

Korea's Development Experience in the Rice Sector and its Implications for Africa



Young Ho Park

Ph.D., Research Fellow, Africa and Middle East Team
Korea Institute for International Economic Policy

Most African countries face such challenges as food-insecurity and malnutrition in their path towards economic development, leading to difficulties in income creation for a large share of the population. African governments have been working to deal with these challenges and improve food security. One area of focus is the agricultural sector, the mainstay of most countries in Africa. Agricultural productivity in Africa is yet insufficient to sustain the rapid expansion of urbanisation and population growth, resulting in food imports increasing at a rapid rate. The total grain import in Africa in terms of total grain consumption has increased today to more than 25% from about 5% in 1961. Food aid has also seen a 10% increase in the same amount of time. In 2016, the African Development Bank (AfDB) launched the *Feed Africa: Strategy for Agricultural Transformation in Africa, 2016-2025* report to improve Africa's agricultural sector and achieve self-sufficiency as well as develop an improved value chain for export commodities. Target commodities included rice, wheat, cassava, maize, soybean, sorghum, millet, and the like. This strategy focuses on transforming the African agricultural sector to address these challenges and develop the regional economy.

Similarly, in the 1950s, agriculture was the mainstay of the Korean economy while the country suffered from low productivity and poverty. Furthermore, like farmers in African countries, most Korean farmers were small-holders. As a response to these challenges, in the 1960s, the Korean government started to develop and implement the initiatives that would promote agriculture in an attempt to improve the country's economy. While various perspectives have been portrayed of Korea's extraordinary structural change in many studies, it can be claimed, and is often claimed, that the origin of Korea's successful industrialization and economic transformation started with the transformation of the agricultural sector—particularly with the attainment of self-sufficiency in the staple cereal, rice.

Despite the inherent differences in factors surrounding the circumstances between Korea's and African countries' impetus to jump-start agricultural growth, it is worthwhile to examine Korea's efforts and draw out some lessons that can be applied to the development of the agricultural sector in Africa. The differences in agricultural conditions such as soil quality, crop species, and climate aside, agricultural support policies, agro-processing technology, financing schemes and models, and other physical and institutional infrastructure elements certainly possess some valuable lessons to consider. Moreover, Korea's policy experiences in price stabilization, export promotion, market access enhancement, food safety certification and the like, will also be a helpful source of reference for the development of agricultural support policies in African countries, particularly as Korea's agricultural policies were fundamentally designed to support small-holders, the prevailing type of farmers in both Korea and African countries.

The accomplishment of Korea's self-sufficiency of rice (Korea's Green Revolution), was possible due to its comprehensive approach. That is, actors from all levels of the public and private sectors united to achieve this goal set by the government. It was the strategic objective of all branches of the central government—the administrative, legislative and judiciary—as well as all ministries in the administrative branches at the state level. At the local level, farmers, local governments and other private sector actors also participated with fervour. The Korean government played a pivotal role in attaining this goal by setting overarching strategies and formulating food production policies, including the encouragement of R&D activities, the dissemination and transfer of seeds to farmers along with cultivation techniques for the new rice variety, the setting of an effective nation-wide extension system, the provision of effective channels of input distribution, financial incentives, and market access, and the like.

The main breakthrough of Korea's Green Revolution came in 1964 when a small group of Korean breeders were dispatched to the International Rice Research Institute (IRRI). The breeders developed a new semi-dwarf high-yielding cultivar at IRRI, later named as the Tong-il (meaning "unification" in Korean) variety, derived from the *Japonica*×*Indica* hybridization. Subsequently, the breeders introduced a series of Tong-il varieties, which successfully addressed the deficiencies of the then-prevailing Japonica varieties planted in Korea, such as low fertilizer responsiveness, lodging, vulnerability to such diseases as rice blast, etc. Above all, the new varieties yielded about 30% more than the yields of the Japonica varieties. With the distribution of the new varieties to the rural farmers, total production increased from 3.2 million M/T in 1968 to 4.09 million M/T in 1969. It rose again to 5.22 million M/T in 1976 and to 6 million M/T in 1977 at the height of the Green Revolution. Korea had, in about a decade, successfully severed itself from years of recurrent starvation and hunger.

Cereal, or food price policy in Korea has traditionally been regarded as the most important agricultural policy because cereals are politically and economically significant to the Korean economy. The price policy for rice was especially significant. In 1970, the Korean government adopted a two-tier policy for rice and barley as part of its determination and plans to boost the production of key cereals. The policy aimed to raise productivity of food cereals and rural area income, support urban households, and stabilize prices in general, among other things. The two-tier price system was designed in such a way that the government purchased rice and barley at a higher price than the farm gate price while selling at a lower-than-purchased price to urban consumers. The government's purchase of rice from the rural areas increased food security and income levels for the rural population. In the period of 1970-1992, the government purchase of rice harvests, on average, accounted for about 18.5% of the total rice production and supplied approximately 23.1% of the total consumption. The policy provided a great incentive for farmers to plant and grow Tong-il type rice because the government only purchased Tong-il rice varieties. As a result, farmlands cultivating Tong-il rice rose from 15.9% to 44.5% of the total rice paddy fields in 1976. In sum, the price support system, or subsidy, was a catalyst in generating an increase of new rice varieties which in turn led to a dramatic increase in the amount of rice production. On the other hand, selling rice at low prices in urban areas maintained low food inflation rates which enabled urban wage levels to be kept low. This supported the growth of Korea's manufacturing sector as low wage levels were a key component of Korea's competitiveness in the early days of industrialization. The following results of these policies in the 1970s were dubbed the "Green Revolution," and in 1974,

perhaps for the first time in Korean history, rural area household income exceeded urban household income.

In the pursuit for rice self-sufficiency, the role of the private sector actors was just as crucial as that of the government. Among the private actors, NH was a major partner that assisted the government in implementing policies to achieve rice self-sufficiency. NH is the National Agricultural Co-operative Federation, consisting of regional level co-ops and various product co-ops, of which farmers are members. Banking operations, i.e. extension of credits and loans, savings, etc., also made even, as the number of co-op members increased from several hundreds to thousands. As such, it would not be an exaggeration to say that NH has been the leading engine in the development of Korea's agricultural sector by instituting general business and credit programs that encompassed the entire agricultural value chain, stretching from the purchase of agro-inputs—fertilizers, pesticides, machines and equipment, etc.—to production, processing and marketing.

The quality of rice is decisively predisposed by storage and milling processes. In order to enhance the quality of rice, to save the processing cost, to prevent loss and to improve the rice distribution structure, rice processing centers (RPCs) were established in 1991 by the government. An RPC is a systemic complex where all post-harvest activities, such as weighing, drying, storage, processing (milling) and packaging, are undertaken. Since first being established in 1991, 328 RPCs have been in operation, or at least one RPC per city/county. Although most RPCs were initially set up by NH, private RPCs were also encouraged. Many traditional mills were already operating in rural areas. Most traditional mills, however, were small-scale and obsolete. Facing the imminent opening of the agricultural market to international competition, the government pushed forward with the construction of modern RPCs to improve the competitiveness of local rice.

Although Korea's Green Revolution took place some 40-50 years ago, it still renders invaluable lessons for developing countries around the world that aspire to attain food self-sufficiency and to transform and develop the agricultural sector. In retrospect, the achievement of rice self-sufficiency not only helped maintain socio-political stability, but also created an opportunity for the development of non-agricultural industries. Although it was not clear whether the growth of the agricultural sector spilled over to the growth of the non-agricultural sector, or vice versa, it was obvious that the synergy of growth between the two sectors was mutually reinforcing. Hence, it is safe to say that, in Korea's case at least, the attainment of rice self-sufficiency helped national growth to gain momentum.

Korea's experiences in the attainment of rice self-sufficiency and agricultural transformation could serve as useful and beneficial references for agricultural development in Africa on the grounds that most of the African countries and Korea share common experiences in the initial conditions of agricultural development. That is, the agricultural sector was the staple industry in which the majority of population conducted their livelihoods. In the absence of technology and capital required for economic development, agriculture in Africa and Korea was perhaps the only sector that served as a point of departure in the journey towards national development. **KIEP**