

Guyana's PetroCaribe Rice Compensation Scheme Has Ended

Assessment and Policy Implications

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Country Department Caribbean
Group

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Abstract

The government of Guyana signed a rice compensation agreement with Venezuela in 2009 wherein Guyanese rice exports were accepted in partial payment for imports of Venezuelan oil. The agreement ended in November 2015 and was not renewed for 2016. The scheme had provided stimulus to the Guyanese rice sector, resulting in higher levels of investments in improved inputs and machinery, an expansion in area cultivated, higher levels of outputs, higher levels of exports, and increased employment. The main incentive was the payment of a market premium, averaging 20 percent greater than world price. Despite improvements in yields, the average cost of production for a metric ton of Guyanese rice has remained uncompetitive compared with other leading exporters of rice (US, India, Pakistan, Thailand, Vietnam), limiting export market diversification opportunities. Because the scheme ended, Guyana must now place all of its exportable surplus in alternative markets. Without dramatic reductions in the cost of production, Guyana's response strategy will be limited to searching for premium bilateral deals and improving value-added processing activities. At present, Cambodia and Myanmar are displacing Guyana's rice exports to the European Union market, and Vietnam has entered into a supply agreement with Haiti, one of Guyana's Caribbean Community markets. This paper assesses the implications of Guyana's vulnerability in this scenario and offers recommendations to assuage the risks of a sharp price reduction.

JEL classification codes: F13, F14, F18

Keywords: PetroCaribe, rice, comparative advantage, trade competitiveness, diversification, CARICOM

1. Background on PetroCaribe: Rice Compensation Scheme

On October 21, 2009, the government of Guyana signed an agreement with the government of Venezuela to barter rice for oil.¹ The Venezuelan government, in a yearly renewable contract, would (a) set the maximum quantity of paddy and white rice that it would receive and (b) set the premium price over world price at which it would value the rice shipment, and then subtract this amount from the amount due for its oil shipments to Guyana. The rice-oil compensation has generated benefits for both sides.

For Guyana, the cost of its oil import bill was contained and the size of its overall public debt has been effectively reduced both by the generous long-term financing terms (17–25 years, 1 percent interest, 1–2-year grace period) under the standard PetroCaribe Agreement² plus the additional price subsidy implicit in the premium paid over world price. In addition, Guyana was able to conserve a significant amount of foreign exchange and accumulate more gross international reserves.

For Venezuela, the benefits of the scheme were both economic and noneconomic. First, given Venezuela's growing foreign exchange scarcity and shortages of staple food items, the reliable sourcing of a known quantity of rice on barter terms alleviated a foreign exchange constraint, improved food security, and permitted the continuance of subsidized feeding programs that served to contain restiveness. However, in net economic terms, Venezuela probably transferred more benefits to Guyana than it received, by exchanging a high value commodity (oil) for a low value commodity (rice) and then extending generous loan terms on the cash portion of the exchange. Thus, the main benefit to Venezuela seems to have been noneconomic. Venezuela gained broad influence, burnished its image as a donor and obtained the support of its PetroCaribe partners for its various diplomatic positions in international fora until of late.³

This article aims to (a) trace the effect of the Guyanese rice sector agreement in terms of its output, employment, export earnings; (b) assess Guyana's competitiveness in rice production

¹ See the Appendix for a detailed explanation of the mechanics of the program.

² The payment system allows for purchase of oil at market value for 5 to 50 percent upfront, with a grace period of 1–2 years; the remainder can be paid through a 17–25-year financing agreement with 1 percent interest, if oil prices are greater than US\$40 per barrel.

³ In March 2014, the Organization of American States voted 22–11 with one abstention against allowing Marina Corina Machado, a Venezuelan legislator, from speaking at a closed session to present the view of the opposition to the Maduro regime as the body deliberated how to mediate between the standing government and the opposition. The countries that voted against the measure included Nicaragua (who proposed the motion), Venezuela, Brazil, Uruguay, Argentina, Bolivia, El Salvador, and all of the Caribbean countries except Barbados. Besides Venezuela, the members of PetroCaribe are Antigua and Barbuda, The Bahamas, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, and Suriname.

in relation to other rice-exporting countries; and (c) review the strategies for Guyana to mitigate the loss of the Venezuelan preferential market.

2. Rice Production and Marketing Structures

Rice has been cultivated on a commercial scale in Guyana for more than a century, with the first recorded exports being in 1903. In addition, it is a staple in the Guyanese diet and the principal carbohydrate consumed. Paddy rice cultivation occurs primarily in the low-lying Atlantic coastal littoral in Administrative Regions 2, 4, 5, and 6 but upland or dryland rice has been introduced in Region 9, the Rupununi Savannahs close to Brazil border. There are two crops each year, the first between February and May and the second one between September and December. All the rice along the coast is grown in submerged irrigated fields, whereas the rice planted in the Rupununi Savannahs are mostly rainfed but supplemented with irrigated water where feasible and the scale of production is much smaller than on the coast.

Guyana is essentially self-sufficient in rice, producing far more than the 145,000–150,000 metric tons needed to satisfy domestic demand (U.S Department of Agriculture, 2013). Only small amounts of internationally branded rice and high-priced specialty aromatic basmati rice are imported. Since 2012, basmati varieties have begun to be grown in the country, but the main constraint is lack of a low-cost means to switch capacity from milling common varieties to basmati and the finances needed for separate storage facilities. In 2013, twenty farmers cultivated 240 acres of basmati and one miller is processing their output. Cost of production is higher than for common varieties, but yields obtained are higher (41 percent) and prices fetched are higher.

Approximately 16,000 farming households (57,600 indirectly)⁴ and approximately 4,000 casual laborers rely on the cultivation of rice for their livelihoods (see Table 1). Given that the estimated active labor force in 2009 was 313,100, direct rice employment is approximately 6 percent (CIA Work Factbook, 2014).

As shown in Table 1, the majority of rice farmers are located in Region 2 (Pomeroon). Among these farmers, the majority cultivate less than 30 acres, making them small producers. The small scale of operations poses obstacles to modernization and realizing gains in efficiency. Small farmers tend to use lower levels of technology and face binding financing constraints that limit how rapidly they can scale up operations, use more machinery, and improve efficiency. The fact that there is a large number of small farmers also complicates the delivery of extension services and the coordination of marketing efforts.

⁴ The average estimated size of the rural household is 3.6

Table 1. Number of Rice Farmers, by Region and Farm Size

Acreage range	Region 2	Region 3	Region 4	Region 5	Region 6	Total, by Farm Size	Percentage, by Farm Size
Small: 1 to 30	4,705	2820	1,176	2,488	3,643	14,832	93.1
Medium: 31–50	63	27	11	369	103	573	3.5
Large: >50	45	18	9	376	80	528	3.3
Total	4,813	2,865	1,196	3,233	3,826	15,933	
Percentage	30	18	7.5	20	24		100

Source: Guyana Rice Development Board 2014.

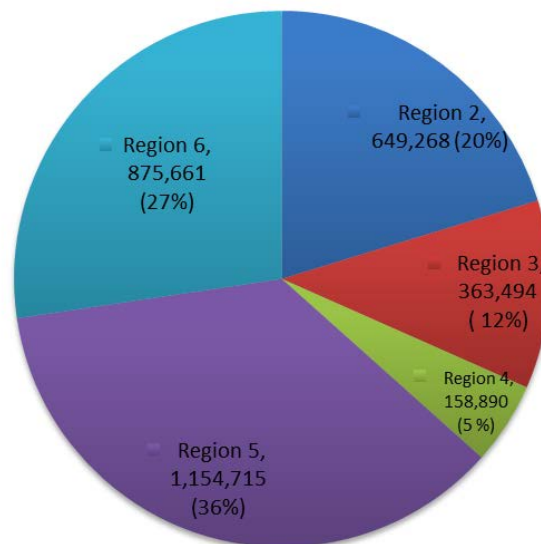
In addition to producers and casual day laborers, there are 72 licensed mills with a combined milling capacity of 313.8 metric tons per hour (see Table 2) and an unknown number of employees. As shown in Table 2, Regions 2 and 3 and Regions 4 and 5 combined have approximately the same number of mills; however, Regions 4 and 5, including the greater Georgetown area and main port, have the largest installed milling capacity. Even though Region 2 has the largest number of rice producers, the majority of them are small scale. The milling capacity is installed closest to the larger producers in Region 5, which in addition to producing the largest output, is also close to the main port (see Figure 1).

Table 2. Number of Licensed Rice Millers and Milling Capacity (in Metric Tons)

	Region 2		Region 3		Regions 4 and 5		Region 6		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Rice millers	15	21	16	22	17	24	24	33	72	100
Milling capacity	67.25	21	43.55	14	142.5	45	60.5	19	318.8	100

Source: Guyana Rice Development Board Annual Report 2013.

Figure 1. Distribution of Paddy Production in Guyana by Region, 2009–13 (in Metric Tons)



Source: Authors' calculations based on information from Guyana Rice Development Board

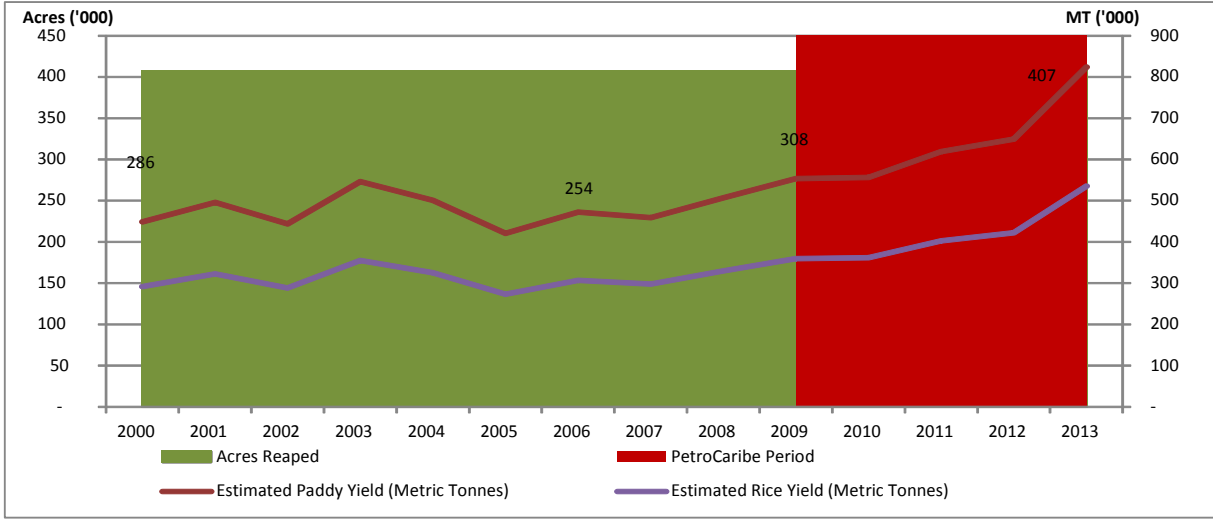
3. Rice Sector Performance under the Rice Compensation Scheme

Historically, the performance of the rice industry has been volatile, with the industry being affected both by global demand conditions and by many domestic factors affecting supply such as weather, irrigation water management issues, and financial constraints (see Figure 2). However, in the past 5 years, the industry has recorded significant growth and improvements, with rice production increasing by almost 50 percent between 2009 and 2013, and yields improving by 32 percent. The value of export earnings have risen 110 percent. Guyana's preferential rice trade arrangement with Venezuela under the PetroCaribe initiative, coupled with relatively high global rice prices, has provided a stimulus. However, near-term growth prospects have been considered tenuous given the falling world market price for rice since late 2013 and the high cost structure for Guyanese rice production as well as an appreciating real effective exchange rate.

Over the past decade, the area dedicated to rice cultivation increased significantly from an estimated 286,000 acres in 2000 to approximately 407,000 acres in 2013 (see Figure 2). Expansion in acreage cultivated was particularly strong during the period 2009–13, moving from 308,000 acres in 2009 to 407,000 in 2013, an annual average increase of 5.7 percent. This expansion is significant compared with the period 2000–09 when the average annual increase

was about 0.4 percent. During the period 2009–13, paddy yield per acre also increased significantly, by 17 percent, from about 27.3 bags to 31.9 bags.

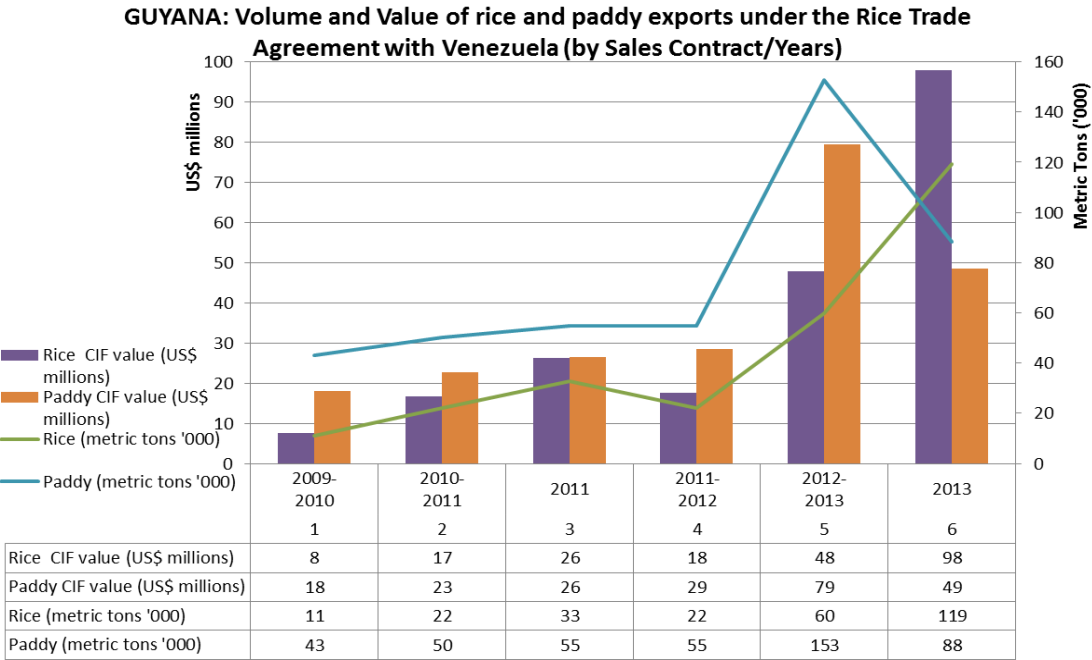
Figure 2. Acreage Harvested, Paddy Yield, and Rice Yield in Guyana, 2000–13



This observed trend in cultivated area expansion strongly correlates with the introduction of the rice trade agreement with Venezuela in 2009, which has served unquestionably as the most important development in the sector over the past 6 years. The expansion in output is propelled by higher production in three of the rice-producing regions: Regions 2, 5, and 6. Together, these three regions accounted for 90 percent of the total increase in paddy production between 2009 and 2013. These regions also accounted for around 96.0 percent of the expansion in rice area cultivation in the country over the same period.

By the end of 2013, Guyana shipped about 267,000 metric tons of rice and 445,000 metric tons of paddy to Venezuela valued at about US\$214 million and US\$224 million, respectively, under six sales contracts from 2009 to 2013. In 2014, a seventh sales contract was signed for 140,000 tons of paddy and 50,000 tons of milled white rice. In 2015, the agreement contract stipulated 120,000 tons of paddy and 84,000 tons of milled white rice, worth approximately US\$120 million. Figure 3 shows the trend in rice and paddy shipment under the different sales contracts between 2009 and 2013.

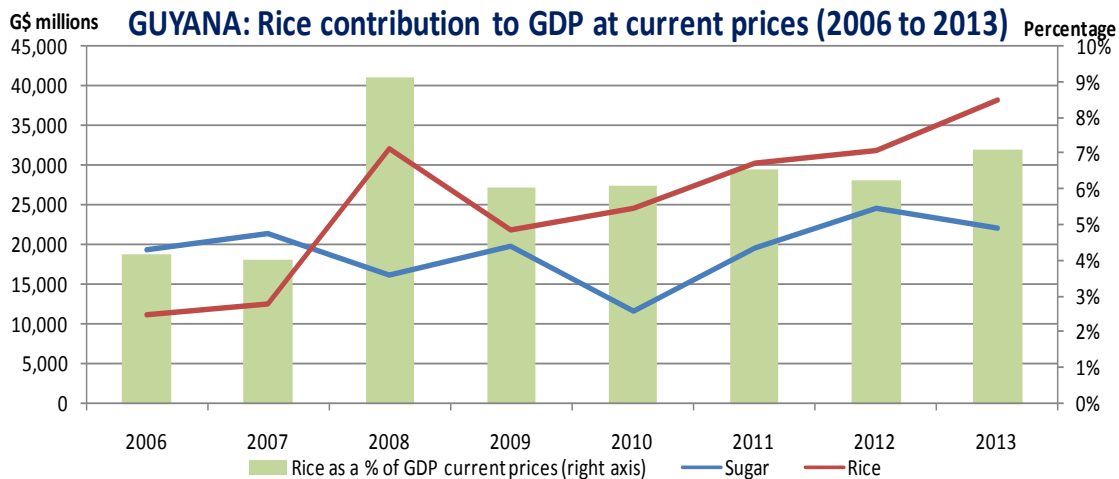
Figure 3.



Source: Guyana Rice Development Board

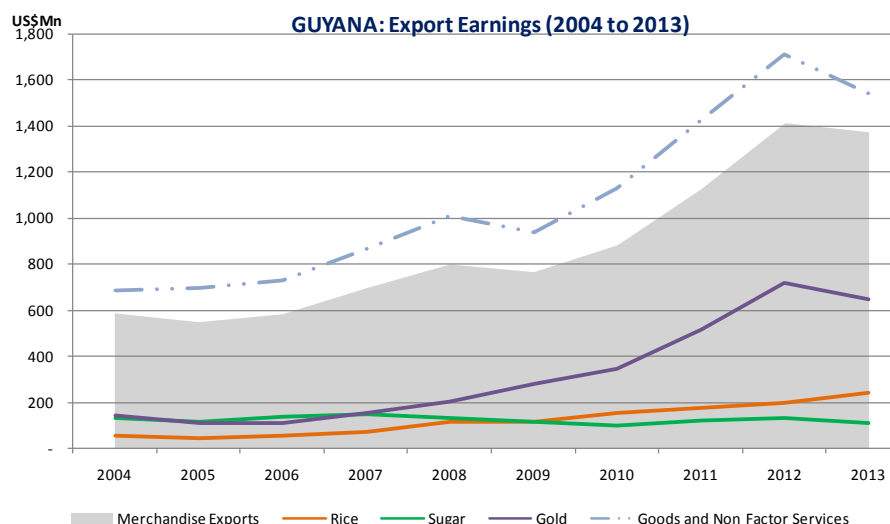
As shown in Figure 4, rice has surpassed sugar in economic importance, representing a larger share of the economy than sugar.

Figure 4.



Source: Guyana Rice Development Board

Figure 5.



Before 2009, Guyana had not exported rice to Venezuela since 2003 when 50 metric tons was shipped. However, since 2009, exports to Venezuela have grown to surpass exports to all other markets combined. The Venezuelan market grew from about 26 percent of the overall export market in 2010 to about 58 percent in 2013 (see Table 3). In 2014, it dropped to 30 percent. In 2015, the share is expected to be 26 percent.

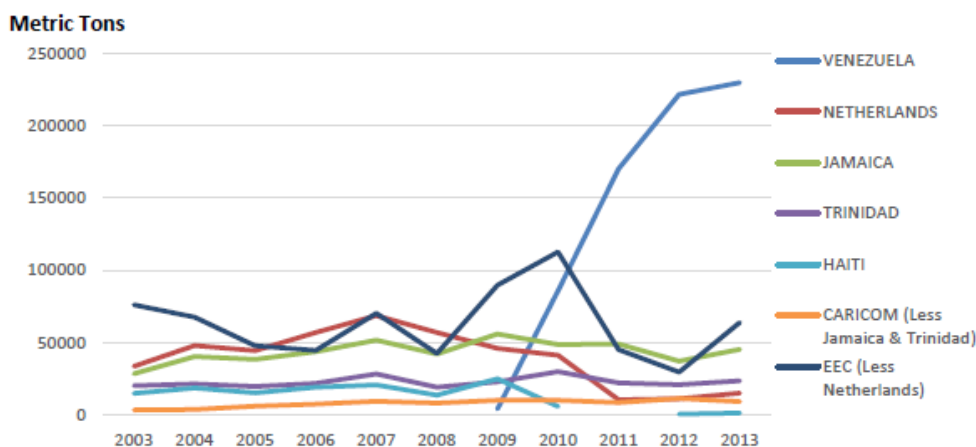
Table 3. Guyana's Principal Export Markets (%)

	2009	2010	2011	2012	2013
CARICOM	34.07	26.38	26.08	20.75	19.74
Venezuela	1.57	25.50	55.73	66.36	58.20
Europe	52.00	45.74	18.18	12.18	20.01

Source: Guyana Rice Development Board
 Note: CARICOM = Caribbean Community

Since 2009, growth in rice exports to Venezuela has been at the expense of Guyana's other key rice export destinations, in particular The Netherlands, Jamaica, Trinidad and Tobago, and Haiti, where Guyana exports declined between the period 2009 to 2012. However, its exports to these markets rebounded somewhat in 2013, as production levels exceeded the demand from the Venezuelan and other markets.

Figure 6. Export in Metric Tons to Main Markets in Guyana, 2003–13



Source: Guyana Rice Development Board

4. Distribution of Benefits under the Rice Trade Agreement

The premium prices offered by Venezuela for rice and paddy has allowed for the distribution of premium returns to the different stakeholders and actors along the supply chain. The average farmer who reaped about 31.9 bags per acre (the national average in 2013) was estimated to earn a gross profit of about US\$116 (24 percent of the Cost, Insurance and Freight (CIF) paddy price to Venezuela) per metric ton of paddy sold to the miller, assuming G\$3,500 was paid per bag of paddy. However, farmers with higher costs of production, low yields per acre, or both, would earn considerably less, for example a farmer with yields of 22 bags of paddy per acre would gain only about US\$49 in gross profit per metric ton of paddy.

Rice millers (the suppliers of both paddy and rice to the export market) generally earn more than farmers do from the trade with Venezuela. Gross profit to millers from exports to Venezuela are estimated to be about US\$171 (34 percent of CIF paddy price) per metric ton of paddy and about US\$178 (23 percent of CIF rice price) per metric ton of rice. This assumes that the cost of milled rice, including paddy purchases, averages about US\$515 per metric ton (see Figures 7 and 8).

Figure 7.

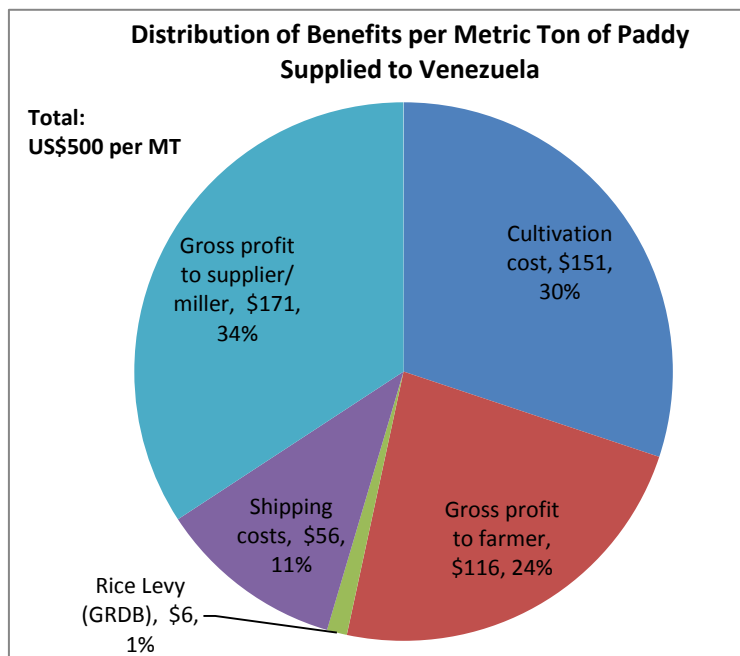
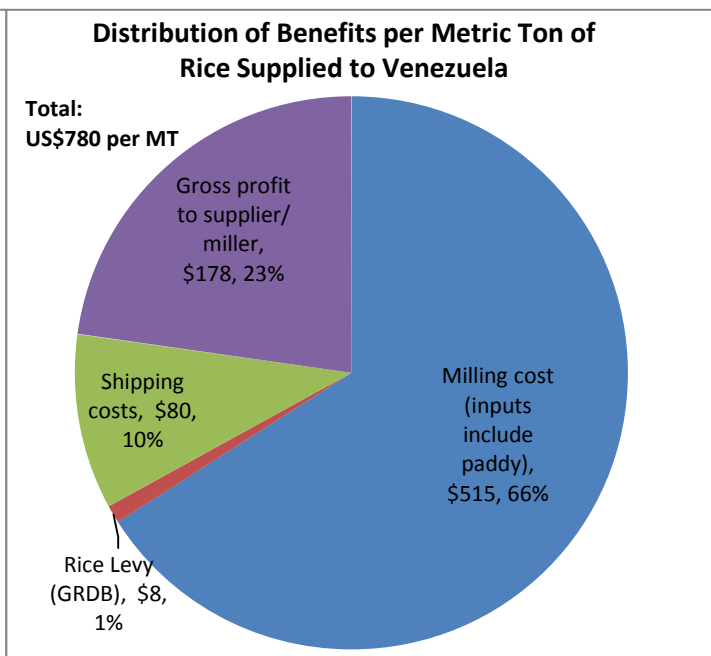


Figure 8



Data source: Rogers & LaCruetz (2014)

To ensure that the benefits of the higher prices obtained from the Venezuelan market were evenly distributed, the Guyana Rice Development Board (GRDB) allocated quotas to all rice millers on the basis of their annual production values. Higher producing millers got to supply greater quantities of their products to the Venezuelan market proportionate to their share of national production. This has served as an incentive for millers to increase their paddy purchases and milling operation in order to increase their production levels over time. Farmers have generally benefited from higher prices, in part because of the GRDB's engagement with rice millers to ensure that the benefits from the Venezuelan trade were evenly distributed. In general, farmers do not sell their products directly to Venezuela but sell their paddy to millers. Farmers earned standard rates for their paddy sales regardless of the destination of their product. For example, in 2013, paddy prices averaged around G\$3,500 per bag, equivalent to about US\$269 per metric ton. This was an improvement over the prices paid in previous years that averaged about G\$3,000 per bag. Actual prices in the years prior to the rice trade agreement ranged from about G\$2,000 to G\$4,000 per bag, with the average being close to G\$2,300.⁵ The high paddy prices that prevailed in the 2009–14 period and the drive for millers

⁵ A bag of paddy weighs approximately 140 pounds and contains the rice grain covered by husk. Husk is approximately 20% of the total rice grain weight. One metric ton (1000 kg) is equivalent to 2,204.62 pounds. Millers typically penalize farmers for moisture,

to increase their overall production in order to win the quota rights to export to Venezuela, contributed to the effective discontinuance by many millers of the paddy grading system in the past few years. Before 2009, better grades (A grade) of paddy earned prices that were higher than poorer grades (B and C). As a result of this grading discontinuance, Guyanese rice has earned a reputation for uneven quality. Foreign customers complain of high foreign matter content, breakage, and discoloration. In March 2015, a shipment to Chile was rejected for failing to meet contract specifications for percentage broken grain and foreign matter.⁶

Paddy prices remained stable in terms of Guyana dollar prices in 2014. However, the depreciation of the Guyana dollar against the US dollar meant that farmers earned about US\$265 per metric ton of paddy in the first half of 2014. By the latter half of 2015, prices per bag fell to G\$1500–G\$1800 (US\$7.20–US\$8.71) per bag, equivalent to US\$113–US\$136 per metric ton. In the June 2015, the government of Venezuela indicated that they would not renew the contract for 2016 and suspended rice imports of the remaining balance under the 2015 Compensation Agreement.

4. Competitiveness of the Guyanese Rice Sector

Guyana's rice industry has not had much exposure to competition with lower cost producers on the world market since exports tend to follow the preferences obtained under different trading arrangements. As a member of the Caribbean Community (CARICOM), Guyana benefits from a common external tariff of 25 percent applied by CARICOM countries on extra-regional rice. This provided a much needed cushion for the industry in the past decade in the face of the loss of historical trade preferences with the European Union. The shifting of exports from European destinations to CARICOM countries was soon followed by a shift to the more lucrative Venezuelan market under the preferential rice trade agreement with Venezuela in 2009. The world leading exporters of rice—United States, India, Pakistan, Thailand, Vietnam, and Myanmar—have either government support programs or cost of production structures that permit them to be viable at reigning “free market prices”.

Rice production reached 635,000 metric tons in 2014, of which 487,000 metric tons were exported. In 2015, the paddy harvest is anticipated to be 1,051,563, 000 metric tons (683,516 rice equivalent) and total rice exports are expected to be 520,000 metric tons (Guyana Times,

breakage, and foreign matter. The ideal moisture content is 14 percent for grain and less than 12 percent for seed. Rice quality is a combination of different factors—moisture content, varietal purity, cracked grains, immature grains, and grain discoloration. High moisture results in pulverization during milling and low moisture results in shattering and cracking of the grain. During the milling process the husk is removed. In the literature a distinction is made being paddy rice and rice.

⁶ Source “Chile Rejects Doerga’s Alesis Rice Shipment” Guyana Times, March 26, 2015
<http://www.guyanatimesgy.com/2015/03/26/chile-rejects-doergas-alesie-rice-shipment/>

December 31, 2015). In attempts to expand its export markets, Guyana's strategy in 2015 appears focused on increasing exports to Latin America and the Caribbean. New export destinations are Belize and Panama. The Ministry of Agriculture has also expressed the hope of increasing exports to Africa (Sierra Leone) and to Mexico. However, the average prices earned in other markets are well below those paid by Venezuela. Since 2010, the prices for Guyanese rice exports to Caricom destinations averaged 20 percent below prices fetched by sales to the Venezuelan market and more than 40 percent lower for non-CARICOM markets.

The Ministry of Agriculture and the Guyana Rice Development Board have noted the high production costs for rice in Guyana that make the country unable to compete with low-cost Asian producers. In view of this, Guyana's strategy for sustaining growth in the rice industry has been based on three pillars: (a) seeking out premium markets that often require government-to-government arrangements; (b) continuing the Guyana Rice Development Board's efforts to improve productivity and yields; and (c) with government support, making efforts to lower production costs. Production costs can be improved by better water management, better soil and pest management that would reduce the need for chemical fertilizers and insecticides, and lower energy costs throughout the chain but especially at the miller's level, where energy costs are 18–22 percent of cost, after excluding the cost of purchasing paddy (Rogers & LaCruz, 2014).

Increased marketing efforts in the Latin American and Caribbean region would place Guyana's rice in direct competition with rice from the United States. Local officials have expressed the hope of dislodging the United States from its Caribbean markets (Guyana Chronicle, 2014).

On the basis of the U.S. Department of Agriculture export supply-and-demand data for 2013/14, Rogers and LaCruz (2014) noted that the midpoint price for US-produced all-rice paddy was about US\$216.53 per metric ton, while the midpoint price of US-produced long-grained rice paddy was about US\$246.05 per metric ton. With the price of rice paddy produced in Guyana averaging about US\$266.90 per metric ton in 2013, this meant that Guyanese rice paddy was 23.3 percent more expensive than US-produced all-rice paddy and 8.5 percent more expensive than U.S.-produced long-grained rice paddy. With the application of the 25 percent common external tariff on U.S. paddy imports in CARICOM markets, paddy produced in Guyana would have a marginal advantage over long-grain rice from the United States and nearly no advantage over all-rice paddy.

However, compared with Asian rice export prices, which range between US\$435 and US\$455 per metric ton of 5 percent broken rice (Oryza, 2014), Guyana's cost of producing

milled rice averaged upwards of US\$515 per metric ton (Rogers & LaCruetz, 2014), considerably more expensive (by about 15 percent to 18 percent). The significant difference in Guyana's cost of production and the price at which these large producers are able to export underscores Guyana's inability to compete with global competitors outside of markets where it enjoys trade preferences or earns premium prices. This cost differential emphasizes the need for Guyana to achieve higher levels of cost efficiency.

Box 1. Typical Rice Milling Cost Structure

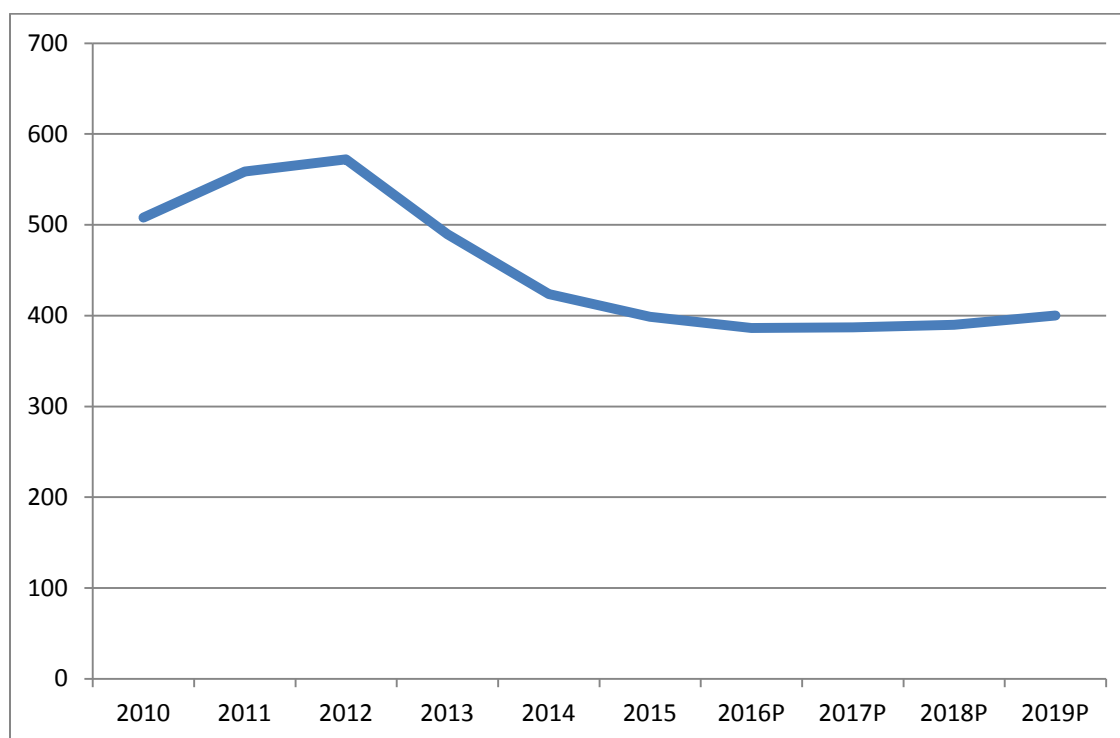
If the purchase cost of paddy were excluded, the main cost components for rice millers are...

Wages and salaries	12–20%	
Electricity/fuel		20–22%
Marketing expenses	3–5%	
Finance expenses	3–5%	
Transport mill to port	17–18%	
Depreciation		10%

Source: Dr. Peter de Groot, President of Guyana Rice Millers and Exporters Association.

As shown in Figure 9, average international prices for milled rice are moderating. In recent years, the market peaked at US\$572 in 2012 and has fallen steadily. Over the period 2016–19, prices are expected to hover around US\$390 per metric ton. This would imply that Guyanese mills will have to shave costs significantly or focus on differentiated and valued-added products.

Figure 9. Average International Milled Rice Prices (US\$/ton)



Source: Knoema.com (<http://knoema.com/search?query=rice%20prices%20world>).

Cost of Production

On the basis of data collected from a rice miller and farmers in Region 2, the principal cost component for millers is the purchase of rice paddy, which accounts for almost 80 percent of the overall cost.

For farmers, the main costs are fertilizer (33 percent), land preparation (18 percent), and harvesting (17 percent).

Fuel cost was not extracted from the different cost components but is considered to be an important part of land preparation and harvesting costs for farmers and a significant component of variable costs for millers. (Rogers & LaCruz, 2014).

The national average cost of paddy cultivation per acre has increased steadily since 2009, with an annual growth rate of 5 percent (see Figure 10). However, there was a sharp increase (18 percent) in costs per acre in 2012, which was primarily the result of a rise in the cost of inputs such as urea and fuel. Urea (the main fertilizer) increased to more than G\$7,000 per bag in 2012 from about G\$4,000 per bag in previous years. Diesel price increased to about G\$215 per liter in 2012—more than 24 percent higher than in 2010—and it remained high through 2013/14. In 2015, fuel prices dropped after February when the government lowered the

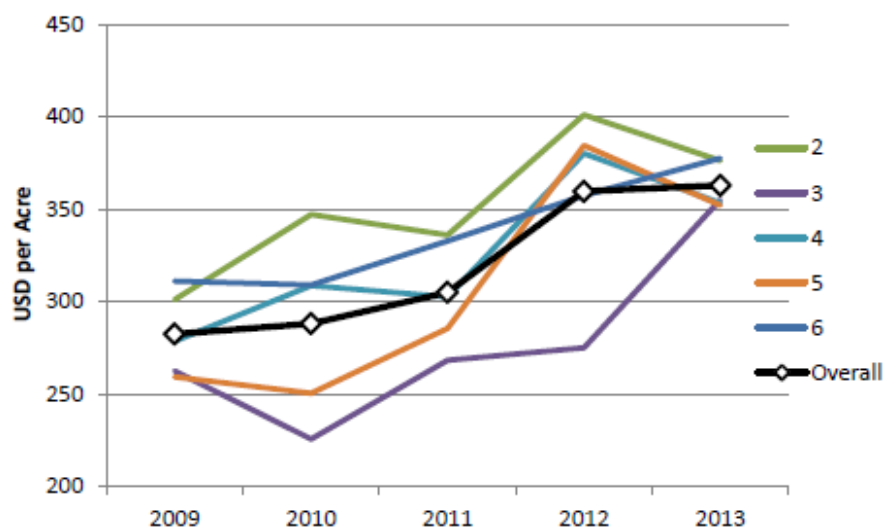
fuel excise tax and allowed more of a transmission of lower international oil prices to consumers, but since June fuel prices have been on the rise.

In 2013, with the assistance of the Guyana Rice Producers Association, the Guyana Rice Development Board intervened to lower input costs by selling 5,000 metric tons of urea at the break-even cost of G\$5,000 per bag, more than 25 percent below the prevailing market price (Kaieteur News, 2014). Farmers reportedly saved G\$1 billion, but overall costs remained high (Kaieteur News, 2014).

The sharp increase in the number of small farmers by 10,668 farmers (256 percent) from 2009 to 2014 is another factor that contributed to the high national average cultivation costs. As Rogers and LaCruz (2014) noted, small farmers are less able to capitalize on economies of scale and less able to counteract the presence of inefficient farm management, particularly in the case of new farmers, who tend to have higher production. Production costs for farms ranging in sizes up to 10 acres had an average of about 10 percent above the national average for the past 3 years.

Regarding the regional variation in cultivation costs, over the period 2009–13, Region 2 had the highest cost per acre, partly because of the large number of small farmers in that region and the fuel and fertilizer costs that tended to be higher than in other regions. Farms in Region 3 had lower cultivation costs compared with other regions partly because of lower input costs.

Figure 10. Guyana: Cost of Cultivation per Acre by Region in USD (2009-2013)



Yield

The national average rice yield per acre has increased steadily since 2010, which is attributable to the introduction of new high yield varieties such as Guyana Rice Development Board 9, 10, 11, and 12, that collectively occupied more than 50 percent of the total acreage cultivated. Guyana Rice Development Board 10 occupied 35 percent of the total acreage cultivated (Guyana Rice Development Board 2013). Improved yield was also the result of farmers' sensitization on the Guyana Rice Development Board's six-point system for improving farming practices regarding fertilizer mix and other issues.

The sustained increase in yields has led to the reduction in cultivation cost per metric ton in 2013 (see Figure 11). This was in spite of higher costs of other inputs. This holds promise that production costs per metric ton can be lowered further as the Guyana Rice Development Board continues to work on increasing rice yields through improved farm practices, better water management, and development of new varieties, especially ones adapted to climate change (Figure 12).

Figure 11. Paddy Yield per Acre in Metric Tons by Region (2009-2013)

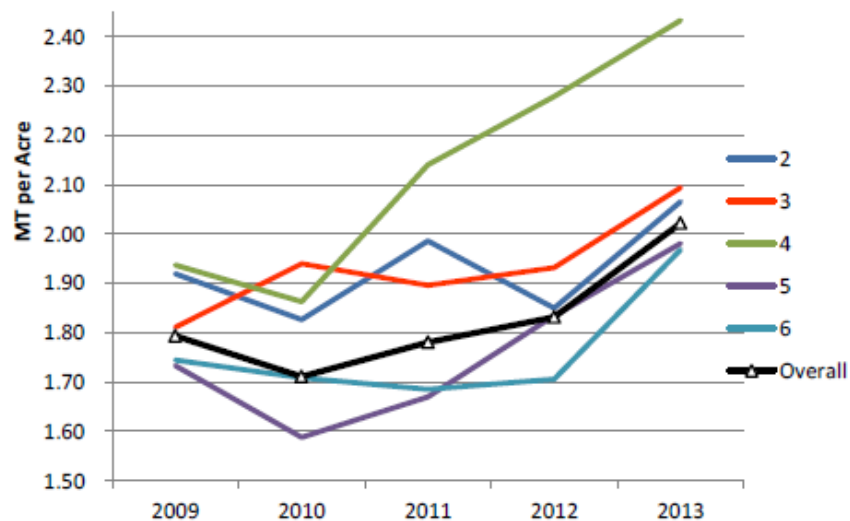
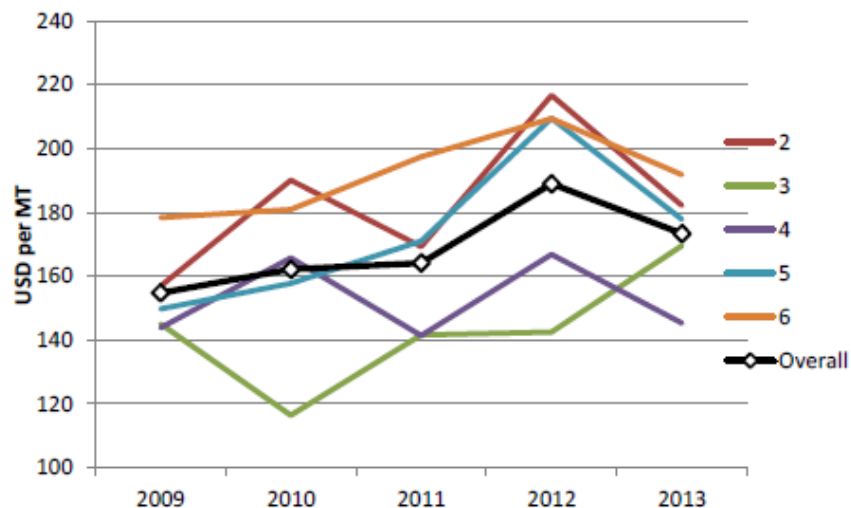


Figure 12. Guyana: Rice Cultivation Cost per MT by Region in USD (2009-2013)



5. Implication of Eliminated Venezuelan Rice Trade

The PetroCaribe rice-for-oil compensation arrangement between Venezuela and Guyana ended in November 2015 and will not be renewed. The compensation agreement was viewed by observers as being under threat of either modification or cancellation for some time, given the internal economic and political challenges Venezuela faces (Clegg, 2013). As oil prices started dropping dramatically from mid 2014 to the present, Venezuela oil revenues have also plummeted, by more than 60% at last estimate. Oil revenue historically constitutes approximately 95% of the country's total export earnings and 40 % of government revenue.⁷ The entire PetroCaribe Program is very costly to the Venezuelan government. It is estimated that the program from its inception to the present has cost the Government of Venezuela US\$50 billion in foregone oil revenue.⁸

The loss of the preferential rice trade with Venezuela will have profound effects on Guyana's rice sector and wider economy. The primary effect will be lower paddy prices being paid to farmers. In 2014, as the situation deteriorated in Venezuela and the signing of the annual contract was delayed, some rice millers lowered the price paid per bag of paddy by almost 15 percent to G\$3,000 (US\$ 14.52) (Kaieteur News, 2014). In the second half of 2015

⁷ However, the discovery of a significant deposit of oil on May 22, 2015 by ExxonMobil off the coast of Guyana, Venezuela's eastern neighbor, seems to have triggered a series of events that renewed tensions over a longstanding border dispute between the countries. On May 26, the Venezuelan government issued a decree claiming the area of oil discovery (*Stabroek News*, 2015).⁷ As a result Guyana sought the intervention of the United Nations and Organization of American States. The dispute is now under review by UN General Secretary Ki-Moon and the Government of Guyana is requesting a referral of the matter to the International Court of Justice for final resolution. The border dispute has been ongoing since 1966. This renewed border tension may have contributed in some fashion to the accelerated demise of the rice-for-oil agreement between the two countries.

⁸ Source: <http://en.mercopress.com/2015/12/11/venezuelan-subsidized-oil-sales-to-the-petrocaribe-program-on-a-tight-rope>

prices fell to G\$1,500–G\$1,800 per bag (US\$7.26-8.71). What makes Guyana more vulnerable is its high degree of export dependence (75 percent) compared with the norm in international rice markets. In 2014, only 8 percent of total world rice production was traded, compared with wheat (22 percent), according to the Food and Agriculture Organization (2014). This makes the international rice trade a very volatile and thin market dominated by a few large surplus producers, predominately located in Southeast Asia. Without a larger domestic market to absorb output, and in the absence of higher storage capacity, alternative uses of rice (for example, feed, food processing, and liquor), and price support and subsidy mechanisms, Guyana is much more susceptible to world price swings than the dominant exporters—India, Pakistan, Vietnam, Thailand, and Myanmar.

Lower paddy prices would drastically reduce farmers' profit margins. For example, an average of G\$3,000 (US\$14.52) per bag of paddy would reduce the price per metric ton to US\$229, and profits to the average farmer (assuming yield of 31.9 bags per acre) would drop by about 33 percent. Less efficient or less productive farmers would be affected more significantly. For example, assuming average yields of 22 bags of paddy per acre, farmers' profits would plunge by about 78 percent to US\$11 per metric ton.

This may lead to some farmers leaving the farming sector, while others who seek to improve productivity and reduce costs may continue producing rice.

Small farmers—with generally higher levels of production costs per unit than larger farmers—are likely to be most affected, and cultivation in this category may decline the most. This would undoubtedly have an impact on the welfare of farming communities and households particularly in Region 2 where 32 percent of farmers are small, and in Region 6 with 25 percent of its farmers also considered small. This could lead to greater rural unemployment and aggravate poverty levels.

The elimination of the preferential trade agreement with Venezuela would also have a negative effect on rice millers through the loss of their most lucrative market. Rice millers would be less able to subsidize their participation in lower priced markets where the profit margins are smaller or nonexistent because of Guyana's high cost of rice production.

Rice millers, by paying lower prices to farmers, may improve their profit margins in these lower priced markets. However, millers' overall profit levels would fall below the levels previously enjoyed when the Venezuelan rice-for-oil pact was in place. This may compromise millers' financial position, especially those indebted to financial institutions. In the worst case, this could lead to bankruptcies and exits; however, the more likely scenario involves scaled-back operations --- a reduction in mill production and a decrease in rice exports.

The last implication is that there would be a higher demand to store rice in order to avoid economic losses. Those with the means may attempt to store rice until new buyers can be found; however, storage capacity is considered limited. It is estimated that private sector stakeholders can store approximately 1 million bags of paddy rice for approximately three months without appreciable risk of deterioration in quality (Guyana Rice Development Board). In previous years the carryover of unsold stock from one year to the next was high. In 2015, 200,000 metric tons were carried over from 2014 and this contributed to delays in paying farmers on time.

6. Conclusions and Recommendations

With the 2015 rice production projected to be approximately 683,516 metric tons, greater than the previous record setting crop of 2014 (635,238), Guyana must take steps to ensure the continued viability of this industry. The country is facing a potential production glut and possible price retrenchment if the surplus above what is needed for domestic purposes and already contracted export sales cannot be placed in new export markets. Because production costs are still higher than the leading rice exporters (India, Pakistan, Thailand, Myanmar, the United States, and Vietnam), a reduction in expected farm gate prices should be expected. Lower farm gate price expectations will in turn influence future planting decisions when new production cycles begin. Only the most productive, most cost efficient, and the least credit constrained farmers will have incentive to maintain and/or expand planted areas. In the coming years, the pressure to diversify and increase competitiveness will mount. Affected farmers are likely to lobby for price supports, more import duty concessions, and other input subsidies which if granted would increase costs to the public treasury and could put negative pressure on the fiscal balance.

Guyana has been pursuing three strategies (a) seeking new bilateral contracts (short-term strategy); (b) investing in improving the productivity of the sector (medium- and long-term strategy); and (c) investing in the value added processing of rice so that new products can be marketed such as rice cereals, rice flour, rice wine, and rice vinegar (long term). Of the three strategies, action is visible on the first two points, but not the third. Rice millers and exporters have been pursuing new bilateral deals (for example, Belize, Mexico, Panama), attempting to sell more to CARICOM and the European Union. In addition, the Guyana Rice Development Board has been promoting the use of improved seeds and improved farming methods. However, little action has taken place in terms of value-added manufacturing or introducing

energy-saving technology/processes (for example, the use of biomass for gasification, solar, wind etc.).

Recommendations

Stakeholders need to redouble and intensify efforts to lower the cost of production. This is the key. Vietnam is entering the CARICOM market, it is already the premier supplier to Cuba, and poses a threat to Guyana even with the common external tariff which protects Guyanese producers and millers.

This paper recommends conducting the following analyses with dispatch to help craft a national strategy and response to the emerging challenges in the rice sector:

1. Survey and catalogue rice producers to systematically understand cost drivers by farm size, by region, by quality of soil, by level of technology, and by state of irrigation system; next, develop detailed plans to trigger radical gains in cost reduction for the most promising farming segments and work to transition out the farmers that are woefully constrained and uncompetitive. This paper recommends performing energy audits and process reviews at the level of millers, to determine areas for cost reduction.
2. Actions may range from improved and better targeted extension services, technical assistance and basic infrastructure, to relief of credit constraints to permit adjustments and modernization, improvements in water management, farmer group organization and collective buying of inputs to reduce unit cost, and elimination of postharvest losses.
3. Establishment of stabilization and adjustment funds to cope with price volatility, weather risks, and adjustments for farmers whose production costs are high..
4. Investing in value-added manufacturing should also be studied and comparative advantages determined.
5. Development of systematic marketing plans for the excess of production above annual domestic consumption needs.

References

- Central Intelligence Agency. 2014. *The World Factbook—Guyana*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/gy.html>
- Clegg, P. 2013. *Venezuela and oil diplomacy: The end of the road for PetroCaribe?* September. <http://www.e-ir.info/2013/09/12/venezuela-and-oil-diplomacy-the-end-of-the-road-for-petrocaribe/>
- De Groot, P. 2015. "Cost of Production at the Mill Level." Presentation at National Rice Industry Conference, Georgetown, Guyana, July 27.
- Food and Agriculture Organization (FOA). 2014. "FAO Cereal Supply and Demand Brief." FOA, Rome, Italy.
- Guyana Bureau of Statistics. 2013. *Census 2012*. Guyana Bureau of Statistics, Georgetown, Guyana.
- Guyana Chronicle*. 2010. "Jagnarine Singh Says Focus Is Improved Productivity." October 23. <http://guyanachronicle.com/jagnarine-singh-says-focus-is-improved-productivity/>
- Guyana Chronicle*. 2013. "Ramsammy Reports Bengal Aromatic Rice Doing Well." January 11. <http://guyanachronicle.com/ramsammy-reports-bengal-aromatic-rice-doing-well>
- Guyana Chronicle*. 2014. "Guyana's Rice Marketing Efforts Focusing on Dislodging USA as Caribbean Supplier." February 6. Retrieved from <http://guyanachronicle.com/guyanas-rice-marketing-efforts-focusing-on-dislodging-usa-as-caribbean-supplier>
- Guyana Times*. 2014. "Dr. Ramsammy Defends Allocation to Rice Sector." April 23. Retrieved from <http://www.guyanatimesgy.com/2014/04/03/dr-ramsammy-defends-allocation-to-rice-sector>
- Guyana Times*. 2015. "Chile Rejects Doergas Alesie Rice Shipment". March 26, Retrieved from <http://www.guyanatimesgy.com/2015/03/26/chile-rejects-doergas-alesie-rice-shipment/>
- Guyana Times*. 2015. "Better rice yields expected in 2016: December 31, Retrieved from <http://guyanachronicle.com/better-rice-yields-expected-in-2016/>
- Kaieteur News*. 2014a. "Farmers Enjoying Low-Cost Urea—GRDB." January 5. <http://www.kaieteurnews.com/2014/01/05/farmers-enjoying-low-cost-urea-grdb>
- Kaieteur News*. 2014b. "Rice Farmers Alarmed by Reduced Rice Prices." March 1. <http://www.kaieteurnews.com/2014/03/01/rice-farmers-alarmed-by-reduced-rice-prices>

- Kaieteur News*. 2014c. "Low-Cost Urea Saves Rice Industry \$1B—GRAP." March 4. <http://www.kaieteurnewsonline.com/2014/03/04/low-cost-urea-saves-rice-industry-1b-grap>
- Kaieteur News*. 2014d. "Middleman Earns US\$16M on Venezuela Rice Deal." April 20. <http://www.kaieteurnewsonline.com/2014/04/20/middleman-earns-us16m-on-venezuela-rice-deal>
- Knoema.com. *Knoema.com Database*. <http://knoema.com/search?query=rice%20prices%20world>
- MercoPress. 2016. "Venezuelan Subsidized oil sales to the Petrocaribe program on a tight rope". January 18, 2016. Retrieved at <http://en.mercopress.com/2015/12/11/venezuelan-subsidized-oil-sales-to-the-petrocaribe-program-on-a-tight-rope>
- Oryza. 2014a. "Jamaica Replaces US Rice Imports With Guyana Rice in 2013." January 31. <http://www.oryza.com/news/rice-news/jamaica-replaces-us-rice-imports-guyana-rice-2013>
- Oryza. 2014b. "Guyana Explores New Rice Markets; Private Sector Signs 50,000 Tons Export Deal With Haiti." March 12. <http://www.oryza.com/news/rice-news/guyana-explores-new-rice-export-markets-private-sector-signs-50000-tons-export-deal>
- Oryza. 2014c. "Guyana Rice Sector Plagued by High Production Costs, Says Agriculture Minister." July 22. <http://www.oryza.com/news/rice-news/guyana-rice-sector-plagued-high-production-costs-says-agriculture-minister>
- Oryza. 2014d. "Guyana in Search of Premium Export Markets as Rice Production Increases." August 6. <http://www.oryza.com/news/rice-news/guyana-search-premium-export-markets-rice-production-increases>
- Oryza. 2014e. "Asia Rice Quote Unchanged Today." August 14. <http://www.oryza.com/news/rice-news/asia-rice-quotes-unchanged-today-39>
- Oryza. 2014f. "Guyana Signs Five-Year Rice Export Deal With Panama." August 18. <http://www.oryza.com/news/rice-news/guyana-signs-five-year-rice-export-deal-panama>
- Rogers, R., and E. LaCruz. 2014. "Grain of life: Sustainability and competitiveness of rice in Guyana." Unpublished manuscript. University of Guyana, Georgetown. Guyana
- Shabna Ullah*. 2013. "Local basmati rice: Bengal aromatic, hits the market." May 20. <http://shabullah.wordpress.com/2013/05/20/local-basmatie-rice-bengal-aromatic-hits-the-market>

- Stabroek News. 2015. "Venezuela Makes New Claim to Guyana's Territorial Waters, Potential Oil Block." June 7. <http://www.stabroeknews.com/2015/news/stories/06/07/venezuela-makes-new-claim-to-guyanas-territorial-waters-potential-oil-block/>
- U.S. Department of Agriculture. 2014. "World Agricultural Supply and Demand Estimates." August 12. <http://www.usda.gov/oce/commodity/wasde/latest.pdf>
- Venezuela Analysis. 2014. *OAS Refuses to Hear Venezuelan Far Right Leader*. <http://venezuelanalysis.com/news/10518>

APPENDIX

The Guyana–Venezuela Rice Trade agreement was signed on October 21, 2009. Under this agreement, Guyana effectively repays its oil debt owed to Venezuela under the PetroCaribe Initiative by exporting white rice and paddy to that country. The rice trade arrangement is considered to be a compensation arrangement, which in principle resembles a barter arrangement.

Under the PetroCaribe Initiative, the Guyana Energy Agency, on behalf of the local oil companies, purchases fuel from Venezuela’s PDVSA (the state-owned oil company). Part of the purchases from PDVSA (on average 50 percent) is financed on long-term credit terms, which constitutes the PetroCaribe oil debt.

While Guyana only pays about half of its fuel bill with Venezuela on cash terms, the Guyana Energy Agency receives full payment for the fuel supplied to the local oil companies. The portion of the fuel bill, which is financed under PetroCaribe, is held by the Government of Guyana as PetroCaribe savings. These savings are set aside to be used to finance the rice trade agreement and other priority projects.

Under the rice trade agreement, the Guyana Rice Development Board acts as the agent for farmers and millers in the export of rice and paddy to Venezuela’s CASA (the agency within the Food Ministry responsible for imported food and agricultural products).

CASA is not required to make any cash payments on the rice and paddy shipped to Venezuela by the Guyana Rice Development Board. Instead, on a periodic basis, the value of the rice and paddy shipped is eventually offset against an equal value of the PetroCaribe oil debt through the signature of debt compensation agreements between the two governments. The exporters of rice and paddy are paid in cash by the Guyana Rice Development Board through the use of the PetroCaribe savings.

The prices and volumes of rice and paddy that are to be exported by Guyana under the rice trade agreement are fixed through annual sales contracts that are negotiated and signed between the Guyana Rice Development Board and CASA. These contracts intrinsically take into the consideration the expected value of the financed portion of the fuel bill under PetroCaribe, to avoid rice and paddy shipments above the value that could be financed from the PetroCaribe savings. In essence, rice and paddy trade under the Rice Trade Agreement is constrained by the expected value of fuel trade and savings under PetroCaribe. In recent years, the approximate amount has a range of US\$130–US\$167 million.

Rice and paddy prices fixed with CASA are on CIF terms, with the Guyana Rice Development Board being responsible for paying for the cost of the products plus insurance,

freight and other charges which includes quality assurance, fumigation, and demurrage. The freight costs and associated charges related to the supply of rice and paddy is estimated to be about US\$80 and US\$56 per metric ton, respectively. In early 2014, some local shippers indicated the ability to ship paddy at considerably lower costs, as low as US\$36 per metric ton (*Kaieteur News*, 2014). While the lower shipping costs quoted did not seem to include associated charges, such as fumigation, quality control, and so forth, it appears as though the shippers contracted by the Guyana Rice Development Board are earning premium prices for the services rendered under the rice trade arrangement with Venezuela.

Since the implementation of the rice trade agreement, Guyana has received prices that were fixed above world market prices. For much of the period of January 2010 to June 2014, rice prices paid by Venezuela have averaged more than 20 percent greater than world market prices. During the past year (mid-2013 to mid-2014), the estimated Freight-on-Board (FOB) price for Guyanese rice on the Venezuelan market has been more than 40 percent above world market prices (as shown in Appendix Figure 1).

Appendix Figure 1. Monthly Rice Prices, January 2010 to May 2014

