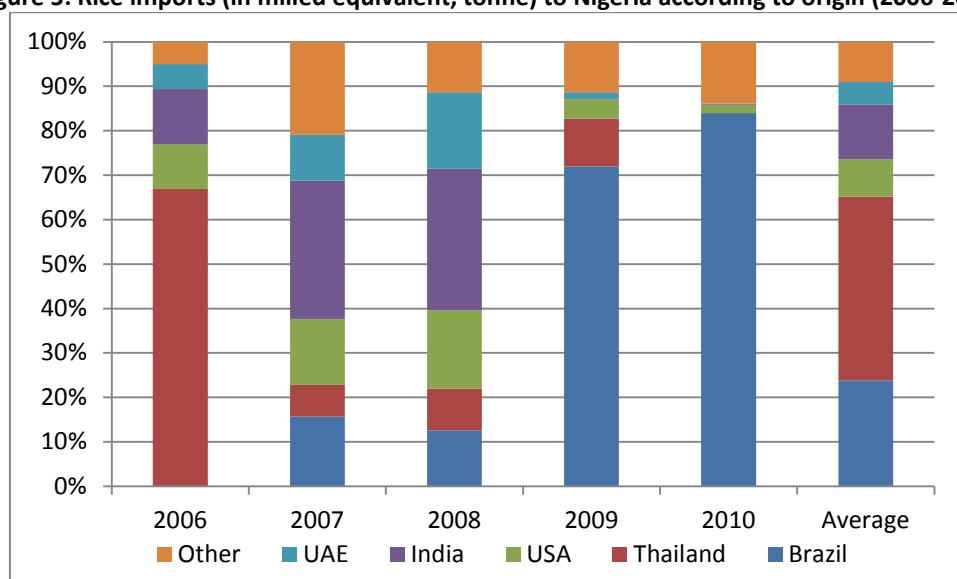
**Table 5: UNCOMTRADE import figures (2006-2010)**

		2006	2007	2008	2009	2010
Semi-milled/wholly milled rice, whether/not polished/glazed	USD	370,698,889	394,528,001	85,206,568	355,452,294	403,576,202
	tonne	2,424,524	718,935	132,899	330,444	677,016
Broken rice	USD	45,761,050	82,041,323	6,955,580	88,881,249	11,984,878
	tonne	96,940	288,104	21477.00	64,064	2,177
Husked (brown) rice	USD	7,095,906	4,165,334	3,523,636	26,984,083	78,984,737
	tonne	30,325	7,059	5,571	3,317	32,122
Rice in the husk (paddy/rough)	USD	10,979	5,970	258,697	577,248	298,484
	tonne	20	11	386	269	38

Source: UNCOMTRADE and GRT

Rice imported from Thailand is traditionally among the main competitors with local rice. However, although the literature mostly focuses on Asian rice as the main competitor, the analysis of trade partners in UnComtrade shows that Nigeria rice imports have come from diversified sources in recent years. While in 2006 over 60 percent of imported rice (in milled equivalent) originated from Thailand, countries such as Brazil, United States, UAE and India started playing a larger role in the following years. Over 70 percent of imported rice originated from Brazil in 2009 and 2010, while approximately 30 percent of imported rice originated from India in 2007 and 2008, and between 15 and nearly 20 percent from the US, in the same biennium (see Figure 5).

**Figure 5: Rice imports (in milled equivalent, tonne) to Nigeria according to origin (2006-2010)**



Notes: Milled conversion ratios used 0.67 for paddy and 0.80 for husked.

Source: UN Comtrade

As shown in Figure 6, below, formal imports account for a significant proportion of rice consumption in the country. However, the proportion decreased considerably after food prices soared in 2007, shifting from 63 percent in 2006 to 4 percent in 2008, 12 percent in 2009 and 22 percent in 2010.

**Figure 6: Volume of rice trade (tonnes of milled equivalent) and rice consumption in Nigeria (2000-2010)**



Notes: Consumption calculated as apparent consumption (Y+M-X).  
Milled conversion ratios used 0.67 for paddy and 0.80 for husked.  
Source: UN Comtrade

Informal trade plays an important role in bridging the gap between local production and domestic demand for cereals, although detailed estimates are not available. Informal cross-border trade of rice is widespread in Nigeria. Tariff protection has encouraged cross-border smuggling. Particularly, paddy rice imported to Benin, the so called “Cotonou Rice”, is then re-exported to Nigeria where it is transported to deficit areas, particularly urban areas such as Lagos (UNIDO 2011, Hashim 1999). An inter-reseaux study on Benin trade data shows important inconsistencies between official and mirror<sup>1</sup> statistics, particularly for products facing import prohibition and/or high tariffs in Nigeria. Moreover, the same study highlights that per capita consumption of rice in Benin is consistently higher than it is in Nigeria, particularly when protectionist measures are enforced in Nigeria.

For example, the quantity of rice imports to Benin doubled between 2004 and 2005, when customs duties in Nigeria were set at 100 percent, against 35 percent in Benin, and rose to 119 percent once port taxes and other duties are included (Inter-reseaux, 2011).

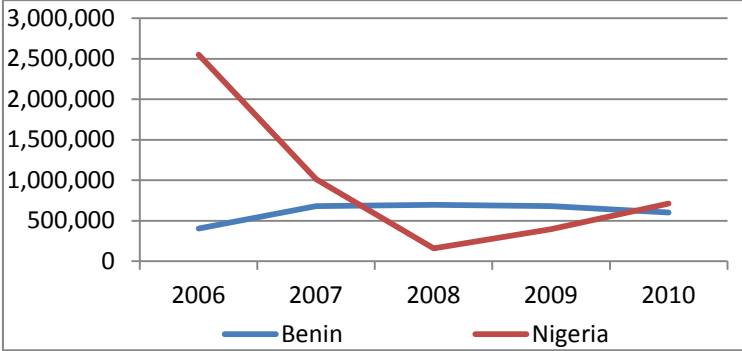
Additionally, custom duties in Benin were further lowered for “transit” commodities, which are subjected to only a 5 percent duty. “In transit” imported rice in Benin increased from 80 percent to nearly 100 percent of total rice imports between 2004 and 2006 (Inter-reseaux, 2011). Traders would often import rice as “in transit” to landlocked neighboring countries (such as Chad and Niger), while actually smuggling it to Nigeria (USDA FAS, 2005).

As shown in Table 6/ Figure 7, Benin import quantities of rice are extremely high, despite its relatively small population (10 million in Benin and 130 million in Nigeria). While in 2006 reported imports in Benin are 15 percent of those in Nigeria, they increase to 67 percent in 2007, and they are then higher in Benin than in Nigeria for the years 2008-2009, while in 2010 they are only 15 percent lower than rice imports in Nigeria. Although the main trade data for Nigeria is often inconsistent across the

<sup>1</sup> Bilateral comparisons of two basic measures of a trade flow. Traditional tool for detecting the causes of asymmetries in statistics (Eurostat, “Statistics on the trading of goods - User guide”, Office for Official Publications of the European Communities, Luxembourg, 1998).

main trade databases, and should be treated with caution, the graph below is still relevant to show that Benin imports of rice are particularly high, considered the relatively small population in the country, suggesting a high rate of informal trade flows towards other countries in the region, and Nigeria in particular (Inter-réseaux 2011, USDA FAS 2005).

**Table 6/ Figure 7: Rice imports in Nigeria and Benin, (tonne, 1006 HS Rice) 2006-2010**



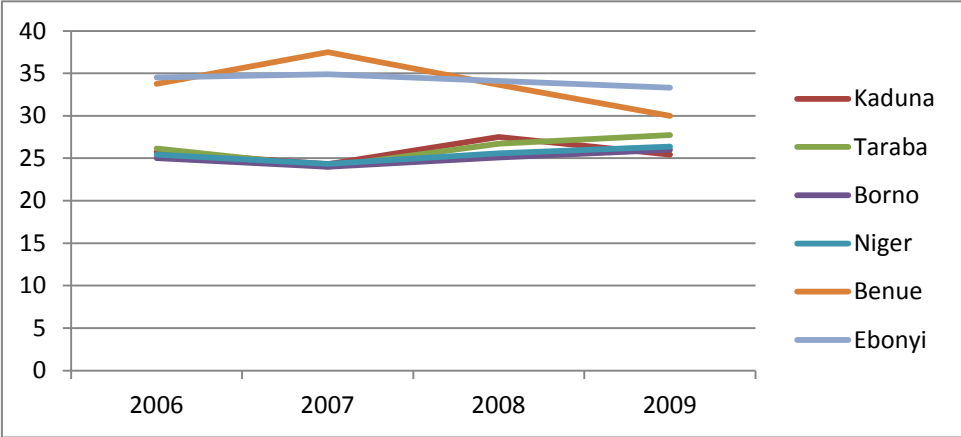
	2006	2007	2008	2009	2010
Benin	404,856	681,673	697,670	682,728	604,255
Nigeria	2,551,809	1,014,108	160,333	398,093	711,354

Source: UNCOMTRADE

Additionally, there is an intense Informal trade of rice in Northern Nigeria, with neighboring countries (Cameron and Niger). Traders buy rice from the two countries and then re-export it back to the country of origin when the price differential allows for profitable margins. Although there is no comprehensive information available on value and quantities of informal imports and re-exports of rice, a yearly average of 300 000 tonnes of rice imported to Nigeria through informal cross-border trade is estimated (UNIDO 2009, USDA FAS 2006).

Although wholesale prices are not available, retail and farm gate prices are available at state and national level. Farm gate prices, provided by the NBS, are provided for the years 2006-2010. As shown in Figure 8 below, prices tend to be lower in main producing states (such as Kaduna, Taraba, and Niger), than for least producing states, such as Benue and Ebonyi. This is in line with the assumption that in deficit areas prices are higher.

**Figure 8: Price trend in selected states Naira/kg (2006-2009)**



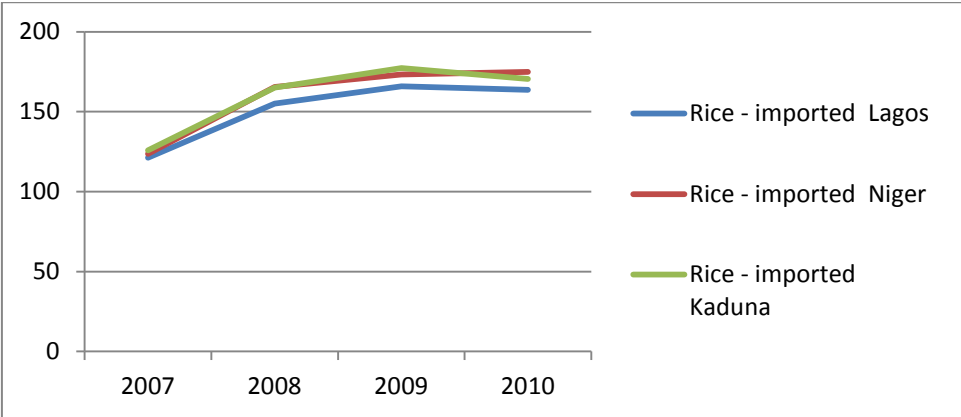
Source: NBS

Retail prices are available for the year 2007-2010, provided by the Ministry of Agriculture. While the prices of imported rice in Lagos is correlated to that of imported rice in two of the main producing

states (Kaduna and Niger), it remains slightly lower in Lagos, probably due to lower transaction costs to market.

The price trend of imported rice in the three different markets of Lagos, Kaduna and Niger is correlated, although while in both Lagos and Kaduna there is a slight decrease in the price of imported rice between 2009 and 2010 (2 percent and 4 percent respectively), in Niger there is a slight increase (1 percent).

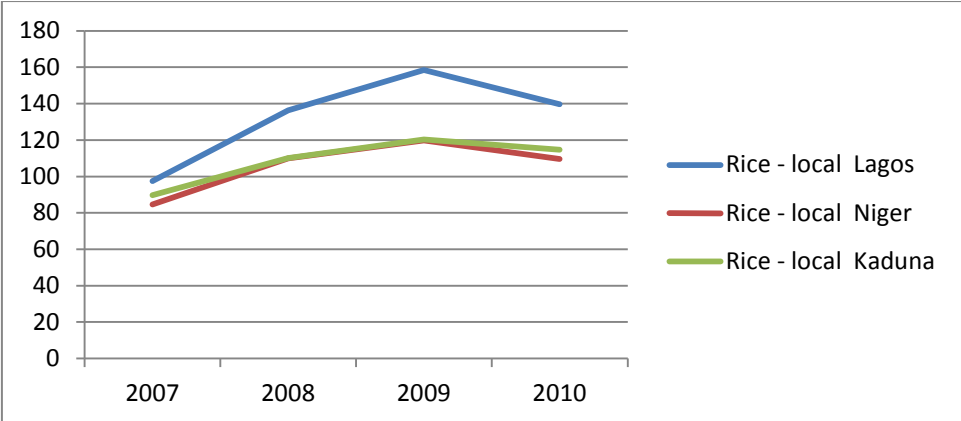
**Figure 9: Retail Prices of imported rice in selected States, Naira/tonnee (2007-2010)**



Source: MoA

Similarly, the trend in retail price of local rice in two of the main producing areas (Kaduna and Niger) is correlated to retail price in Lagos, although the latter is higher, considering the distance from main producing areas and the fact that Lagos is a deficit area for rice, mainly supplied by imports.

**Figure 10: Retail Prices of local rice in selected States, Naira/tonnee (2007-2010)**



Source: MoA

**DESCRIPTION OF THE VALUE CHAIN AND PROCESSING**

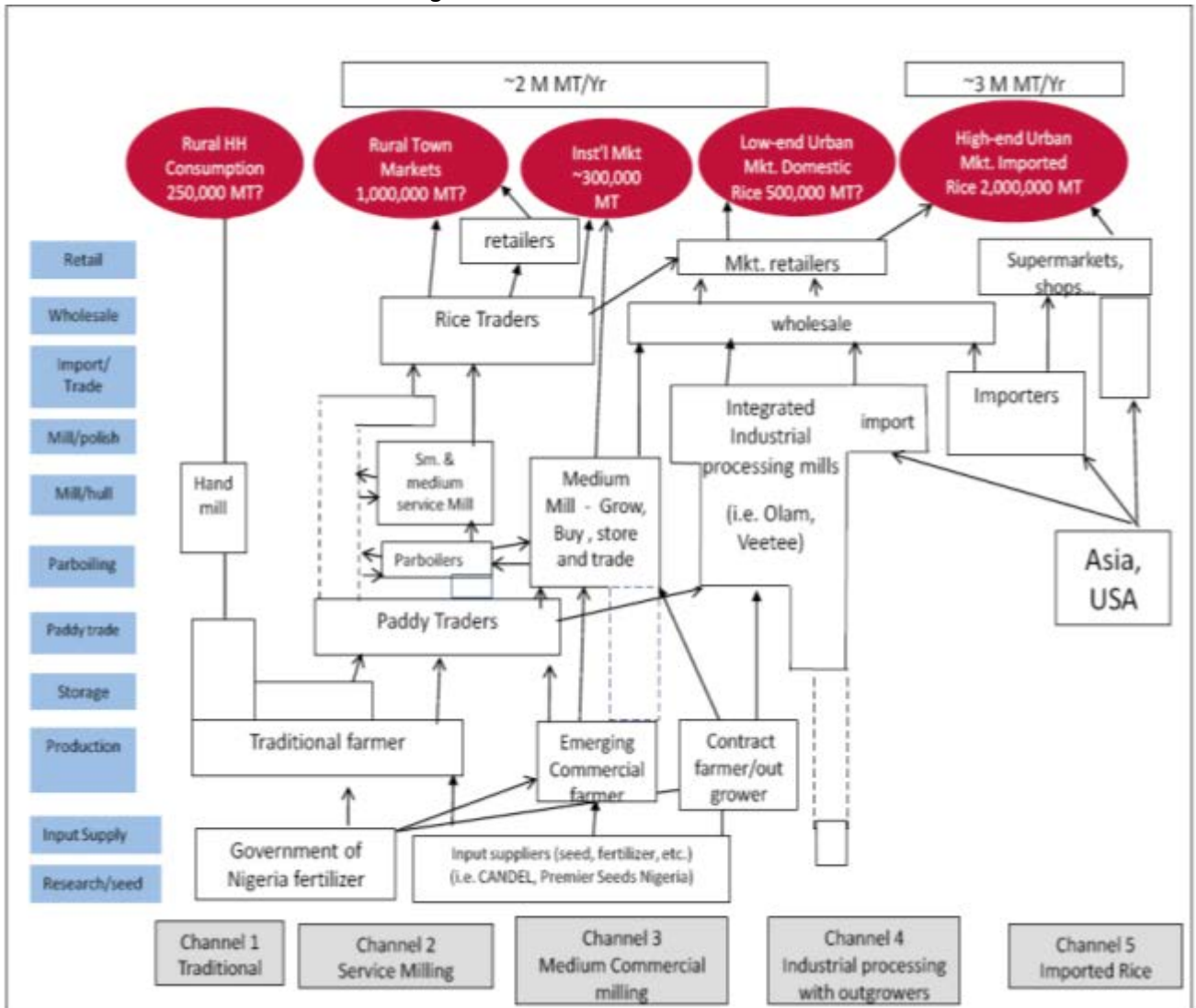
The main actors in the rice value chain in Nigeria are farmers, paddy traders, millers, rice traders and retailers. The main value adding activities include: production, harvesting, storage and paddy aggregation at traders’ level, parboiling, milling, wholesaling, and retailing. Rice farmers can be categorized in three main typologies: (1) smallholders applying a low-input- the majority of producers in the country, low-yield- average 20 hectares production (less than 2 Tonne/ha) strategy, (2) larger-scale commercial farmers (20+ ha), often providing first processing; and (3) smallholder contract/outgrower farmers adopting enhanced production technologies (USAID 2009).

Although, given the vast size of the country, it is difficult to provide a value chain scheme applicable country-wise. USAID[2009] identified five supply chains (see Figure 11) which they describe as the most prominent:

- **Channel 1** is supplied by smallholders and serves rural village consumption accounting for the approximately 80 percent of marketed domestic rice;
- **Channel 2** is also supplied by smallholders and is traded along the value chain. The main value adding activities include parboiling and milling, while the overall actors' investment can be summarized as a low-input low-output approach;
- **Channel 3** supplies middle-end rural markets, and includes mid-size mills (approximately between 20 and 30 millers in the country). Millers' supply is often augmented by out grower schemes, and it is variable in quantity. Parboiling is mainly artisanal, with a minority of mechanical parboiling schemes. This channel provides an estimated 25 000 tonnes of milled rice per year (1 percent of average total production in milled equivalent);
- **Channel 4** supplies large scale, industrial millers and aims at import substitution between imported and domestic rice. There are only two large scale millers (Olam and Vetee) involved in this channel, and they rely on contract growers and market the top end domestic product;
- **Channel 5** supplies high end domestic consumers, mostly urban, and it is supplied by imported rice. There are three main traders involved in this channel (Vetee, Stallion, Olam) and the traded product, includes a range of different qualities marketed at different prices (although of consistently higher quality compared with the local produce). Most of the sales for this channel are located in Lagos.



Figure 11: Rice Value Chain



Source: USAID 2009

Margins allocation varies considerably for domestic and imported rice (USAID, 2009). As shown in Table 7, below, total traders' margins are higher in the value chain of domestic rice, accounting for 54 percent of total retail prices, while accounting for a total of 29 percent of retail prices for the imported rice. In the value chain of domestic rice, paddy traders are the agents with the highest margins, amounting to 19 percent of retail price, they are followed by retailers (16 percent), wholesalers (12 percent) and initial rice traders at village level (6 percent). In the value chain of imported rice, the agents accruing the highest margins are initial rice traders at importer level (15 percent of retail price), followed by wholesalers (5 percent) and retailers (9 percent).

**Table 7: Traders' margins as % of retail price, imported and domestic rice value chain (milled)**

	Domestic	Imported
<b>Retailer Margin</b>	16%	9%
<b>Wholesale Trader Margin</b>	12%	5%
<b>Initial Rice Trader Margin</b>	6%	15%
<b>Farm Gate Price (paddy trader margin)</b>	19%	n/a
<b>Total Traders' Margin</b>	54%	29%

Source: Own adaptation from USAID 2009

Transport and agents' margins account for a considerable share of the price composition, as shown in Table 8, below.

**Table 8: Price composition in the value chain of smallholder domestic rice (Channel 2), Naira/tonne**

Farmer	Cost of Production	45,231
	Transport	750
	Farmer Margin	14,019
	<b>Farm Gate Paddy Price</b>	<b>60,000</b>
Rural Trader	Processing Costs and Local Market Fees	4,500
	Rural Market Trader Margin	31,500
	<b>Rural Wholesale Rice Price</b>	<b>96,000</b>
Major Market Trader	Transport to major market	3,000
	Warehousing costs	1,000
	Major Market trader margin	10,000
	<b>Retail Price</b>	<b>110,000</b>

Note: Estimated Costs and margins for rural and major markets are based on Tudun Wada to Dawanau markets respectively

Source: USAID 'MARKET S'tudy, 2009

A WARDA study estimates that the average national distance between farm gate and market is 40 km. The same study evaluates that in Kaduna state 67 percent of produced rice has the village as its primary market, while the remaining 33 percent is transported to market (Odoemena, 2008).

## POLICY DECISIONS AND MEASURES

Following a period of relatively little government expenditure in support of agricultural that resulted from the overall structural adjustment policy framework, there have been a number of government initiatives to increase agricultural production. These include the Special Programme for Food Security (SPFS, 2001), the recapitalization of the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB, 2004), the Fadama II Programme (2003-2009) and, the National Agricultural Policy in 2005.

The *National Food Security Programme (NFSP)* includes trade policies, such as import substitution, marketing/price policies, and the promotion of modern agricultural practices. Overall agricultural policies build on the regional New Partnership for Africa's Development (NEPAD, 2001) and the Comprehensive Africa Agriculture Development Programme (CAADP, 2003). The overall thrust of Nigerian policy decisions and measures is to increase food production, commercialization, and develop the agribusiness sector. The *National Investment Plan (NAIP, 2011-2014)*, includes rice among the commodities selected for special focus (along with cassava, millet, sorghum, wheat, maize, sugar, cow peas, soya beans, tomato cotton, cocoa, and oil palm).

According to the WTO Trade Policy review three main initiatives impact on the overall agricultural sector through current public expenditure: Fertilizer policy (procurement and distribution); the National Special Program for Food Security (NSPFS); and the buyer-of-last-resort grain purchase. They represent respectively 43 percent, 22 percent and 26 percent of current spending in 2008 (WTO Review 2011).

The specific policy measures and initiatives below have an impact on the rice sector, and include a mixture of input and price support.

#### ***Presidential Initiative on increased Rice Production (2002-2007)***

Given to the high import bills for rice and the relatively low quality and yields for the cereal in Nigeria, different policy initiatives have been implemented to increase production. Among such policy actions, the Presidential Initiative on increased Rice Production (2002) aimed specifically at reversing the import bill meeting domestic demand by 2006 and reach export capacity by 2007. Main targets were to increase rice production, improve milling quality, and promote marketing to provide domestic rice for consumption and to ultimately reduce national rice importation. The ambitious goal of the Initiative was to produce 15 million Tonne of rice from 3 million ha of consolidated farm land by 2007. The main activities included: (1) increase production, inputs and crop protection, by increasing yields, enhancing agronomic practices, providing credit to farmers, providing inputs, applying agricultural good practices such as minimum tillage; (2) enhance irrigation and land development schemes through rehabilitation and construction of current endowments; (3) improve processing, marketing and storage; (4) enhance farmers' groups; and (5) seed production (mainly NERICA and *Oryza sativa*) (CARD 2010).

Although the initiative did not reach its final goal, there was a 31 percent increase in rice production between 2002 and 2007. Among the results of the Initiative's application, there were 81 505 supply packages (known as R-Boxes, containing seeds and agro-chemical supplies) distributed in 36 states, the National Seeds Service (NSS) produced 58 tonne of foundation seed, 4.92 tonne of breeder seeds and 25.23 tonne of foundation seed Stage 1 of NERICA and 12.6 tonne of lowland varieties were produced by the National Cereal Research Institute and West African Rice Development Association, while capacity building was enhanced through Management Training Plots (MTP) in 25 states (Odoemena, 2008).

#### ***Nigerian National Rice Development Strategy (NRDS) (2009-2018)***

Similarly to the 2002 Presidential Initiative, the NRDS (initiated in 2009) goal is to increase rice production. The target set by NRDS is to raise paddy output from 3.4 million tonnes in 2007 to 12.8 million tonnes in 2018. There are three priorities areas set for enhancement by the Strategy, they are: (1) post-harvest processing and treatment; (2) irrigation development; and (3) input availability, mainly focusing on seeds, fertilizer and farming equipment. NRDS includes a mixture of input supply promotion (such as 50% subsidy for seeds and 25% for fertilizer) and reduced custom tariff on imports of specific agricultural machineries (such as tractors and processing equipment). The high cost of seeds is currently a constraint on increased production. The National Agriculture Seed Council is in charge of seed production and certification, while the National Cereals Research Institute (NCRI) and the Africa Rice Centre regulate their delivery to producers (Diagne 2011).

### ***Presidential Transformation Agenda (2011)***

The overall goal of the Agenda is to define agriculture as a business, promote private sector investment in agriculture, along with the development of private sector driven marketing organizations and the promotion of Incentive-based Risk Sharing for Agricultural Lending (NIRSAL). Rice is among the commodities (together with cassava, sorghum, cocoa, and cotton) for which a country-wide commodity-specific transformation plan is envisaged. The final goal of the rice transformation agenda is to reduce the import bill, and make Nigeria self-sufficient within a 5 years' timeframe. To achieve the goal, the strategy aims at improving rice quality offering a viable alternative to the current imports, aiming for a significant portion of demand in the domestic rice market will shift from parboiled rice to milled rice. Consequently, policies will especially focus on milled rice but also on parboiled rice as a supply side target. Activities focus on enhanced irrigation and mechanization systems, through private sector involvement. For example, incentivize the private sector to invest in large parboiling and de-husking facilities in regions of high current production, such as Niger State and Cross River State.

### ***Cross-commodity Input Support: Fertilizer Policy***

Aside from rice-specific input support policies, there are initiatives that influence rice production, although their specific impact cannot be quantified. Both State and Federal Government can provide fertilizer to farmers as input support. However, contribution varies consistently between one state to the other, and between one year to the other. The Federal Market Stabilization Programme (FMSP) allows companies to produce and import fertilizer and allocate it to state governments with a 25 percent subsidy. Additionally, State Governments can further add to the subsidy.

The National Investment Plan (NAIP) set a target of a 30 percent increase in fertilizer use in the period 2010-2015, with an overall demand expected to grow from 2.6 to 3.4 million tonnes per year by 2015. There are three main initiatives within the NAIP actively targeted towards the increase in fertilizer use: (1) the Organic Fertilizer Development Programme (OFDP) promotes the use of organic fertilizer through a Public Private Partnership (PPP) approach; (2) the Fertilizer Quality Control (FQC) project aims at increasing the quality of fertilizer used and distributed; and (3) the National Foundation Seed Multiplication aims at releasing high quality foundation seeds to certified producers.

### ***Cross-Commodity Price Support Measures: Guaranteed Minimum Price***

The Guaranteed Minimum Price Programme is the follow-up to the Buyer of Last Resort Grain Programme, formerly run by the Food Reserve Agency. The Buyer of Last Resort Grain Programme's main goal was to develop a buffer stock to respond to shortages of cereals, as well as to influence prices by purchasing cereals when markets prices are below an intervention threshold (WTO Review, 2011).

In 2008, in response to the high food prices crises, the Government encouraged producers by indicating that they would prevent prices from falling below a minimum by purchasing excess produce (FAO/GIEWS 2008). They also procured 650 000 tonnes of fertilizer (IFPRI food Security Portal, 2008).

### ***Trade Policy measures***

Nigeria has only partially implemented the 2005 ECOWAS Common External Tariff Regime (CET). The country issued in 2008 a CET Book to harmonize its tariffs within the CET, including a five tariff bands systems and the reduction of import duties on a number of items including rice. The ECOWAS CET was modified in 2009 to include a fifth higher band of 35%, in addition to the four tariff bands (from 0 to 20%) which the ECOWAS member states originally agreed upon, to meet Nigeria's request to protect its nascent industries and sub-sectors. Nigeria is currently applying the 35 percent tariff line on 167 tariff line items. None of these items has non-zero import value (World Bank, 2010).

The country's average MFN (Most Favorite Nation) tariff stands at 12 percent, while the average tariff for agricultural products is 16.5 percent. Building on its restrictive regional trade policy approach, Nigeria adopted a protectionist stand with its other international counterparts. The country rejected in 2008 an economic partnership agreement (EPA) with the European Union (ECOWAS Commission, 2008) (World Bank, 2010).

Although the adoption of the CET shows the political will to adopt trade and investment reform to harmonize policies within the region, there is still resistance in embarking on further reform (USTR, 2009). The Federal Government of Nigeria prohibited the importation of a number of agricultural commodities in 2004, as an incentive to the development of local production (Nigeria Customs, 2011).

Nigeria declared no domestic support or export subsidies to the WTO Committee on Agriculture during the 1995-2009 periods (WTO 2011) (WTO Review, 2011).

Importing in Nigeria is still subject to multiple difficulties, such as frequent policy changes in tariffs, duties and procedures, along with often unclear and inconsistent interpretation of rules by the Nigerian Customs Service (NCS). The cost of trading to Nigeria remains high, also due to the arbitrary use of reference prices for valuation purposes, which fosters smuggling (USTR, 2009). An importers' survey in 2007, for example, showed that arbitrary reference prices are maintained by customs, regardless of the declared value: USD 335, USD 365 and USD 450 per tonne for Indian, Thailand, and American rice, respectively. In 2009, according to USDA FAS, the Government of Nigeria (GON) implemented a reference price of USD 590, which was raised to USD 640/tonne in 2010 per tonne, for all rice imports for the purpose of import duty calculation, despite the fact that this figure is far above the actual price of the rice. In 2006, According to a survey of importers, the following reference prices are maintained by customs for tariff calculation (Table 9), which do not correspond to any specific import price from main trading partners' countries.

**Table 9: Arbitrary reference prices as reported in GAIN, USD/tonne (2005-2010)**

	2005	2006	2007	2008	2009	2010
<b>India</b>	n/a	n/a	335	335 (690 in other GAIN sources)	590 (690 in other GAIN sources)	640
<b>Thailand</b>	n/a	n/a	365	365 (690 in other GAIN sources)	591 (690 in other GAIN sources)	640
<b>US</b>	n/a	n/a	450	450 (in other GAIN sources)	592 (690 in other GAIN sources)	640

Source: GAIN, 2005-2010

Although the literature agrees that there are high levels of tariff protection on rice in the years 2005-2010, there are inconsistencies on the actual information on tariff barriers applied. While the WTO trade Review (2011) does not offer break down information for the years under review, there is a discrepancy between figures in World Integrated Trade Solution and USDA FAS reports. However, there might be the possibility that since WITS does not take into account the special tariff added on rice in November 2005 (and confirmed in 2006), the actual tariffs reported by the two sources might be closer in value. While WITS reports a 50 percent value tariff, USDA FAS reports 100 percent, as the addition of a 50 percent tariff and the special 50 percent tariff on rice. For the years 2008 and 2009 there is no information on WITS, while USDA FAS reports that an initial tariff of 109 percent was temporarily set to zero between May and September (to mitigate the high food prices crisis) and then brought to 30 percent for milled and 5 percent for other rice types in October. For 2009 and 2010, the tariff reported by WITS (5 percent for husked and paddy and 10 percent for processed rice) is different from that reported by USDA FAS (30 percent on milled and 5 percent on other rice types). WITS also reports an additional tariff of 20 percent in 2010, a tax for the National Automotive Council (Tables 10 and 11, below).

**Table 10: Rice import tariffs for milled rice, as reported by WITS**

	2005	2006	2007	2008	2009	2010
<b>Rice Milled 100630</b>	50%	50%	n/a	n/a	10%	10% plus 20% (Tax for National Automotive Council)

Source: WITS

**Table 11: Rice import tariffs for milled rice, as reported by GAIN Reports**

	2005	2006	2007	2008	2009	2010
<b>Rice Milled 100630</b>	100%, changed to 50% in November. Since November, an additional tax on rice (50%) was introduced, effectively keeping the final actual at 100%	50% with an additional tax on rice (50%) effectively keeping the final actual at 100%	109%	109%, set to 0% between May and September and then reduced to 30% in October	30%	30%

Source: GAIN (2005-2010)

### 3. DATA REQUIREMENTS, DESCRIPTION AND CALCULATION OF INDICATORS

#### TRADE STATUS OF THE PRODUCTS

To calculate the indicators needed to estimate incentives or disincentives to production (NRP, NRA) as well as the Market Development Gaps (MDGs), several types of data are needed. They were collected and are presented and explained hereafter.

Although there are inconsistencies over the quantity and value of rice imported in Nigeria among the main databases (see Table 12, below), all data sources and relevant literature agree on describing Nigeria as a net importer of rice. Therefore our analysis will consider Nigeria as a net importing country for the period under review (2005-2010).

**Table 12: Net trade position (X-M in tonne) of Nigeria total rice (2005-2010)**

	2005	2006	2007	2008	2009	2010
<b>UNCOMTRADE</b>		-2,545,737	-1,012,693	-159,091	-397,341	-704,917
<b>FAOSTAT Trade Statistics</b>	-1183418	-973410	-1216711	-971769	-1164334	-1885240

*Notes:* Milled conversion ratios used 0.67 for paddy and 0.80 for husked.

Source: UN Comtrade, FAOSTAT

Analysis for rice in Nigeria could only be produced for the years 2007-2010, given data gaps. We consider Lagos as point of competition for our analysis. Most of formally imported rice is consumed in Lagos, and the city is the main port of entry for formally imported rice (through Apapa Port), as well as the hub from where formally imported rice can be traded to other areas of the country.

Moreover, since Lagos is a deficit area for rice, it also relies on domestic trade flows of locally produced rice from the main surplus areas, aside from imported rice. More information on the pathways, quantity and value of informally traded rice could set the point of competition in other areas of the country. For example, we know domestic rice is exported to the country Niger from the Kaduna producing area, while rice re-exported from Benin enters Nigeria from its southwest borders. More information on cross-country trade would allow the analysis to capture informal trade

#### BENCHMARK PRICES

##### Observed

MAFAP analysis normally considers CIF prices as benchmark prices when the commodity is mainly imported, and FOB prices when the commodity is mainly exported. In the case of rice in Nigeria, since the country is a net importer, CIF prices were selected for the analysis.

CIF time series for the period under revision (2005-2010) from Nigerian customs is available (table 13).

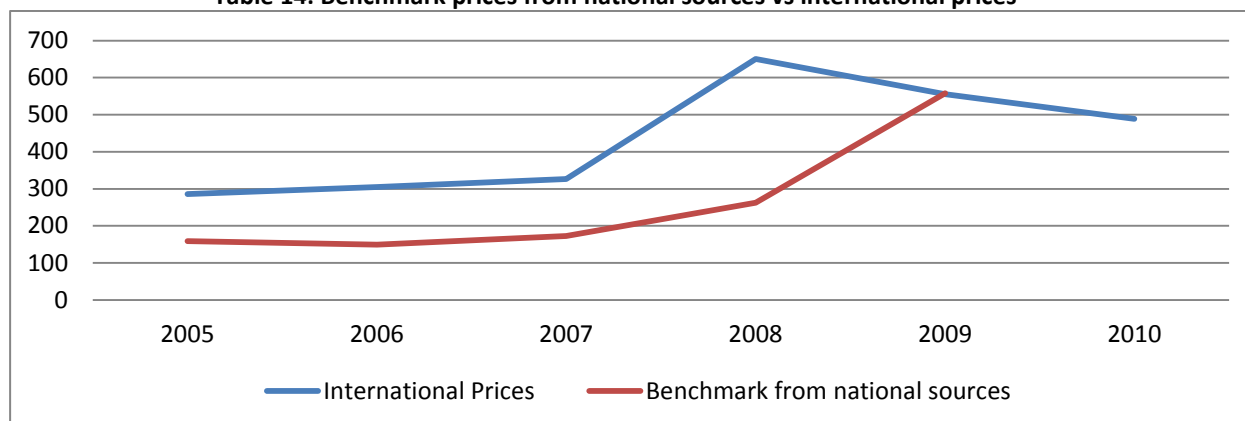
Data for the year 2010 is not available; therefore international prices provided by the World Bank were used for that year.

**Table 13: Benchmark Price, USD/tonne 2005-2010**

	2005	2006	2007	2008	2009	2010
<b>CIF prices (USD)</b>	159.29	149.87	172.67	262.81	557.56	n.a.

Source: NCS 2012; WB-GEMS

**Table 14: Benchmark prices from national sources vs international prices**



Source: NCS 2012; WB GEMS

### Adjusted

Since all relevant price components of the benchmark were included in the observed price, no adjustment was necessary.

## DOMESTIC PRICES

The retail price in Lagos and farm gate price in Niger were selected as the price at point of competition and farm gate price respectively, to conduct the analysis.

### Price at point of competition

Wholesale prices are not available for Lagos or for other markets (from which wholesale prices for Lagos could be calculated), consequently the retail price for local price in Lagos was used to calculate the wholesale prices. We assumed that 20% is the difference between the wholesale price and the retail price. The retail price is provided by the Ministry of Agriculture, and it is available for the years 2007-2010 only.

Although the source does not provide details on the type of rice, given that most of the rice consumed in Nigeria is parboiled, we assume that the category is semi-milled (similar to HS 100630 , “milled or semi-milled” rice).

**Table 13: Wholesale price for local rice in Lagos, Naira/tonne**

	2007	2008	2009	2010
<b>Lagos, wholesale price - local rice</b>	77,600	108,800	127,200	112,000

Source: Own calculation based on MOA

### Farm Gate Prices

Niger farm gate prices are chosen as observed prices for our analysis, since it is one of the main producing areas close to the point of competition, where most of the imported rice is consumed.



Niger Farm Gate Prices for the year 2010 were obtained by dividing Niger retail prices in 2010 by the average ratio between Niger retail and Farm gate prices in the available years (2007-2009), as documented in Table 16, below.

**Table 14: Calculation of Niger farm gate prices for 2010, Naira/tonne**

	2005	2006	2007	2008	2009	2010
<b>Niger Farm Gate</b>		25,450	24,350	25,600	26,390	27,062*
<b>Niger Retail Prices (local rice)</b>			84,627	109,889	119,847	109,579
<b>Ratio Niger Retail/Farm Gate Prices</b>			0.29	0.23	0.22	

SOURCE: NBS and MOA, 2012

\*Estimate

## EXCHANGE RATES

### Observed

Exchange rate for the years under review is shown in Table 17, below. Although there is a possibility that the exchange rate might be overvalued (WTO Trade review and IMF, 2011), more information is required to adjust the exchange rate accordingly.

**Table 15: Nigeria Exchange Rate, Naira/USD**

	2005	2006	2007	2008	2009	2010
<b>Exchange Rate Observed</b>	131.27	128.65	125.81	118.55	148.90	150.30

Source: IMF, Annual Average

## ACCESS COSTS

### Observed

#### *Observed Access costs between farm gate and point of competition*

Observed access costs between the farm gate and the point of competition are calculated on the observation of estimated costs and margins accrued between Tudun Wada and Dawanau markets (124 km distance), and by applying the same ratio to costs and margins accrued in the route between Niger and Lagos. The transport cost for the distance between Tudun Wada and Dawanau was applied to the distance between Niger state and Lagos (539 km) by multiplying for the ratio between the two distances (USAID, 2009). As shown in Table 18, below, observed access costs include: processing costs, local market fees (intended as services), rural market trader margin, and transport to major market, warehousing costs, and major trader margins.

**Table 16: Calculation of Access costs from farm gate to point of competition, Naira/tonne**

	2006	2007	2008	2009	2010
<b>Niger Farm Gate</b>	25,450	24,350	25,600	26,390	27,062
<b>Processing Costs and Local Market Fees</b>	1,909	1,826	1,920	1,979	2,030
<b>Rural Market Trader Margin</b>	13,361	12,784	13,440	13,855	14,208
<b>Transport to major market</b>	5,531	5,292	5,564	5,736	5,882
<b>Warehousing costs</b>	424	406	427	440	451
<b>Major Market trader margin</b>	4,242	4,058	4,267	4,398	4,510

Source: own calculations based on USAID MARKET Analysis, 2009

Observed access costs are in the range of 25 000 Naira/tonne, varying from a minimum of 25 467 Naira/tonne in 2006 to a maximum of 27 080 Naira/tonne in 2010 (see Table 19, below).

**Table 17: Observed Access costs from farm gate to point of competition, Naira/tonne**

	2006	2007	2008	2009	2010
Access Costs Farm Gate to Point of Competition	25,467	24,366	25,617	26,408	27,080

Source: own calculations based on USAID MARKET Analysis, 2009

### **Adjusted**

#### **Adjusted Access costs between farm gate and point of competition**

Access costs were adjusted to account for market inefficiencies between farm gate and point of competition. Rural Market Trader Margin is 53 percent of the Farm Gate price (USAID MARKET Analysis, 2009), in excess of 43 percent of normal margins according to the MAFAP methodology. Similarly, Major Market Trader margins amount to 17 percent, in excess of 7 percent of “normal” margins as defined by MAFAP methodology<sup>2</sup>. Therefore, excessive profit margins (above 10 percent) for different agents were subtracted from the observed access costs, as illustrated in Table 20, below.

**Table 18: Total and Excess Agents’ margin between farm gate and point of competition, % of farm gate**

	2006	2007	2008	2009	2010
Total Rural Market Trader Margin	53%	53%	53%	53%	53%
Total Major Market trader margin	17%	17%	17%	17%	17%
Excess Rural Market Trader Margin	43%	43%	43%	43%	43%
Excess Major Market trader margin	7%	7%	7%	7%	7%

Source: own calculations based on USAID MARKET Analysis, 2009

While 10 percent of the margin has been kept in the adjusted access costs, excess margins have been subtracted, as shown in Table 21, below.

**Table 19: Adjusted Costs between Farm Gate and Point of Competition, Naira/tonne**

	2006	2007	2008	2009	2010
Adjusted Access Costs Farm gate to Point of Competition	12,954	12,394	13,031	13,433	13,775

Source: own calculations based on USAID MARKET Analysis, 2009

### **Observed**

#### **Observed Access costs between Border and point of competition**

Observed access costs at point of competition include costs incurred between the border and the point of competition (Lagos retail market) with the addition of agents’ margins.

Initially, the following costs were included in the access costs: shipping agency charges, clearing charges, transportation from Apapa port to Lagos wholesale, and other costs (unspecified, although it is assumed that non-tariff measures are not included). They were calculated as percentages of the benchmark price, based on estimates made by USAID value chain analysis for the year 2008, and then applied to the entire timeframe under review (2005-2010), as summarized in Table 22, below.

<sup>2</sup> MAFAP analyses generally consider margins above 10% to be excessive.

**Table 20: Calculation of Observed Access costs between Border and point of competition**

	2005	2006	2007	2008	2009	2010
<b>Benchmark</b>	43,290	45,024	48,095	94,289	91,514	81,290
<b>% Shipping Agency charges</b>	3%	3%	3%	3%	3%	3%
<b>% Clearing charges</b>	0.48%	0.48%	0.48%	0.48%	0.48%	0.48%
<b>% Transportation</b>	8%	8%	8%	8%	8%	8%
<b>% Other costs</b>	2%	2%	2%	2%	2%	0.02
<b>Shipping Agency charges</b>	1,168	1,215	1,298	2,544	2,469	2,194
<b>Clearing charges</b>	206	214	229	449	436	387
<b>Transportation to wholesale</b>	3,436	3,573	3,817	7,483	7,263	6,452
<b>Other costs</b>	687	715	763	1,497	1,453	1,290

Source: own calculations based on USAID value chain analysis, 2009

Additionally, agents' margins as a percentage of the benchmark prices were included in the calculations, based on the estimates discussed above (Chapter 2.d, "Description of the Value Chain and Processing"). Such margins were available for the years 2007-2010 only, as shown in Table 23, below.

**Table 21: Agents' margin as a percentage of the Benchmark price and in Naira/tonne**

	2005	2006	2007	2008	2009	2010
<b>Agents' margins as % of Benchmark</b>						
<b>Wholesale trader margin</b>	n/a	n/a	12%	8%	9%	10%
<b>Initial Rice Trader Margin</b>	n/a	n/a	38%	25%	27%	30%
<b>Agents' margins, Naira/tonne</b>						
<b>Wholesale trader margin</b>	n/a	n/a	5,855	7,495	8,014	7,905
<b>Initial Rice Trader Margin</b>	n/a	n/a	18,151	23,233	24,844	24,507

Source: own calculations based on USAID value chain analysis, 2009

Eventually, the access cost from border to point of competition was calculated by adding agents' margins to the costs described above. As margins were available for the years 2007-2010, the access costs could be calculated for the period 2007-2010 only (see Table 24, below).

**Table 22: Access costs from border to the point of competition, 2007-2010, Naira/tonne**

	2005	2006	2007	2008	2009	2010
<b>Access costs border to point of competition</b>	n/a	n/a	30,114	42,701	44,478	42,735

Source: own calculations based on USAID value chain analysis, 2009

*Adjusted*

### **Adjusted Access costs between Border and point of competition**

Access costs were adjusted to account for marketing inefficiencies during transport from border to point of competition (Lagos retail). Specifically, since agents' costs were above 10 percent of

benchmark price for some years, the excess margins were subtracted from the observed access costs, as summarized in Table 25, below.

**Table 23: Excess Agents' Margins, as percentage of Benchmark Price and in Naira/tonne**

	2005	2006	2007	2008	2009	2010
Excess Agents' Margins, as % of benchmark						
Wholesale trader margin	n/a	n/a	2%	0%	0%	0%
Initial Rice Trader Margin	n/a	n/a	28%	15%	17%	20%
Excess Agents' Margins, Naira/tonne						
Wholesale trader margin	n/a	n/a	1,046	0	0	0
Initial Rice Trader Margin	n/a	n/a	13,342	13,804	15,692	16,378

Source: own calculations based on USAID value chain analysis, 2009

The Adjusted Access costs from border to point of competition are summarized in Table 26, below.

**Table 24: Adjusted access costs from border to point of competition, Naira/tonne**

	2005	2006	2007	2008	2009	2010
Adjusted access costs from border to point of competition	n/a	n/a	15,726	28,897	28,786	26,357

Source: own calculations based on USAID value chain analysis, 2009

## EXTERNALITIES

No specific externality is recorded

## BUDGET AND OTHER TRANSFERS

Although input support (mainly fertilizer) policies are in place, we are not aware of their specific disaggregation and impact on the rice sector.

## QUALITY AND QUANTITY ADJUSTMENTS

The quality of the locally produced rice is overall lower than the quality of imported rice (as discussed in chapter 2b, above). A ratio to measure such discrepancy has been built by comparing retail prices of local and imported rice. Table 27, below, shows the disaggregated difference in retail prices for the available years.

**Table 25: Quality conversion factor between domestic and imported rice**

	2007	2008	2009	2010
Quality conversion Factor	0.80	0.88	0.96	0.85

Own calculations, based on retail prices for local and domestic rice, MOA

## DATA OVERVIEW

Following the discussions above here is a summary of the main sources and methodological decisions taken for the analysis of price incentives and disincentives for Rice in Nigeria.

<b>Concept</b>	<b>Description</b>		
	<b>Observed</b>	<b>Adjusted</b>	
Benchmark price	<ul style="list-style-type: none"> <li>unit value of milled rice imports as reported in UN COMTRADE. FOB as reported by Thailand to Nigeria, plus freight and insurance</li> </ul>	N.A.	
Domestic price at point of competition	<ul style="list-style-type: none"> <li>Retail Price in Lagos (MOA)</li> </ul>	N.A.	
Domestic price at farm gate	<ul style="list-style-type: none"> <li>Niger Farm Gate Price (NBS)</li> </ul>	N.A.	
Exchange rate	<ul style="list-style-type: none"> <li>Annual average of exchange rate as reported by IMF</li> </ul>	N.A.	
Access cost to point of competition	<ul style="list-style-type: none"> <li>Includes: shipping agency charges, clearing charges, transportation to Lagos from the Port, other costs (intended as services), wholesale trader margin, initial rice trader margin,</li> </ul>	<ul style="list-style-type: none"> <li>Observed minus excess margins of wholesale trader and initial rice trader</li> </ul>	
Access costs to farm gate	<ul style="list-style-type: none"> <li>Includes: processing costs, local market fees, rural market traders margin, transport, Warehousing costs, major market trader margin</li> </ul>	<ul style="list-style-type: none"> <li>Observed minus excess margins of rural market traders and major market traders</li> </ul>	
QT adjustment	Bor-Wh	<ul style="list-style-type: none"> <li>0.80 to transform milled rice into husked rice</li> </ul>	N.A.
	Wh-FG	N.A.	N.A.
QL adjustment	Bor-Wh	<ul style="list-style-type: none"> <li>Average Price difference between imported and domestic rice (2007-2010) applied to 2005-2010</li> </ul>	N.A.
	Wh-FG	N.A.	N.A.

The data used for the analysis is summarized in the following table:

		Year	2007	2008	2009	2010
		trade status				
DATA	Unit	Symbol				
Benchmark Price						
Observed	USD/TONNE	$P_{b(int5)}$	172.67	262.81	557.56	488.91
Adjusted	USD/TONNE	$P_{ba}$				
Exchange Rate						
Observed	Naira/USD	$ER_o$	131.27	128.65	125.81	118.55
Adjusted	Naira/USD	$ER_a$				
Access costs border - point of competition						
Observed	Naira/USD	$AC_{owh}$	30,113.95	42,700.87	44,478.38	42,734.77
Adjusted	Naira/USD	$AC_{awh}$	15,726.36	28,896.68	28,786.17	26,357.00
Domestic price at point of competition	Naira/USD	$P_{dwh}$	77,600.00	108,800.00	127,200.00	112,000.00
Access costs point of competition - farm gate						
Observed	Naira/USD	$AC_{ofg}$	25,467.10	24,366.36	25,617.20	26,407.74
Adjusted	Naira/USD	$AC_{afg}$	12,954.19	12,394.28	13,030.54	13,432.65
Farm gate price	Naira/USD	$P_{dfg}$	25,450.00	24,350.00	25,600.00	26,390.00
Externalities associated with production	Naira/USD	E				
Budget and other product related transfers	Naira/USD	BOT				
Quantity conversion factor (border - point of competition)	Fraction	$QT_{wh}$	0.80	0.88	0.96	0.85
Quality conversion factor (border - point of competition)	Fraction	$QL_{wh}$				
Quantity conversion factor (point of competition - farm gate)	Fraction	$QT_{fg}$				
Quality conversion factor (point of competition - farm gate)	Fraction	$QL_{fg}$				

## CALCULATION OF INDICATORS

The indicators and the calculation methodology used is described in Box 1. A detailed description of the calculations and data requirements is available on the MAFAP website or by clicking [here](#).

### Box 1: MAFAP POLICY INDICATORS

MAFAP analysis uses four measures of market price incentives or disincentives. *First*, are the two observed nominal rates of protection one each at the wholesale and farm level. These compare observed prices to reference prices free from domestic policy interventions.

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

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

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

The  $NRPo_{fg}$  captures all trade and domestic policies, as well as other factors which impact on the incentive or disincentive for the farmer. The  $NRPo_{wh}$  helps identify where incentives and disincentives may be distributed in the commodity market chain.

*Second* are the **Nominal Rates of Protection - adjusted (NRPa)** in which the reference prices are adjusted to eliminate distortions found in developing country market supply chains. The equations to estimate the adjusted rates of protection, however, follow the same general pattern:

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

MAFAP analyzes market development gaps caused by market power, exchange rate misalignments, and excessive domestic market costs which added to the  $NRPo$  generate the  $NRPa$  indicators. Comparison of the different rates of protection identifies where market development gaps can be found and reduced.

With the data described above we obtain the price gaps summarized in Table 28, and nominal rates of protection in Table 29, for the period 2007-2010.

**Table 26: MAFAP price gaps for Rice in Nigeria 2007-2010 (Naira per tonne)**

	2007	2008	2009	2010
Trade status	m	m	m	m
Observed price gap at point of competition	30,107	38,683	3,021	6,805
Adjusted price gap at point of competition	44,495	52,487	18,713	23,183
Observed price gap at farm gate	1,224	-18,900	-71,381	-51,052
Adjusted price gap at farm gate	3,639	-17,683	-68,664	-47,980

Source: Own calculations using data as described above

**Table 27: MAFAP nominal rates of protection (NRP) for Rice in Nigeria 2007-2010 (%)**

	2007	2008	2009	2010
Trade status	m	m	m	m
Observed nominal rate of protection at point of competition	63%	55%	2%	6%
Adjusted nominal rate of protection at point of competition	134%	93%	17%	26%
Observed nominal rate of protection at farm gate	5%	-42%	-73%	-65%
Adjusted nominal rate of protection at farm gate	18%	-41%	-72%	-64%

Source: Own calculations using data as described above

**Table 28: MAFAP Market Development Gaps for Rice in Nigeria 2007-2010 (Naira per tonne)**

	2007	2008	2009	2010
International markets gap	-	-	-	-
Exchange policy gap	-	-	-	-
Access costs gap to point of competition	- 14,387.6	-13,804.2	-15,692.2	-16,377.8
Access costs gap to farm gate	11,972.1	12,586.7	12,975.1	13,305.6
Externality gap	-	-	-	-
Market Development Gap	0.1	0.0	0.0	0.0

ND: No data available for calculation

Source: Own calculations using data as described above



## 4. INTERPRETATION OF THE INDICATORS

Figures 14 and 15, below, show observed and adjusted price gaps at wholesale and production level, as well as observed and adjusted nominal rates of protection at wholesale and farm levels. Based on these indicators, MAFAP methodology observes incentives and disincentives for producers and traders, depending on national policies and domestic and international prices.

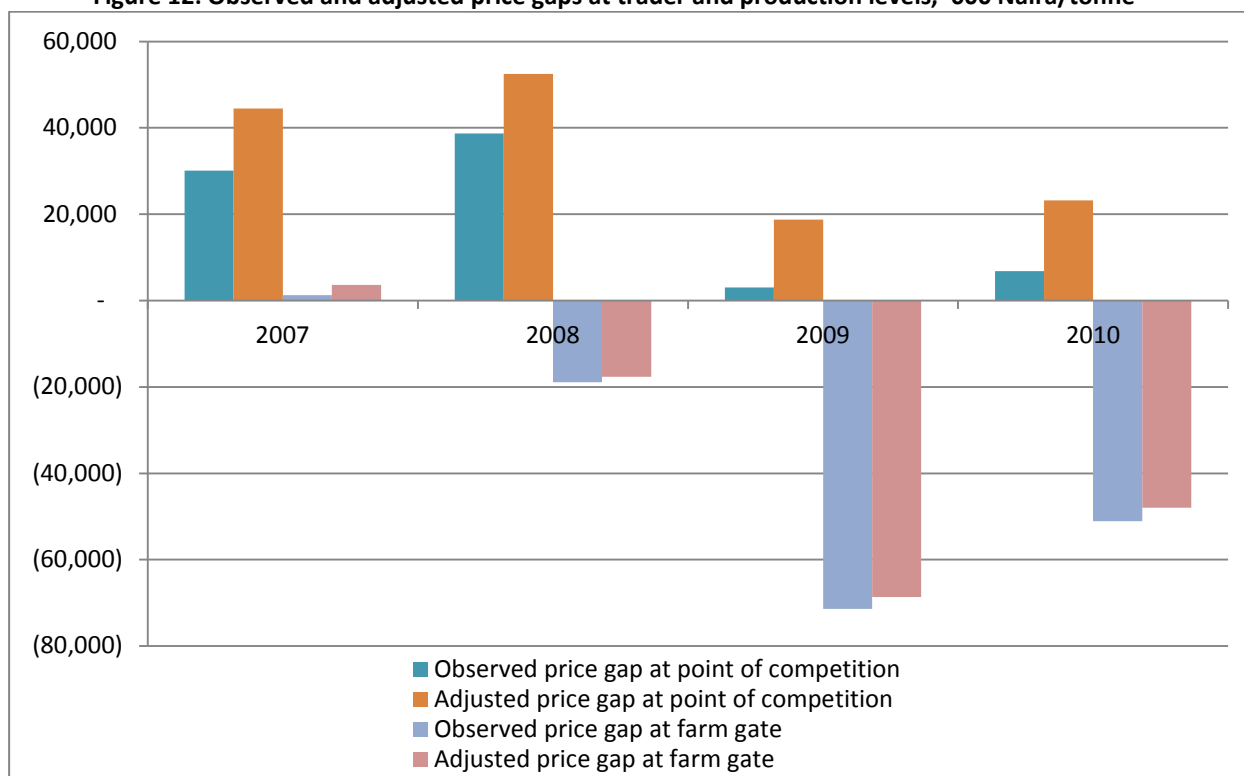
### *Price gaps and nominal rates of protection at point of competition*

The observed and adjusted price gaps at point of competition are positive throughout the whole period under review and so is the Nominal Rate of Protection at point of competition (Figures 20 and 21, below). This indicates an incentive for traders in all years between 2007 and 2010. Between 2008 and 2009 NRPs are decreasing steadily (reaching its lowest peak in 2009 at 2 percent); in this period the tariff was at its lowest rate (which was set to 0 percent for six months, to face the high prices crisis and was about 30% in 2009 and 2010). In 2007, instead, the NRP reaches its highest peak at 63 percent, while the tariff was reportedly set at 100 percent, including a 50 percent import tariff and an additional 50 percent of “special tariff” on rice. More detailed indication on how the special tariff on rice was applied could provide additional insight on its impact on traders’ incentive.

Aside from trade policies, market inefficiencies might provide an explanation for this trend. Adjusted NRPs are higher than the observed throughout the period, highest in 2007 (134 percent) and lowest in 2008 (17 percent), suggesting that traders are accruing further benefits when market inefficiencies are accounted for.

The observed gap is highest in 2008 (38,683 Naira/tonne), while it is lowest in 2009 (-16 875 Naira/tonne). For the years 2010 and 2007 the observed gap is positive. In 2008, when the import tariff on milled rice was reduced from over 100 percent to zero for six months to face the food prices crisis (subsequently set to 30 percent in October of the same year), the difference between domestic prices at point of competition and the reference price at point of competition was the highest (55 percent), suggesting that traders benefitted from this action. The highest difference between the adjusted domestic price and the reference price at point of competition was in 2007 (43.17 percent).

**Figure 12: Observed and adjusted price gaps at trader and production levels, '000 Naira/tonne**

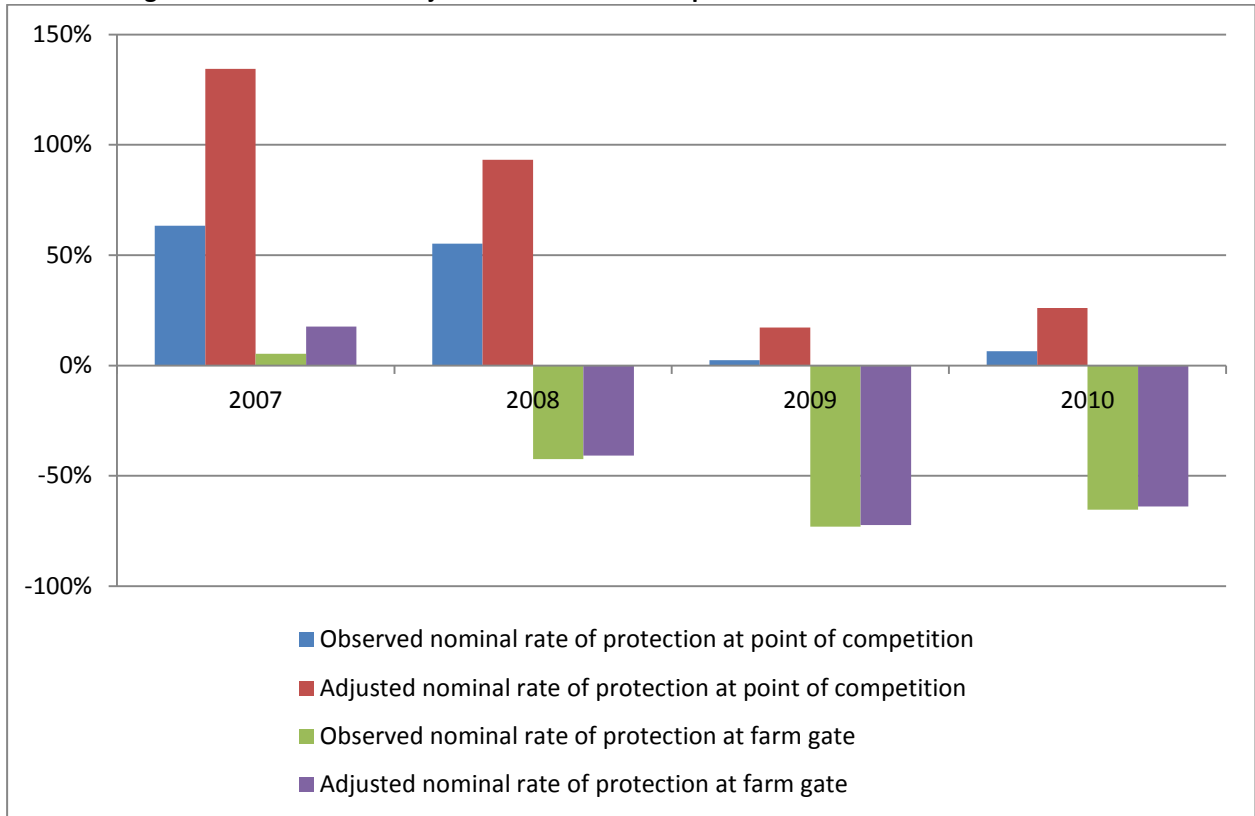


SOURCE: calculation of indicators

#### *Price gaps and nominal rates of protection at farm gate*

The observed and adjusted price gaps at farm gate are positive in 2007 and negative for all the rest of the years analyzed (2008-2010), the National Rate of Protection at farm gate follow the same trend (Figure 20 and 21). This suggests a disincentive for farmers between 2008 and 2010. Such disincentive is slightly lower (although still significant) for the adjusted price gaps and NRPs. The price gap follows a steady trend from a positive value in 2007 (1,224 Naira/tonne) to its maximum negative peak in 2009 (-71,381 Naira/tonne) only to decrease (in absolute value) in 2010 (- 51,052 Naira/tonne). The adjusted price gap at farm gate is higher in 2007 (44,495 Naira/tonne) and lower (in absolute terms) between 2008 and 2010, showing a relatively higher incentive when it occurs and a lesser disincentive when adjustments for market inefficiencies are accounted for. The observed NRPs at farm gate confirm the same pattern, with an incentive registered in 2007 (5 percent) and a maximum disincentive in 2008 (-73 percent). The difference between the observed and the adjusted domain show that condifering market inefficiencies, in 2007 farmers received higher incenitves (18 percent), while between 2008 and 2010 they received lower disincentives. Overall, the trend indicates that reduced import tariffs are associated with more pronounced disincentive for farmers.

Figure 13: Observed and adjusted nominal rates of protection at traders and farm levels



SOURCE: calculation of indicators

## 5. PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

### MAIN MESSAGE

The positive price gap at point of competition throughout the period (2007-2010) shows a higher incentive for traders than for farmers in the rice sector (although the effect of the tariff on rice did not entirely translate into traders' incentives). The negative gap at farm gate for the years 2008-2010 shows a disincentive for farmers during that period.

Overall, the effect of policies and the market structure in the rice sector are not in line with the objective to stimulate production and reach self-sufficiency to meet rice demand in the country. Although the Nigerian Government has a range of policies in place that should increase production and support farmers through input supply, credit and overall production assistance, it seems that the Presidential Initiative on increased Rice Production, the Nigerian National Rice Development Strategy and the overall Fertilizer and input support policy are failing to create actual incentives for farmers. While the price gaps and NRPs were positive in 2007, the disincentive for farmers increased in 2008 and the following years, reaching its maximum in 2009). In general terms, the negative gap at farm gate is higher when lower barriers are in place and in the case of 2007 the gap is actually positive and less pronounced or positive when 100 percent tariff barrier was implemented, showing that farmers' disincentives are more pronounced when lesser trade protections are in place.

Since self-sufficiency and import substitution in the rice sector are current priorities of the Nigeria Government (re-launched in the Presidential Transformation Agenda), the causes of such disincentives at farmers' level should be further investigated and monitored if the Government aims at producing tailor made and efficient policies at production level, and to foster domestic output of rice to meet the internal demand.

### PRELIMINARY RECOMMENDATIONS

Present policies in place seem to benefit traders over farmers.

Overall, it appears that farmers received incentives and overall lower disincentives when the 100 percent tariff was in place. However, although the Government of Nigeria is implementing policies to support the national production of rice against imports, there are still overall significant disincentives for farmers in the sector. Traders, on the other hand, seem to attract the main incentives from policies in the rice sector. The combination of the "development gap" and non-functioning markets seems to allow traders to capture most of the benefits, at the expenses of consumers aside from farmers. Nevertheless the price gap at point of competition is always positive 2007 and 2010, regardless of the protection in place.

Considering the information gap, it would be particularly important to develop the information base, to have a better understanding of the rice sector, and develop policies accordingly.

## LIMITATIONS

Conflicting information on:

- trade;
- import tariffs.

Lack of information on:

- wholesale prices for the period 2005-2010;
- farm gate for the years 2005 and 2010;
- retail prices for the years 2005-2006;
- detailed information on informal trade, including: pathways, value and volumes of informal cross-border trade.

## FURTHER INVESTIGATION AND RESEARCH

Considering the data gaps on prices (farm gate, retail and wholesale), and the conflicting and partial information on trade flows (imports and exports) and tariff barriers, more accurate data could provide a better understanding of incentives and disincentives at farm gate and at the point of competition.

Additionally, more information on informal cross-border trade could provide further insight to the analysis. Further investigation should include research on the pathways, quantity and value of informally traded rice, as well as on alternative point/s of competition between imported and local rice, when informal trade is taken into account.

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## **ANNEX I: Methodology Used**

A guide to the methodology used by MAFAP can be downloaded from the MAFAP website or by clicking [here](#).



## ANNEX II: Data and calculations used in the analysis

DATA		Unit	Symbol	Year trade status	2005	2006	2007	2008	2009	2010
					m	m	m	m	m	m
<b>Benchmark Price</b>	Observed	USD/TON	P <sub>b(int)</sub>		159.29	149.87	172.67	262.81	557.56	488.91
	Adjusted	USD/TON	P <sub>ba</sub>							
<b>Exchange Rate</b>	Observed	LOC/USD	ER <sub>o</sub>		131.27	128.65	125.81	118.55	148.90	150.30
	Adjusted	LOC/USD	ER <sub>a</sub>		131.27	128.65	125.81	118.55	148.90	150.30
<b>Access costs border - point of competition</b>	Observed	LOC/TON	ACo <sub>wh</sub>				30,113.95	42,700.87	44,478.38	42,734.77
	Adjusted	LOC/TON	ACa <sub>wh</sub>				15,726.36	28,896.68	28,786.17	26,357.00
<b>Domestic price at point of competition</b>		LOC/TON	P <sub>dwh</sub>				77,600.00	108,800.00	127,200.00	112,000.00
<b>Access costs point of competition - farm gate</b>	Observed	LOC/TON	ACo <sub>fg</sub>			25,467.10	24,366.36	25,617.20	26,407.74	27,080.44
	Adjusted	LOC/TON	ACa <sub>fg</sub>			12,954.19	12,394.28	13,030.54	13,432.65	13,774.83
<b>Farm gate price</b>		LOC/TON	P <sub>dftg</sub>			25,450.00	24,350.00	25,600.00	26,390.00	27,062.26
Externalities associated with production		LOC/TON	E							
Budget and other product related transfers		LOC/TON	BOT							
Quantity conversion factor (border - point of competition)		Fraction	QT <sub>wh</sub>							
Quantity conversion factor (border - point of competition)		Fraction	QL <sub>wh</sub>			0.80	0.88	0.96	0.85	
Quantity conversion factor (point of competition - farm gate)		Fraction	QT <sub>fg</sub>							
Quantity conversion factor (point of competition - farm gate)		Fraction	QL <sub>fg</sub>							

CALCULATED PRICES		Unit	Symbol	2005	2006	2007	2008	2009	2010
<b>Benchmark price in local currency</b>	Observed	LOC/TON	P <sub>b(loc)</sub>	20,910.69	19,281.03	21,723.29	31,155.08	83,021.66	73,482.21
	Adjusted	LOC/TON	P <sub>ba(loc)</sub>	20,910.69	19,281.03	21,723.29	31,155.08	83,021.66	73,482.21
<b>Reference Price at point of competition</b>	Observed	LOC/TON	RPo <sub>wh</sub>	20,910.69	19,281.03	47,492.58	70,117.34	124,179.17	105,194.64
	Adjusted	LOC/TON	RPa <sub>wh</sub>	20,910.69	19,281.03	33,104.99	56,313.15	108,486.96	88,816.87
<b>Reference Price at Farm Gate</b>	Observed	LOC/TON	RPo <sub>fg</sub>	20,910.69	(6,186.08)	23,126.21	44,500.13	97,771.43	78,114.20
	Adjusted	LOC/TON	RPa <sub>fg</sub>	20,910.69	6,326.84	20,710.71	43,282.61	95,054.31	75,042.04

INDICATORS		Unit	Symbol	2005	2006	2007	2008	2009	2010
<b>Price gap at point of competition</b>	Observed	LOC/TON	PGo <sub>wh</sub>	(20,910.69)	(19,281.03)	30,107.42	38,682.66	3,020.83	6,805.36
	Adjusted	LOC/TON	PGa <sub>wh</sub>	(20,910.69)	(19,281.03)	44,495.01	52,486.85	18,713.04	23,183.13
<b>Price gap at farm gate</b>	Observed	LOC/TON	PGo <sub>fg</sub>	(20,910.69)	31,636.08	1,223.79	(18,900.13)	(71,381.43)	(51,051.95)
	Adjusted	LOC/TON	PGa <sub>fg</sub>	(20,910.69)	19,123.16	3,639.29	(17,682.61)	(68,664.31)	(47,979.79)
<b>Nominal rate of protection at point of competition</b>	Observed	%	NRPo <sub>wh</sub>	-100.00%	-100.00%	63.39%	55.17%	2.43%	6.47%
	Adjusted	%	NRPa <sub>wh</sub>	-100.00%	-100.00%	134.41%	93.21%	17.25%	26.10%
<b>Nominal rate of protection at farm gate</b>	Observed	%	NRPo <sub>fg</sub>	-100.00%	-511.41%	5.29%	-42.47%	-73.01%	-65.36%
	Adjusted	%	NRPa <sub>fg</sub>	-100.00%	302.25%	17.57%	-40.85%	-72.24%	-63.94%
<b>Nominal rate of assistance</b>	Observed	%	NRA <sub>o</sub>	-100%	-5.11407666	0.05291784	-0.4247208	-0.73008475	-0.65355525
	Adjusted	%	NRA <sub>a</sub>	-100.00%	302.25%	17.57%	-40.85%	-72.24%	-63.94%

Decomposition of PWAfg		Unit	Symbol	2005	2006	2007	2008	2009	2010
International markets gap		LOC/TON	IRG	-	-	-	-	-	-
Exchange policy gap		LOC/TON	ERPG	-	-	-	-	-	-
Access costs gap to point of competition		LOC/TON	ACG <sub>wh</sub>	-	-	14,387.59	13,804.18	15,692.21	16,377.77
Access costs gap to farm gate		LOC/TON	ACG <sub>fg</sub>	-	(12,512.92)	(11,972.08)	(12,586.67)	(12,975.08)	(13,305.61)
Externality gap		LOC/TON	EG	-	-	-	-	-	-
Market Development Gap		LOC/TON	MDG	-	(12,512.92)	2,415.50	1,217.52	2,717.13	3,072.16
Market Development Gap		%	MDG	-	(1.98)	0.12	0.03	0.03	0.04

Total values		Unit	Symbol	2005	2006	2007	2008	2009	2010
<b>Production volume</b>		tons							
<b>Market price support</b>	Observed	YYY	MPS <sub>o</sub>	-	-	-	-	-	-
	Adjusted	YYY	MPS <sub>a</sub>	-	-	-	-	-	-



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