



**S. RAJARATNAM SCHOOL  
OF INTERNATIONAL STUDIES**  
A Graduate School of Nanyang Technological University

# RSIS COMMENTARIES

RSIS Commentaries are intended to provide timely and, where appropriate, policy relevant background and analysis of contemporary developments. The views of the authors are their own and do not represent the official position of the S.Rajaratnam School of International Studies, NTU. These commentaries may be reproduced electronically or in print with prior permission from RSIS. Due recognition must be given to the author or authors and RSIS. Please email: [RSISPublication@ntu.edu.sg](mailto:RSISPublication@ntu.edu.sg) or call (+65) 6790 6982 to speak to the Editor RSIS Commentaries, Yang Razali Kassim.

No. 146/2011 dated 13 October 2011

## **China's High Speed Rail System: Impact on Food Security**

By Zhang Hongzhou and Zhang Mingliang

### **Synopsis**

*Rapid expansion of high speed rail is posing both challenges and opportunities to China's food security.*

### **Commentary**

CHINA'S HIGH speed rail network has been expanding rapidly. The fast-paced development of high speed rail has been a source of national pride and the symbol of China's remarkable economic advancement -- until the train crash in Wenzhou. The deadly crash has not only slowed down the high speed train project but also touched off widespread concerns about the impact of high speed rail on many other societal issues, among which food security deserves close attention. The rapid expansion of high speed rail is posing challenges as well as opportunities on China's food security front.

With the opening of the Beijing to Shanghai high speed rail and other lines, the total mileage of China's high speed rail system, no less than 8358 km so far, has made it the longest in the world. Even so, over 10,000 km of high speed rail is under construction and the expansion is likely to continue in the years to come, despite the recent setback in Wenzhou. Doubtless, the rapid expansion of high speed rail brings great economic and social benefits. But its impact on China's food security should not be overlooked.

### **Breaching China's Food Security 'Lifeline'?**

It is true that the construction of high speed railways requires significantly less land as the construction of viaducts, tunnels, and bridges mitigate local land-use. But the rapid expansion of high speed rail is also demanding the conversion of huge amount of arable land for railway construction purposes. For instance, according to official statistics, to build the Beijing-to-Shanghai high speed rail, around 5000 square km (500,000 hectare) of land have been utilised. Certainly, not all land taken up can be considered arable land, but given the grand nature and scale of the development project, the loss of arable land should not be overlooked.

What is of concern is that the new train stations for high speed rail are constructed on expropriated land. Unlike building normal rails, development of high speed rail is accompanied by construction of grand new train stations which occupy huge areas of land. For instance, the new Shanghai Hongqiao Railway Station occupies over 1.3 million square metres of land. Furthermore, in the eyes of the local government, high speed rail is not merely a track and a station; for them, it is a golden opportunity for economic development. As a result, those new train stations are located in suburban districts as the local governments intend to utilise the new stations for urban expansion.

They have drawn up concrete plans for development within two kilometres of almost every high-speed rail stations, with a view to using high speed rail to attract investment and revitalise the regional economy. Consequently, huge areas of arable land in the vicinity of the train stations, which are usually of high quality, have been taken over by the local government for construction purposes.

In 2006, China set a "red line" to guarantee that its arable land does not shrink to less than 120 million hectares to ensure food security. Currently, China's total arable land stands at 121.7 million hectares, which is on the brink of breaching the red line -- regarded as the lifeline for China food security. If not well managed, China's long term food security could eventually be jeopardised.

### **High Speed Rail for China's Food Supply Chain**

While China's food security at the national level has been taken care of, its condition varies from region to region. There are huge disparities of food security conditions among regions, which, in recent years have been exacerbated by rapid and unbalanced urbanisation. Therefore, the more pressing task for China is how to effectively transport food from the major food producing provinces to the major food consuming regions, and safeguard food security at the local level.

For a country as big as China it is understandably challenging to transport food from one region to another. It can also be a nightmare as the food supply chain is very inefficient. Road transportation is too costly and time consuming; air transportation is too expensive and ordinary rail transportation is prioritised to carry passengers.

To address this problem, the Chinese authorities have implemented a variety of policies to facilitate the inter-regional transportation of food. Unfortunately, it seems that those measures are still not effective. It has been pointed out by many experts that the highly costly and inefficient food supply chain is one of the key factors leading to the dramatic rise and fall in the prices of food, particularly vegetables and fruits.

From this perspective, the rapid expansion of high speed rail could significantly boost the efficiency of China's food supply chain for two reasons. Firstly, it helps to release some of the burden of carrying passengers from the ordinary rail system so that ordinary rail lines could be designated to transport food and other materials at a cheaper price. Secondly, in times of emergency, high speed rails could be deployed for food transportation. Food could then be transported in a timely manner to the regions in demand of food to prevent public panic and thus stabilise the market.

It is natural for China to build the high speed rail system to enhance economic development and improve its logistical systems. However, it is important not to expect quick success and instant benefit. For a gigantic project like the high speed rail system, its wider societal ramifications, particularly for food security, should be carefully examined.

*Zhang Hongzhou is a Senior Analyst with the China Programme at the S. Rajaratnam School of International Studies (RSIS). Zhang Mingliang is an Associate Professor with the Institute of Southeast Asian Studies, Jinan University, China.*