
Abstract

The increase of transport demand and ambition of customers in recent years have forced transport supply side to improve effectiveness and efficiency of transport system. With its primacy, multimodal freight transport (MFT) can fulfill the needs of both demand and supply sides, and reduce concerns of international community on traffic safety and environmental impacts. Currently, some developing countries, such as China and Thailand, have already established well-functioning MFT, while many others are still at an early stage of development, Vietnam for instance. In this context, promoting MFT development in these countries is an urgent need and a big challenge nowadays.

The objective of this study is to investigate opportunities and barriers to enhance MFT in developing countries using example of the Vietnamese rice industry. To achieve the objective, this study goes through five steps and uses several methods to answer five research questions as follows. Firstly, a literature review compiles and analyzes definitions of multimodal transport, intermodal transport (IT), combined transport (CT), and bimodal transport (BT) to define a proper definition for MFT. A brief description of MFT system after that illustrates in detail about MFT. Secondly, role of MFT is then discussed based on facts and arguments gathered from related works of other authors. In the third step, to identify success and non-success factors promoting MFT in developing countries, two cases are analyzed based on a consistent framework. The next step is conducting case study of the Vietnamese rice industry using secondary data and SWOT analysis. The table of success and non-success factors from previous step is used as benchmark in SWOT analysis to find out strengths and weaknesses enhancing MFT in the case. Opportunities and threats for MFT development are defined by analyzing related external factors. Based on results from SWOT analysis and good practices from developed countries, the final step recommends a set of measure for development of MFT in Vietnam. The major findings from this research can be summarized below:

Malcolm MacLean invented the first intermodal production system in 1955, but definition of either intermodal transport or multimodal transport was relative new until 1980. However, in the following period, a large number of authors and organizations give definitions and research on the topic of MT, IT, CT, and BT. Many researchers agree that MT and IT are exchangeable, IT and CT are synonyms, and MT is the broadest definition among these ones. There are distinguished features in definitions of each transport type and between these kinds of transport. With the hope of facilitating uniform use of definitions in freight transport, this study adapts a strict MFT definition, which can covers four above types of transport, as followed. 'Multimodal freight transport is the transport of goods under a single contract from an origin to a destination in the same loading unit or load vehicle by a transport chain, which uses successively two or more different modes of transport without handling the goods themselves in changing modes'. MFT chain involves variety of actors, transport units, and loading units, goes through many interface points. The MFT system mostly operates according to hub-and-spoke model, and provides four major functions (collection, transfer, transshipment, distribution).

Like other types of transport, MFT's general role is the achievement of four major goals (effectiveness, economic efficiency, safety, and environmental capability). In this paper, the role of MFT is discussed on three aspects. Concerning physical and technical aspect, role of MFT are providing door-to-door transport, and utilizing advantages of specific transport modes. Regarding organizational and operational aspect, MFT plays its role in promoting common legal framework, changing capacity, responsibility, and relationship between actors involved, streamlining and reducing administrative procedures. Considering functional aspect, MFT contributes five sub-roles, including: increasing transport performance and

service quality, facilitating regional connectivity and enhancing international trade, reducing costs and enhancing economic growth, increasing traffic safety, and reducing negative impacts on the environment.

After analyzing transport system of two cases (Uganda and Bangladesh), a set of success and non-success factors to promote MFT are identified. In general, MFT in these two countries is in early stage of development. Non-success factors in Uganda and Bangladesh expose in both physical and non-physical aspects, for example poor condition of transport infrastructure and inland connectivity, shortage of facilities and equipment, low capability of domestic firms, weak legal framework, cumbersome administrative procedures, relative high transport cost, high level of road accident and negative environmental impacts. Success factors in the two countries are of institutional and operational aspect, for instance high responsibility of government in facilitating MFT development, good strategies to promote MFT. Bangladesh transport system owns success factors of high road, IW, ICD network density, and good international connection via water transport. Considering these facts and the role of MFT reveal the urgent need to promote MFT in developing countries.

In Vietnam, during the last decade, the economy grows quite fast, with GDP and GDP per capita growth rate are 6,4% and 5,4% respectively, and volumes of both domestic and international traded goods have also increased. Although transport sector in Vietnam has achieved important improvements in the past few decades, transport infrastructure is judged as limited capacity and capability to support the quick growth of the economy. With the continuous increase in rice yield and the redundant volume of around 7,59 million ton per year (statistic in 2009), Vietnam currently is the second largest rice exporter in the World (after Thailand). Most of exported rice volume (95%) of the Vietnamese rice industry is produced in Mekong Delta, the South-West region of the country. Growers in this region sell most of their redundant paddy (93,1%) for collectors. After processing activities, 30% of rice is distributed in the domestic market and the rest (70%) is exported. Exported rice from Mekong Delta is mostly transported via Can Tho and My Thoi ports (8%) and ports (Sai Gon and Cat Lai ports) in HCMC (92%) then transferred to importers by sea-going vessels.

After describing the case, a SWOT analysis is done. By using the benchmark from Chapter 4 for case of the Vietnamese rice industry, many strengths and weaknesses are determined from internal factors. Opportunities and threats are found out from external factors, such as political and technological changes, climate conditions, and characteristics of labour cost. Relations between internal and external factors are also discussed. Base on the result of SWOT analysis, advantages and disadvantages to promote MFT in case of the Vietnamese rice industry are compiled. Advantages of the case are displayed in both physical and non-physical aspects, for instance: high road and IW network densities with good international connections, a long coastal line, a large number of ports, high responsibility of GOV, goods strategies and legal framework, etc. Disadvantages are mostly in physical aspect, capabilities of actors involved, and climate conditions, for example: missing rail links, low capacity of road and IW network, lack of container handling equipment and modern monitoring system, regular floods, low capability of domestic firms, high accident rate, and so on. Considering above results and lessons learned from developed countries, the researcher recommends a policy with two groups of measures on institutional and operational aspect, and physical and technical aspect to promote MFT development in Vietnam.

In general, the study has reached its objective, but it still contains some inevitable limitations and gaps needed to be studied in future. Firstly, the limited number of case analyzed (two cases) and the characteristics of MFT development in Bangladesh and Uganda may be not enough to represent for other developing countries. Secondly, due to the difficulty of getting

desired materials, almost data used to analyze the case of Uganda is not up-to-date. These two reasons may cause the shortage of success and non-success factors, which can cover MFT situation in developing countries. Lastly, although the study has used a large number of data to support arguments during analyzing and discussing, it still needs more quantitative researches to strengthen its findings. For example: on specific transport corridors, finding out how long is the optimal distance from an origin to a destination to operate MFT services; defining quantitative impacts of implementing MFT service on reducing transport costs, accident rate, and negative environmental effects on certain transport links in Vietnam, for example. Another suggestion is researching to find out potentials of combinations between modes (rail –road, inland waterway – road, inland waterway – sea, etc.) to form efficient MFT chains on specific transport corridors. These types of study will help to strengthen results of this research and support decision makers to establish specific actions promoting MFT development.