Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Policy options for galvanizing Africa’s rice sector against impacts of COVID-19

Arumugam Kathiresan *, Tomokazu Nagai, Yusuke Haneishi

Coalition for African Rice Development (CARD), Alliance for a Green Revolution in Africa, West End Towers, 4th Floor, PO Box 66773, Westlands 00800, Nairobi, Kenya

ABSTRACT

Demand for rice consumption in Africa has outstripped the current local production capacities. As a result, African markets have become heavily dependent on importation, especially from Asia. During the COVID-19 pandemic, rice production in both Asia and Africa is likely to be reduced. It is also likely that the major Asian rice exporting countries will resort to stockpiling of their local production, and restrict volumes of (or ban) rice exportation. Such measures could affect demand–supply dynamics and trigger a price crisis in African rice markets. Based on the lessons learnt from the Ebola and Severe Acute Respiratory Syndrome (SARS) epidemics and the 2007–08 food price crisis, African nations need to moderate the impact of such a crisis through appropriate policy actions.

1. Introduction

Since the Uruguay round of General Agreement on Tariffs and Trade (GATT; 1994) and the advent of the World Trade Organization (WTO; 1995), Africa’s rice importation has increased 4.7-fold (Fig. 1), from about 4 million tons in 1994 to about 14.8 million tons in 2017 (FAOSTAT, 2020). Although local rice production in Africa increased by 2.3-fold during the same period, the spurt in Africa’s imports is largely driven by a fast-growing appetite for consumption.

Being a non-traditional food commodity, rice represents one of several constituents of a common African household’s food basket. Yet it was a sharp rise in the price of rice (along with wheat and maize) that set the pretext for food price crisis in 2007–08, during which time the spike in prices of other traditional staple food crops such as potato, cassava and beans in Africa was relatively less persistent (Dawe and Morales-Opazo, 2009). Of the 34.234 million tons of global rice exports in 2018, about 10.772 million tons (31.46%) were destined for Africa (ITC, 2020). Thailand, India, Pakistan, China and Vietnam are the major sources for African markets (Table 1) due to availability and lower transportation time and transaction costs.

The recent outbreak of the coronavirus disease 2019 (COVID-19) has sparked fears over the stability of global rice production and supply chains. Although still unfolding, COVID-19 has already begun to negatively affect Africa’s rice consumption stocks, intra-regional trade (AGRA, 2020), importation logistics, and domestic and international prices (FAO, 2020b,c). Some of the Asian rice-producing countries such as Vietnam, Myanmar, India and Philippines have recently placed restrictions on rice exports (USDA-FAS, 2020) that could potentially upset the price equilibrium in African markets. When coupled with volatility in exchange rates (World Bank, 2020), such cracks in rice supply chains could lead to substantial hikes in domestic market prices and compromise food security, poverty reduction and socio-economic development in several African nations. Nevertheless, the emerging crisis also creates opportunities for the African rice sector to sharpen its competitiveness and improve its domestic market share and self-reliance.

2. On-farm production

In Africa, rice is harvested one or two times from the same land in a year. Depending on seasonality of the crop and status of the COVID-19 infection curve, the impacts on rice production may vary in different countries and in different parts of a single country. Although official data on area and production are not yet available, COVID-19 mediated disruptions could affect labor availability, on-farm seed inspection and production activities, delivery of farm inputs, machinery services, training and other extension services, leading to decreases in area under rice production, productivity and profitability. The Ebola epidemic in West Africa in 2014 reduced the area planted with rice by 3.7% in Guinea, 8% in Sierra Leone and 11.6% in Liberia (FAO, 2016), and gross rice production...
in these 3 countries dropped by 10% (UNDP, 2014). Data on rice cultivation and production in China (FAOSTAT, 2020) reveal a significant drop (8.1% and 9.5% respectively) during the severe acute respiratory syndrome (SARS) pandemic in 2002–2003 (Fig. 2). African nations hence need to patronize and support local rice planting to stem any reduction during the COVID-19 pandemic. They can do so by adopting the following policy options Tables 2–4.

While African countries have to carefully weigh the available fiscal space and external funding sources before deciding on subsidies and financial support, it is important to note that providing subsidies alone may not be enough. This is because rice farmers may find it difficult to mobilize labor for operations such as transplanting, weeding and harvesting, and this may lead to reductions in on-farm productivity. This means that temporary input subsidies may become more effective when combined with fiscal and monetary policies that encourage labor mobilization and/or machinery use.

### 3. Postharvest handling, trading and processing of rice paddy

It is imperative that locally-produced rice grain moves to domestic markets more efficiently, with no or minimal losses in quantity and quality, during the pandemic. A majority of smallholder rice farmers in Africa typically sell their surplus to rural traders after performing minimal value-addition activities such as drying and packing. Due to the lack of regulatory structures and inadequate private investment, downstream integration of producers with trading networks is less organized than it could be in most
Policy options for increasing on-farm rice production during the pandemic.

| Issues                          | Policy Options                                                                 |
|---------------------------------|-------------------------------------------------------------------------------|
| Reduction in rice cultivation area | • Set up and/or engage a rice taskforce to closely monitor and offer early warnings on the pace of progress in land preparation, planting and input usage  |
|                                  | • Establish monitoring of rice value chain activities within agriculture sector emergency frameworks |
|                                  | • Fast-track orders and clearance on the importation of inputs (seeds, agrochemicals, machinery) |
|                                  | • Reorient public and private extension services through digital modes (e-extension) |
|                                  | • Provide temporary subsidies or direct financial support to smallholder farmers for procuring inputs |
|                                  | • Increase access to low-interest credit with flexible repayment terms, and reduce or waive tax and insurance payments to micro, small, and medium enterprises (MSMEs) along the rice value chain |
|                                  | • Establish special public–private partnership drives for labor/machinery-hiring services |

Policy options for tackling market crisis during the pandemic.

| Issues                          | Policy Options                                                                 |
|---------------------------------|-------------------------------------------------------------------------------|
| Reduction in domestic supplies   | • Enhance movements of rice (Table 3)                                         |
|                                  | • Temporary ban on private grain hoarding or stocking                          |
|                                  | • Release of rice stocks from grain reserve onto free market                   |
|                                  | • Temporary pause on state procurement and stocking of rice                    |
|                                  | • Temporary reduction or removal of value added tax (VAT) along the rice commodity chain |
|                                  | • Temporary restrictions (tariffs, bans) on rice exportation                   |
|                                  | • Negotiations and/or partnerships with private traders on indicative market prices |
|                                  | • Simplified procedures for licensing/registration for rice importation        |
|                                  | • Reduction or removal of tariff barriers (tariff rates, ad valorem duty, transit duty) on rice |
|                                  | • Make rice importation difficult (import quotas, foreign exchange regulations, deposits, preferential arrangements, rules of origin) |
|                                  | • Widening of rice trading network with unorthodox countries through bilateral or multilateral agreements |
|                                  | • Establish a special financial support window (low-interest capital, foreign exchange) for rice importers |
|                                  | • Promote rapid clearance through e-customs, online issuance of phytosanitary certificates |
| Reduction in external rice supplies | • Establish monitoring of rice value chain activities within agriculture sector emergency frameworks |
|                                  | • Reduce or remove non-tariff barriers that make rice importation difficult (import quotas, foreign exchange regulations, deposits, preferential arrangements, rules of origin) |
|                                  | • Make rice importation difficult (import quotas, foreign exchange regulations, deposits, preferential arrangements, rules of origin) |

Table 3
Policy options for overcoming issues related to postharvest handling, processing and trading during the pandemic.

| Issues                          | Policy Options                                                                 |
|---------------------------------|-------------------------------------------------------------------------------|
| Inefficient postharvest handling reduces productivity | • Promote price incentives for value-added to harvested grains (cleanliness, homogeneity, grading) |
|                                  | • Strengthen linkages and promote supply contracts amongst farmers, farmer cooperatives, registered MSMEs, traders and millers |
|                                  | • Widen market channels by proactively engaging farmer cooperatives, and public and private trading enterprises |
|                                  | • Scale up affordable drying yards and warehousing facilities |
| Movement of grains comes under pressure | • Minimize roadblocks and allow free movement of rice grains |
|                                  | • Organize temporary rent-free pick-up sites and/or warehouses and partnerships in transportation |
|                                  | • Promote rice processing quality and capacity of small- and medium-scale rice mills |
| Volatility in farmgate prices | • Set up committees to monitoring movements in farmgate prices and market prices for various grades and types of rice |
|                                  | • Share weekly/monthly market information (sources and prices) with all relevant stakeholders |
|                                  | • Guarantee/prioritize direct grain procurement from farmers through governmental/institutional marketing agencies/programs |
|                                  | • Provide credit support for aggregation by traders and millers at indicative prices |
|                                  | • Promote online trading by rice farmers and cooperatives |

and personnel might profoundly affect logistics into and out of rice mills.

Table 4
Policy options for overcoming issues related to postharvest handling, processing and trading during the pandemic.

| Issues                          | Policy Options                                                                 |
|---------------------------------|-------------------------------------------------------------------------------|
| Inefficient postharvest handling reduces productivity | • Promote price incentives for value-added to harvested grains (cleanliness, homogeneity, grading) |
|                                  | • Strengthen linkages and promote supply contracts amongst farmers, farmer cooperatives, registered MSMEs, traders and millers |
|                                  | • Widen market channels by proactively engaging farmer cooperatives, and public and private trading enterprises |
|                                  | • Scale up affordable drying yards and warehousing facilities |
| Movement of grains comes under pressure | • Minimize roadblocks and allow free movement of rice grains |
|                                  | • Organize temporary rent-free pick-up sites and/or warehouses and partnerships in transportation |
|                                  | • Promote rice processing quality and capacity of small- and medium-scale rice mills |
| Volatility in farmgate prices | • Set up committees to monitoring movements in farmgate prices and market prices for various grades and types of rice |
|                                  | • Share weekly/monthly market information (sources and prices) with all relevant stakeholders |
|                                  | • Guarantee/prioritize direct grain procurement from farmers through governmental/institutional marketing agencies/programs |
|                                  | • Provide credit support for aggregation by traders and millers at indicative prices |
|                                  | • Promote online trading by rice farmers and cooperatives |

Although closer engagements between public institutions and private trading enterprises can improve marketing and reduce hoarding of the rice grains, it is important to ensure that both farmers and traders honor their agreements and accept fast movements in prices. This requires awareness-creation through active and real-time communication, using all appropriate information and communication technologies.

4. Trading and marketing of milled rice

Monthly average prices for the global benchmark Thai (5% broken) rice (FAO, 2020a and 2020c) and the volatility of prices of rough rice futures (sourced from Chicago Mercantile Exchange) show substantial increments since the onset of the COVID-19 pandemic (Fig. 3). The steep rise in volatility may not only provoke stockpiling by various market players, but also escalate market vulnerability and food insecurity in Africa. It is widely believed that panic stockpiling of 50 million tons of rice by China, India and Thailand in 2006–07 partly triggered the 2007–08 rice price crisis (Wiggins & Keats, 2013). If the major Asian rice exporting countries (Table 1) enforce further export restrictions or bans, and/or stockpile their local production to feed weaker sections of their population through social safety nets and tide over long-term socioeconomic impacts of the pandemic, then rice-based food security in Africa might be severely threatened.

The extent of vulnerability of African nations to such a crisis could therefore directly correlate with their rice import-dependence ratio (share of imports in total consumption) and actual import volumes. Available data (FAO, 2020a) on imports and production (milled equivalent) of rice in 2017 for which complete datasets are available at the time of drafting this article reveal (Fig. 4) that Tanzania, Nigeria, Malawi, Chad and the DRC are less dependent on imports (<10% of country’s demand) and import less than 100,000 tons of rice, and hence could be less vulnerable, even...
if the supply from Asia is crippled. Markets in these countries might be able to manage the gaps from alternative source-countries and/or other local supplementary staple commodities. It should be noted, however, that the analysis displayed in Fig. 4 is based solely on official FAO trade data, and hence does not include informal trade (between, for example Benin and Nigeria), if there is any (Golub et al., 2019). Although countries such as Rwanda, Burundi, Zambia, CAR, Sudan, Gabon and Congo import less than 100,000 tons, their import-dependence is higher (>40%); this makes their markets moderately vulnerable to market crisis. Countries with even greater import dependence ratio and/or larger import volumes (>100,000 tons) are more vulnerable to shortage in rice trade flux.

Since political uncertainties, climate change, and other natural disasters during the COVID-19 pandemic could further aggravate the levels of vulnerability and food security, all African nations will need to improve their preparedness and strategize on how to further increase their domestic production and supply of rice during the pandemic. Most countries have set up a national rice taskforce to collect and scrutinize relevant evidence, and to advocate appropriate policy options to various line ministries that make policy decisions at the country level. Recently, countries such as Mali and Chad have reduced import duties, while Kenya and Somalia have reduced the VAT on rice to combat the impact of the pandemic on the rice supply chain.

Since the rice trading policies of African nations are now becoming increasingly integrated with those of the corresponding regional economic communities (de Melo & Tsikata, 2015) which are collectively governed by councils of ministers from member countries, alignment of each member country’s policy actions with the existing regional policy framework(s) will improve the effectiveness of policy. It should also be noted that while export restrictions and relaxation of import barriers can help increase the rice supplies, when such changes are adopted by several countries simultaneously, such measures might lead to greater global demand, and thus effectively put upward pressure on market prices. Hence, constant monitoring and evaluation of rice supply volumes and market prices will be pivotal in determining and fine-tuning the degree and duration of the above-mentioned policy actions.

![Fig 3. Trends in global market prices of milled rice (Thai, 5% broken) and volatility in rice futures.](image3)

![Fig 4. Expected vulnerability of CARD member countries during COVID-19 pandemic.](image4)
Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The contents in this publication were enriched through a multi-year funding for the Coalition for African Rice Development (CARD) from especially Japan International Cooperation Agency (JICA) and other development partners in the coalition (https://riceforafrica.net), towards developing and implementing National Rice Development Strategies (NRDS) in 32 African nations.

References

Alliance for a Green Revolution in Africa (2020) Food Security Monitor. Edition #4
Ceballos, F., Hernandez, M. A., Minot, N., & Robles, M. (2016). “Transmission of Food Price Volatility from International to Domestic Markets: Evidence from Africa, Latin America, and South Asia.”. In M. Kalkuhl, J. von Braun, & M. Torero (Eds.), Food Price Volatility and Its Implications for Food Security and Policy. Cham: Springer.

Dawe, D., & Morales-Opazo, C. (2009). How much did developing country domestic staple food prices increase during the world food crisis? How much have they declined? FAO-ESA Working Paper No. 09-09.

de Melo, J., & Tulkat, Y. (2015). Regional integration in Africa: Challenges and Prospects. In C. Monga & J. Y. Lin (Eds.), The Oxford Handbook of Africa and Economics. Policies and Practices.

FAO (2016) Impact of the Ebola virus disease outbreak on market chains and trade of agricultural products in West Africa.

FAOSTAT (2020). FAO Statistics, Food and Agriculture Organization of the United Nations, Rome Accessed 17-May-2020 http://faostat.fao.org/

FAO (2020b). Food Price Monitoring and Analysis. Bulletin #, 5.

FAO (2020c) FAO Rice price update – July 2020

Golub SS, AA Mbaye, JO Igue (2019) Benin’s informal trading with Nigeria. Economic Development & Institutions, Benin Institutional Diagnostic WP19BID09. August. at https://edi.opml.co.uk/wpcontent/uploads/2019/08/Benin-informal-trading-with-nigeria.pdf, Accessed 23 July 2020.

International Trade Center (ITC) Trade Statistics for International Business Development. https://www.trademap.org/Index.aspx, Accessed on 16-May-2020

UNDP (2014) Assessing the socio-economic impacts of Ebola virus disease in Guinea, Liberia and Sierra Leone

United States Department of Agriculture, Foreign Agriculture Services (April 2020) Global Market Analysis. Grain: World Markets and Trade

Wiggins S and Keats S (2013) The end of cheap rice. A cause for celebration? UKAID-ODI Briefing.

World Bank (2020) Africa’s Pulse. No. 21, Spring 2020: An analysis of issues shaping Africa’s future. https://openknowledge.worldbank.org/handle/10986/33541, Accessed 23 July 2020.