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Perspective

# Significance of Technical Transformation in Sustainable Agriculture

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## DESCRIPTION

The largest industry in the world by far that employs people is agriculture. More than 40% of the world's population receives a living from this sector, which also offers opportunities for employment and income to low-income rural households. However, 836 million people worldwide continue to live in severe poverty, and emerging nations account for the great majority of the world's 12.9 percent undernourished or hungry population. Without a question, the situation is posing thunderous challenges to rural growth and family self-sufficiency. Because of this, efforts to improve agriculture or to increase the productivity and resilience of subsistence farming methods have received priority on a worldwide scale. Case studies from Tanzania, China, Thailand, South Korea, and Japan demonstrate the variety of roles that agriculture has played in rural and national development as well as its potential to enhance the well-being of rural inhabitants (Organization for Economic Cooperation and Development). Furthermore, 1.34 billion people worldwide are either in or looking for employment in agriculture, making it a significant source of employment. Family farms provide the bulk of this labour. Throughout 500 million family farms around the world manage between 70 and 80 percent of the world's agricultural land, and their employees, largely family, generate more than 80 percent of the food consumed worldwide (United Nations Development Programme).

In terms of supply chain efficiency, security, and productivity, technology has had a substantially positive impact on the agriculture business. Farmers that practice traditional farming methods have several challenges while preparing the soil, collecting crops, sowing seeds, and trying to learn whether the soil is deficient in nutrients. Contrarily, technology advancements in the agricultural industry provide a number of advantages, including improved farmer livelihood, higher production, better market connectivity, informed decision-making and efficient policy and implementation. Major cutting-edge technologies, including livestock, vertical farming, robotics and automation technology, and artificial intelligence, provide enormous potential for the agricultural sector to expand. Continuous use of contemporary technologies in the agricultural industry will boost small farmers' incomes and contribute to the nation's economy in the future. The use of AI-backed tools and data in field operations demonstrates the relevance of technology in agriculture. Artificial intelligence aids farmers in making wise judgments by providing data on the weather, crop output, and even the best crop prices they should retain. Intelligent catboats that provide advice and ideas to the farmers are another aspect of AI agriculture technology. While catboats operate at a more granular level, AI and ML algorithms may be used to more broadly discover and track plant irregularities and illnesses.

The first long-term strategy to boost agricultural productivity, the Agricultural Perspective Plan (APP), places an emphasis on priority inputs (such as irrigation, rural roads, fertiliser, and agricultural technology) to attain priority outputs (i.e. increased production of fruits, vegetables, livestock, forestry and promotion of agri-business). To help the agriculture sector develop by around 5% annually and help the government reach its targets for reducing poverty, the APP was created. The use of contemporary technologies has been stressed as a top priority in the nation's farming sector. Since reducing poverty was the single most important goal of Nepal's current Tenth Five-Year Plan, rapid agricultural expansion has been prioritized. The following goals were established for the industry under the Tenth Plan: (i) increase in agricultural output, productivity, and revenue will decrease poverty and promote nutritional and food security; (ii) promote agro-based industries and enterprises with the involvement of cooperatives and the private sector in order to develop the internal market and foster export opportunities; (iii) contribute to sustainable production and growth through adaptive research and development of technology to be used in agriculture while protecting and utilizing agro-biodiversity and maintaining environmental balance.

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