Introduction

The world is facing unprecedented challenges caused by the coronavirus pandemic (COVID-19), one of the most serious public health emergencies in living memory. According to the World Health Organization, as of 19 April 2020, more than 2.24 million cases of COVID-19 have been reported in 185 countries and territories, resulting in more than 152,000 deaths. The number of detected cases of infection in Africa has remained relatively low although it is now rising at an alarming rate with more than 20,000 cases and the death toll has gone past the 1,000 mark. To contain the pandemic, several measures including the maintenance of strict hygiene practices, social distancing rules, wearing of face masks, travel restrictions, quarantines and lockdowns, either partial or complete, have been implemented in many countries worldwide.

While these measures are important to arrest the spread of coronavirus, they are, however, adversely impacting livelihoods, jobs, food and nutrition security and economic activities. The impacts are likely to be relatively huge in Africa, where 34% of the population are employed in the informal sector, earning comparatively low wages, live from hand to mouth, and do not have adequate safety nets to guarantee enough supply of food and other basic necessities for daily living. The agricultural sector provides 55% of jobs in Africa and is the source of more than 70% of the earnings of the poor.

While experts, governments and the international community are striving hard to ‘flatten the coronavirus curve’ in order to avert unmanageable health crisis, the need to ‘flatten the food insecurity curve’, is not receiving equal attention. This is a significant concern, particularly because the last three years have witnessed a deterioration in the food security situation. The number of food-insecure people has been growing, reaching over 820 million in the world in 2018, including about 260 million in Africa. The prevalence of undernourishment in Africa is at almost 20%, the highest in the world.

In addition, the world price of rice, which has become a major staple food in sub-Saharan Africa (SSA), has been continuously increasing over the last twelve months. The expected shortage in supply of major
food items such as rice and wheat combined with rising prices, because of coronavirus measures, will likely push millions of people, especially those in Africa, into deep food insecurity and poverty. To avoid a repeat of the 2007-2008 world food crisis, necessary and urgent measures for sustained agricultural growth need to be put in place now.

The risks facing the rice sector in Africa
Rice is the fastest growing staple food in Africa, especially for West Africa, where it is the main source of calories compared to other cereals. The COVID-19 pandemic will certainly affect both global and local rice supplies and cause prices to fluctuate during and after the pandemic. Before COVID-19, rice consumption in SSA was projected to reach 35 million tons in 2020, out of which, 15 million tons (43%) were to be imported from Asian countries. Some of these Asian countries have been hard-hit by the pandemic and the immediate impacts of COVID-19 in SSA will be felt by rice consumers, especially in urban areas, in the form of higher prices of rice and tighter food budgets. The rice agri-food system, therefore, faces potential risks, including international market instability, increasing productivity shocks and socio-political instability.

International market instability
The economic consequences of COVID-19 in major rice exporting countries, such as India, Thailand, Vietnam, Pakistan, United States and Myanmar, contributing to 83% of the volume of world exports in 2017-2018, are not yet fully understood. Even if the world rice stocks increased in 2019 to 184 million tons versus 176 million tons in 2018, the stocks could fall due to the contraction of world production and increased speculation. The lockdown in many countries has seen the transportation of goods including rice being curtailed in the short term, thus resulting in a decline in rice imports into SSA.

Asian exporting countries may also restrict exports to support domestic consumers until the end of the pandemic and when productive capacity is regained. For example, despite a clarion call in the name of solidarity to avoid ‘food nationalism’, as of 1st April 2020, Vietnam and Cambodia have decided to restrict rice export to protect their domestic market and cope with a potential food shortage. Rice traders in India, which is the world’s biggest rice exporter, had stopped signing new export contracts for three weeks in March 2020, because of labor shortages and disruptions in supply during a countrywide lockdown to control the coronavirus spread. This allowed rice-exporting countries like Thailand to increase shipments and raise global prices, forcing consumers in Africa to pay higher prices. Fortunately, Indian traders have just resumed signing new export contracts. This clearly indicates that such disruption, instability and uncertainty in supply from major exporting countries could lead to serious price spikes akin to those witnessed in the 2007-2008 global food crisis, which will certainly affect the poorest and the most vulnerable people in Africa.

Increasing rice productivity shocks
Consumer prices will be hiked by potential disruptions in domestic markets of inputs (seed, fertilizer), resulting in low use of inputs and low domestic production of rice. In some countries, farmers may not be allowed to go to farm or find laborers for farm activities resulting in reduction of domestic rice production. Access to output market could also be a challenge due to lockdown. The recent investigation of countries’ rice self-sufficiency status by AfricaRice has shown that countries like Gambia, Cameroon, Ghana or Senegal have self-sufficiency ratios of 60% or less. Price shocks will therefore be more severe for these countries as they are still largely dependent on Asian exports to meet the gaps between production and consumption.
In the medium-term and contrary to the expectation that higher prices should benefit farmers, farm incomes of smallholder rice farmers will probably be eroded by the risk and uncertainty created by price volatility and reduced production. The shortcoming in the inputs production systems will even upset the nearly self-sufficient countries with high per capita consumption such as Madagascar, Mali or Sierra Leone, where in addition to reduced rice stocks in markets, farmers may also consume all their rice stocks including seeds. This situation was observed during the Ebola crisis in West Africa. Post the COVID-19 crisis, it is thus expected that the production system will, by all means be affected negatively, considering the existing challenges in the development of the rice sector in SSA, including the limited availability of adequate germplasm and seed capitals, as well as poorly functioning seed systems, lack of investment and long-term policy measures, and weak agricultural credit and insurance system. Technology transfer and access to improved practices could slow down due to the inactivity of the national extension agencies, which will be compelled to slow down their activities or even shut down as a result of the spread of the COVID-19.

Social and political instability
This pandemic would also affect the human capital, the worst-case scenario being a high rate of deaths, depending on the capacities of countries in maintaining control over their borders and applying social distancing measures. Poor countries in Africa have the least resources to prevent and control health problems; medical services, electricity and potable water sources are seriously lacking. If COVID-19 is not contained, it will take a serious toll on rural people thus reducing the number of workers and leaving the younger generation with limited knowledge on farming. This scenario will negatively affect the local rice agri-food system supply and lead to price increase.

Failure to appease the needs of the population through emergency food distribution systems by governments during the pandemic could lead to potential social unrest – a stark reminder of the demonstrations and food riots that took place in some of the capitals of SSA in response to high food prices during the 2007-2008 food crisis. The political instability could also be fueled by the increase in youth unemployment due to lay-offs by small and medium enterprises (SMEs), which are struggling to survive the economic fallout from the coronavirus pandemic and by the reduction in demand for goods and services from rice-related supply chains in which the youth are engaged.

Flattening the food insecurity curve through effective interventions to support the rice agri-food system in the face of COVID-19
The prevailing context should serve as a renewed incentive and justification for Africa to increase its production of rice to feed its population. The experience of the 2007-2008 global economic downturn showed that most developing countries rebounded with an uneven and short-lived recovery; trends in economic growth, since 2011, generally declined and the number of undernourished people over the last three years increased. In the current situation and given the role the rice sector could play to attenuate the negative effects of the COVID-19 pandemic on food security, the following measures are suggested:

Short term measures
1. Subsidize and control the retail prices to contain the increase in consumer prices and avoid riots;
2. Undertake a quick inventory and monitoring of rice stocks (local and imported) in countries and stabilize prices by preventing speculative behavior deemed to increase prices;
3. Promote regional trade by taking advantage of the existing regional trading blocs and free trade agreements;
4. Avoid food waste, reduce post-harvest losses
5. Stimulate domestic production through subsidies on inputs such as seed and fertilizer, farm machinery and post-harvest equipment;
6. Establish minimum producer price and ensure the availability of fertilizer and quality seed on time;
7. Rule out measures of reduction or suspension of tariffs on imported rice due to their negative incentive on local production;
8. Implement an economic recovery program that includes extending fiscal debts and public utilities payments to enable private sector to limit youth unemployment.

**Medium- and long-terms measures**
1. Strengthen the key investment areas for the development of the rice value chain; promote local rice; support national and international research for development to close the yield gap; scale out good agricultural practices; ensure accessibility of quality seed; improve water control through new irrigation schemes and lowland development; rehabilitate degraded irrigation schemes; and develop basic infrastructure for postharvest processing, marketing and improve competitiveness.
2. Given that the extension services and farm labor would be affected by the quarantine restrictions, it is high time to develop and promote the use of digital and ICT technologies to provide services and improve labor and land productivity;
3. Promote digital innovations through investment in digital infrastructure to provide incentives for creating dynamic, good quality and stable employment opportunities for the youth in the rice value chain;
4. Consolidate regional and national rice reserve stocks as rice has the advantage to be stored for a relatively longer time and easily used in emergency situations.

**Conclusion**
It is the time for governments to embrace an agri-food systems approach to research-for-development, policy formulation and implementation, considering that the pandemic is not affecting rice alone but also many other food commodities, all the processes, actors, relationships and institutions involved in food production, marketing and consumption.

As the lead rice research and development institute in Africa, AfricaRice is mandated to help its member countries mitigate the impacts of the COVID-19 pandemic on their rice agri-food system, by making available quality seed and other improved technologies working hand in hand with the public and private sectors, monitoring rice market trends and offering advice and guidance to policymakers.