

## Vietnam

# Vietnam's Agricultural Mechanization Strategies

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Mr. Nguyen Duc Long obtained his Engineering Degree in Mechanic at Hanoi University of Agriculture, and Bachelor's Degree in Economical Business at National Economic University in Vietnam in 1999. Mr. Nguyen obtained a M. Sc Degree in Agricultural Mechanism at Hanoi University of Agriculture in 2003. He also participated in a 6-month training in Japan pertaining to utilization and preservation techniques for agricultural and animal products. From 1993 to 2010, Mr. Nguyen worked as researcher in Vietnam Institute of Agricultural Engineering and Post Harvest Technology. Between 2006 and 2011, He was as the Scientific Secretary of the National Program on Science and Technology for Industrialization and Modernization in Agriculture and Rural Areas run by the Vietnam Ministry of Science and Technology. In 2013, Mr. Nguyen was appointed as the Head of the Department of Personnel and Administration of VIAEP.

According to statistical data, 70% of the population is engaged in agriculture in Vietnam. Major food staples in Vietnam are rice, corn, legumes. Due to weak awareness and lack of skills and technologies, farming operation in Vietnam usually causes negative impacts to the environment and health of the farmers, which include, for example, spraying overmuch pesticide and burning crop residues in the field, etc.

At present, the traditional production method based on human and animal labor still played a dominant role in Vietnam with limited application of

mechanization. Mechanization ratio for soil-related operations is approximately 70% while is lower than 30% for other stages and the share of agricultural labor against the total labor force is more than 50%. That is to say, the development of agricultural mechanization in Vietnam is still at a preliminary stage. The highest level of applying agricultural machinery in Vietnam is at the Mekong River Delta areas.

The invested engineering equipments for agriculture and rural construction are showed below:

Year		Cultivation in agricultural field and cultivated soil for forestry plants	Immobile equipments	Fishing	Cargo ships for rivers and canals	Total	Comparison 2011/2001
2001	Horsepower	4,590,000	9,282,000	4,720,000	3,100,000	21,472,000	
	Ratio (%)	21.37	43.78	21.76	14.29	100	
2006	Horsepower	5,739,690	11,973,000	6,200,000	7,856,620	31,841,394	1.48
	Ratio (%)	18.03	37.60	19.70	24.67	100	
2011	Horsepower	9,740,240	15,804,360	7,449,358	9,485,310	42,479,268	1.33
	Ratio (%)	22.92	37.20	15.20	24.68	100	

Source: Vietnam General Statistics Office, 2012

In Vietnam, agricultural mechanization technologies are needed for two main purposes, namely, to improve yield and quality of main crops, and to reduce post-harvest losses ensuring quality and food safety. For achieving the first purpose, the most needed technologies include comprehensive mechanization for rice production, mechanization in drainage and irrigation, development of greenhouse system and devices to create micro-climate area, comprehensive mechanization for sugar-cane production, and mechanization for corn and legumes. While, technology and equipment for rice seed processing, and drying technology and equipment for agro-products are requisite for reducing post-harvest losses.

Recent years, the Vietnamese government has issued various regulations and programmes to support sustainable agricultural mechanization. Resolution No. 26-NQ/TW issued on Aug. 5th 2008 on agriculture, farmers and rural areas set the following two targets pertaining to agricultural mechanization by 2020:

- building the agriculture sector toward modernization, and industrialization and development of services in

rural areas; and

- enhancing research, transfer and application of science, technology, human resources training, making breakthrough to agricultural modernization and rural industrialization.

Framework of Adapting to Climate Change Programme in the period of 2008-2020 issued on Sep 5th 2008 by the Sector of Agriculture and Rural Development together with the Minister of Agriculture and Rural Development's Decision No. 2730/QD-BNN-KHCN states that the key activities in climate change minimization and adaptation of the sector include "the implementation of research program; the planning of infrastructure of agriculture and rural, farming systems of agriculture, forestry, fishery and salt production so to prevent and mitigate natural disasters towards enhancing adaptation to climate change ". Action Plan of the Ministry of Agriculture and Rural Development has set the task of implementing 16 strategic projects by 2020 related to agricultural and post-harvest technology covering agriculture and rural development, horticulture,

irrigation, and mechanization and post-harvest loss reduction in agriculture, etc. Resolution 48/NQ-CP dated on Sep 23rd 2009 was about mechanisms and policies to reduce post-harvest losses of agricultural products and aquatic products. On Jun. 4th 2010, the Vietnamese Prime Minister signed Decision No. 800/QD-TTg approving the national target program on new rural construction for the period of 2010-2020. And the Programme on Developing High-tech Agriculture has been issued to the national government for approval, which was drafted by the Ministry of Agriculture and Rural Development with extensive consultation with relevant experts.

To improve the quality and lower the cost of mechanized products for agriculture and rural development, a comprehensive solution is needed ranging from developing orientation, research & development, planning and supporting policies from Government on investment in equipment, training and fostering of knowledge management as well as technical skills to operate the equipment, combining machinery complexes, technology assemblies to managers and skilled workers.

The priorities of agricultural mechanization development in the process of agricultural modernization in coming years in Vietnam cover mechanization of production stage, mechanization of the processing of agricultural (forestry and fishery) products, and research on energy sources of agricultural machinery.

Efforts to promote sustainable agricultural mechanization in Vietnam contributing to agricultural and rural development could be focused on speeding

up the implementation of the various Resolutions. Efforts need to be made to developing policies to encourage investment in dynamic engine and agricultural machinery production, and to strengthen human resource development including conducting short-term training programmes for management officers and farmers.

In conclusion, mechanization in Vietnam has experienced significant improvement, while farmers are the major investors of agricultural machinery and equipment. Yet, the scale of investment and business of agricultural machinery is still small, especially for complex high-tech combining equipment like agricultural-forestry-fishery processing assemblies. In addition, the level of comprehensive mechanization is still low, and the application is generally focused on soil preparation, threshing, water pumping and rural transportation, while more efforts should pay as well on transplanting, sowing, cutting and harvesting. The machinery manufacturing industry has a significant progress in terms of providing dynamic engines, agricultural equipment for crop production and processing stages. However, for some high-tech agricultural and processing equipments, the industry in Vietnam still lacks the technical competence. In addition, the policies adopted by the Vietnamese government supporting the development of agricultural mechanization began to have positive effects. The financial sectors have invested in the production and manufacturing of agricultural machinery for agriculture, forestry and fisheries processing. And farmers can get loans with preferential interest rates for purchasing agricultural machinery and equipments better serving the whole process of production.