

기조연설

Global Rice Production, Consumption and Trade: Trends and Future DirectionsHumnath Bhandari^{1*}¹IRRI Bangladesh**[Abstract]**

The objectives of this paper are (i) to analyze past trends and future directions of rice production, consumption and trade across the world and (ii) to discuss emerging challenges and future directions in the global rice industry. Rice is a staple food of over half of the world's 7.7 billion people. It is an important economic, social, political, and cultural commodity in most Asian countries. Rice is the 1st most widely consumed, 2nd largely produced, and 3rd most widely grown food crop in the world. It was cultivated by 144 million farms in over 100 countries with harvested area of over 163 million ha producing about 745 million tons paddy in 2018. About 90% of the total rice is produced in Asia. China and India, the biggest rice producers, account for over half of the world's rice production. Between 1960 and 2018, world rice production increased over threefold from 221 to 745 million tons (2.1% per year) due to area expansion from 120 to 163 million ha (0.5% per year) and paddy yield increase from 1.8 to 4.6 t/ha (1.6% per year). The Green Revolution led massive increase in rice production prevented famines, provided food for millions of people, reduced poverty and hunger, and improved livelihoods of millions of Asians. The future increase in rice production must come from yield increase as the scope for area expansion is limited.

Rice is the most widely consumed food crop. The world's average per capita milled rice consumption is 64 kilograms providing 19% of daily calories. Asia accounted for 84% of global consumption followed by Africa (7%), South America (3%), and the Middle East (2%). Asia's per capita rice consumption is 100 kilograms per year providing 28% of daily calories. The global and Asian per capita consumption increased from the 1960s to the 1990s but stable afterward. The per capita rice consumption is expected to decline in Asia but increase outside Asia especially in Africa in the future. The total milled rice consumption was about 490 million tons in 2018 and projected to reach 550 million tons by 2030 and 590 million tons by 2040.

Rice is thinly traded in international market because it is a highly protected commodity. Only about 9% of the total production is traded in global rice market. However, the volume of global rice trade has increased over six-fold from 7.5 to 46.5 million tons between the 1960s and 2018. A relatively small number of exporting countries interact with a large number of importing countries. The top five rice exporting countries are India, Thailand, Vietnam, Pakistan, and China accounting for 74% of the global rice export. The top five rice importing countries are China, Philippines, Nigeria, European Union and Saudi Arabia accounting for 26% of the global rice import. Within rice varieties, Japonica rice accounts for the highest share of the global rice trade (about 12%) followed by Basmati rice (about 10%). The high concentration of exports to a few countries makes international rice market vulnerable to supply disruptions in exporting countries, leading to higher world prices of rice. The export price of Thai 5% broken rice increased from 198 US\$/ton in 2000 to 421 US\$/ton in 2018. The volumes of trade and rice prices in the global market are expected to increase in the future.

The major future challenges of the rice industry are increasing demand due to population growth, rising demand in Africa, economic growth and diet diversification, competition for natural resources (land and water), labor scarcity, climate change and natural hazards, poverty and inequality, hunger and malnutrition, urbanization, low income in rice farming, yield saturation, aging of farmers, feminization of agriculture, health and environmental concerns, improving value chains, and shifting donor priorities away from agriculture. At the same time, new opportunities are available due to access to new technologies, increased investment by the private sector, and increased global partnership. More investment in rice research and development is needed to develop and disseminate innovative technologies and practices to overcome problems and ensure food and nutrition security of the future population.