CHINA'S RAPIDLY GROWING ENTERPRISE-LED INNOVATION SYSTEM

Sarah Y. TONG & ZHU Jinjing

EAI Background Brief No. 461

Date of Publication: 2 July 2009

Executive Summary

1. China increased its Research and Development (R&D) expenditure from 0.71% of GDP in 1990 to 1.49 % of GDP in 2007; the figure is expected to reach 2% of GDP in 2010 and 2.5% of GDP in 2020. China aims to enhance the role of technology innovation in driving China's long term economic growth.

2. Compared to more advanced economies, China's R&D expenditure to GDP ratio, currently at about 1.5%, is still lagging. In 2006, the figures for the USA, Japan and UK were 2.6%, 3.4%, and 1.8%, respectively. Moreover, compared to the USA and Japan, China spends relatively more on experimental development and much less on basic and applied research.

3. According to Premier Wen's latest government report in March 2009, China will continue to promote science and technology (S&T) development and foster the leading role of enterprises.

4. China is transforming its innovation system from a government-led structure to an enterprise-led one and from an export-oriented and labour-intensive economy to an innovative and technology-intensive economy.

5. Enterprises have become the main provider of R&D funding and its main user. Their contribution to total R&D funding rose from 29.5% in 1997 to 67.4% in 2007. Similarly, the percentage of R&D expenditure by enterprises in the national total rose from 60.4% in 2001 to 72.3% in 2007.

6. The importance of enterprises in China's R&D funding and spending has become comparable to that in developed countries. However, many Chinese enterprises carrying out R&D are state-owned enterprises, which are still not fully market driven.

7. Large and medium-sized enterprises are the major players in China's innovation system. Their contribution to funding and expenditure of S&T activities and R&D grew rapidly, by more than ten times from 1997 to 2007.

8. Small-to-medium sized enterprises (SMEs) have also contributed significantly, especially to high-tech industries. The government is promoting innovation activities by increasing funding and setting up technology business incubators for SMEs.

9. Domestic enterprises are restructuring to enhance indigenous and independent innovation. Expenditure on existing internal technology improvement has taken up more than 75% of the total.

10. Technology transfer from foreign sources has slowed as compared to internal technology improvement, domestic technology purchase and technology assimilation.

11. Enterprises have become the main source of patent applicants and main patent holders. In 2007, 68.6% of invention patent applicants were enterprises; and 52.5% of total patent were granted to enterprises.

12. To enhance China's overall innovative capability, the country is developing a domestic technology market. Enterprises have become the key player both as buyers and suppliers in the technology transfer market. Enterprises purchased 77% of total technology transfer contracts in 2007, and provided 63% of the total contracts in 2006.