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The Nicaragua Canal: scenarios of its future roles

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ABSTRACT

Connections between the Atlantic and Pacific oceans are vital for international trade. Since 1914, the Panama Canal has provided ships with a direct interoceanic canal for crossing the Atlantic and Pacific oceans. The geographical advantage of the Panama Canal allows it to enjoy an exclusive position in international seaborne trade. Passage demand through the canal has increased continuously since its opening, with about 12,000 vessels travelling through it in 2013. However, the Panama Canal's monopoly in interoceanic canal operations may soon come to an end. In 2012, a memorandum of understanding was signed between the Nicaraguan Government and a Chinese investor to construct the Nicaragua Canal, which will be built about 400 nautical miles from the Panama Canal. It is expected that the Nicaragua Canal will be operational by 2020. The proposed canal will not only provide an alternative route for vessels to pass between the Atlantic and Pacific oceans, but will also trigger dynamic changes in seaborne trade patterns. To assess the long-term benefits of the proposed canal, we use a scenario planning method in this study to provide a framework for constructing several scenarios for 2030, 10 years after the anticipated construction of the canal. To develop the scenarios, we consider three macroscale drivers, namely politics, economics, and environment, and the causal relationships between them. Combinations of pairs of drivers are used to generate dominant scenarios to anticipate the role of the Nicaragua Canal with respect to future international trade. The analysis presented in this study will provide transport geographers and other major stakeholders with alternative mindsets into the future spatial changes in and development of maritime transport.

1. Introduction

On 8 October 2012, the Nicaraguan Government signed a memorandum of understanding with a Chinese consortium for the construction of a new canal, the Nicaragua Canal. The Nicaraguan Congress approved the canal project on 24 June 2013, and its construction is viewed as controversial. The head of the canal authority announced on 4 January 2014 that the construction will likely begin in 2015. The new canal will be an interoceanic waterway connecting the Caribbean and Pacific coasts of Nicaragua (Fig. 1), and the canal is expected to be operational by 2020. It is anticipated that the construction of the Nicaragua Canal will face numerous challenges, including political, economical, social, and technological challenges. The present study presumes that the Nicaragua Canal will become operational in the future, and does not examine the feasibility of its construction.

This paper assesses the possible roles that the proposed Nicaragua Canal may adopt by 2030, 10 years after the construction of the proposed canal. Shipping is a derived demand, and shipping patterns are affected by many factors. The emergence of a new canal will provide an alternative option for ship navigation between the Atlantic and Pacific oceans. The potential roles of the new canal will depend on various influences, including the presence of competing waterways. Moreover, a new canal will stimulate the development of shipping and trade. Therefore, our study attempts to anticipate changes in shipping patterns by using scenario planning under the uncertainties of the future, especially with respect to countries in Far East Asia, such as China, Japan, Korea, Vietnam, Malaysia, and Singapore. The regions connected by the Nicaragua Canal, that are, the East Coast of America and the Far East, are stakeholders in the construction of the Nicaragua Canal. Both China and South America may undergo dynamic changes as they are the most involved in the investment and will be presented with huge trade and development opportunities. Because a Chinese consortium is both the investor and constructor of the proposed Nicaragua Canal, China is regarded as a key stakeholder in the canal. Therefore, we focus on the possible impacts on China due to the canal and on the possible reactions of China.

This study develops possible dominant scenarios driven by identified drivers, demonstrates possible interactions between

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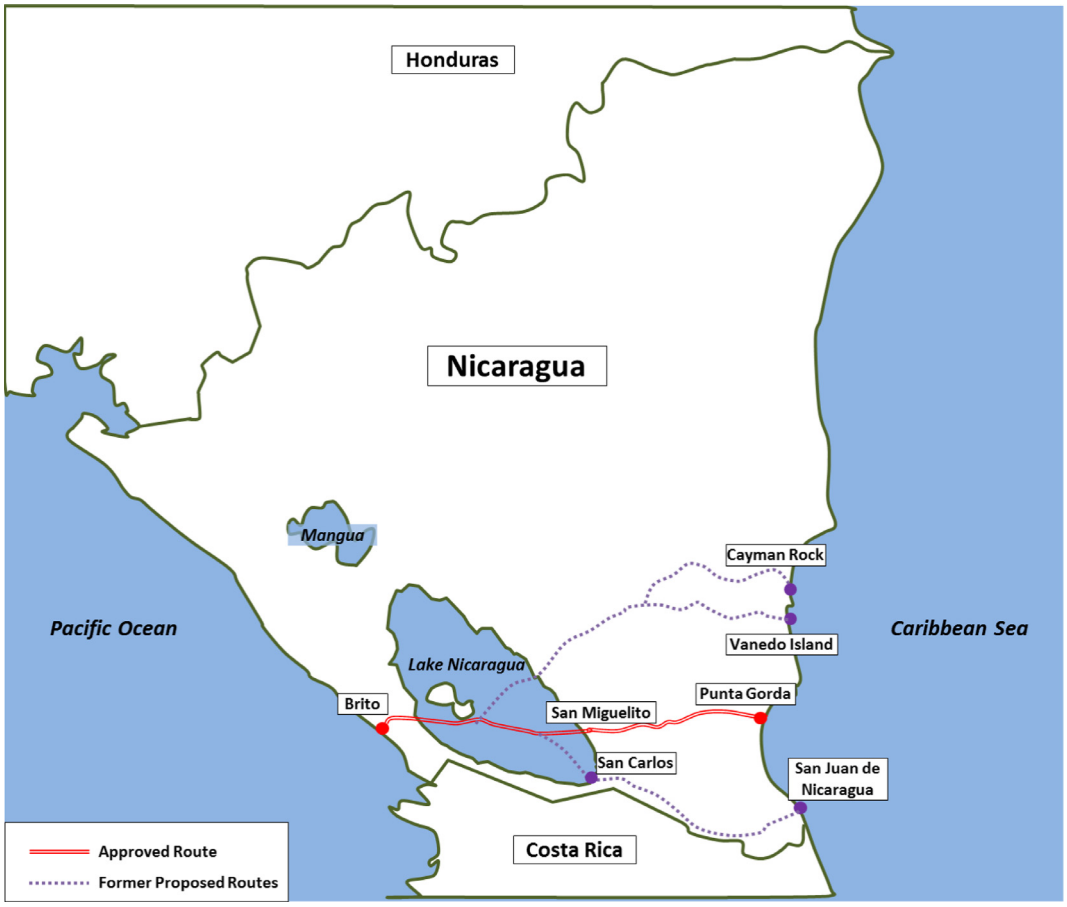

Fig. 1. Interoceanic waterway connecting the Caribbean and Pacific coasts of Nicaragua. Remark: The Approved Route was approved by the Nicaragua Government on 7 July 2014. *Source:* Google Maps.

the Nicaragua and Panama Canals (Fig. 2), and predicts the possible roles of the Nicaragua Canal. Shipping patterns are a result of route choices of shipping companies. Route choices are determined by many factors, such as distance, transit time, cost, physical constants, and safety (Huebner, 1915; Fagerholt, 2004; Mostafa, 2004; Somanathan et al., 2009; Verny and Grigentin, 2009; Liu and Kronbak, 2010; Schøyen and Bråthen, 2011; Tavasszy et al., 2011; Notteboom, 2012). This study focuses on analysing how global-scale drivers (politics, environment, and economics) might affect the role of the new canal in the presence of a competing existing canal, and how the two canals will jointly affect the pattern of trade. As a result of the new information presented in the study, policy-makers and other major stakeholders will benefit by being able to incorporate alternative mindsets into the formulation and development of future strategy. Major stakeholders include the Nicaragua and Panama Canal authorities, investors, and users of the two canals.

The Nicaragua Canal may alter the geographical pattern of economic development in the regions that it connects, especially the east coast of South America. This paper investigates the spatial dynamics of shipping transport induced by the interactions of transport with national and regional economies, energy, and the environment (including climate change). The roles of the Nicaragua Canal and the Panama Canal are related to the globalisation of economies and trade, and to political as well as environmental drivers. The Nicaragua Canal will not only alter the balance of locational advantage but will also promote changes in the worldwide pattern of shipping. Accompanying these changes will be adjustments in the international flows of raw materials, cargoes, and finished products as well as in the spatial patterns of production.

The remainder of the paper is organised as follows. Section 2 contains a review of the literature related to canals and scenario planning. In Section 3, drivers and key assumptions are discussed. In Section 4, three scenarios are constructed by considering the interactions between each pair of the three drivers. In addition, the possible roles of the new interoceanic canal are formulated. Moreover, the interactions of the new canal with the neighbouring Panama Canal are discussed. Section 5 presents the implications of the study and a summary of the analysed scenarios and corresponding strategies. The conclusion includes a brief outline of possible directions for future research.

2. Literature review

The number of studies comparing the competitive roles of canals or waterways is rather small. Related studies include those that have investigated the competition of a waterway against another waterway or land route. Canals and trade routes maintain their competitive advantages by providing a shortcut to countries, for example, the Panama and Suez canals, or a deep channel for accessing resources, for example, the Cape of Good Hope. In the 1970s and 1980s, a few studies analysed the competition between and complementary nature of canals or trade routes. After the Suez Canal had been closed, Gradus (1977) investigated whether the Negev Desert could be an alternative to the Suez Canal. That study compared cargo traffic between the desert route and the canal for the period from the closure of the Suez Canal to its reopening, and analysed the reasons for the failure of this continental bridge.

The dominant interoceanic canals have formed relatively stable shipping patterns during their existence. Over the last two decades,