

Chapter 18

TVET System Reform and Development in the PRC



Asako Maruyama

Since its foundation on 1 October 1949, the People's Republic of China (PRC) has continuously been developing its TVET system in conjunction with changes in the economy and society. To meet the growing demand for a skilled workforce boosted by fast economic growth, it first promoted the establishment of senior secondary TVET schools in the late 1970s and 1980s. In the 1990s, in response to the need for higher level skills, it started to expand tertiary TVET colleges. In 2018, the scale of the TVET system in the PRC was nearly comparable to that of the academic education system, with 10,299 senior secondary TVET schools enrolling over 17.4 million students, and 1418 tertiary TVET colleges enrolling over 11.3 million students.

At present, the national-level initiative in TVET system development and reform is exercised by the Inter-Ministerial Joint Meeting on TVET under the State Council, while TVET policy formulation and administration is the responsibility of the Ministry of Education and the Ministry of Human Resources and Social Security. At the local levels, education and human resources and social security departments and bureaus are responsible for local policy development and implementation, as well as daily TVET administration, including financing and human resource management for public TVET institutions.

Since the late 1990s, the PRC has adopted a number of laws, policies, and plans at the national level to accelerate the development and reform of its TVET system. Major policy directions for the decade 2010–2020 were set out first in a State Council's special report in 2009 to address six major problems in the TVET system:

- The TVET system had not grown fast enough to develop a skilled workforce in quantity and quality and drive socioeconomic development particularly because senior secondary TVET was not accessible nor affordable for junior secondary graduates.

A. Maruyama (✉)

East Asia Department, Asian Development Bank, Manila, Philippines

e-mail: amaruyama@adb.org

© Asian Development Bank 2020

B. Panth and R. Maclean (eds.), *Anticipating and Preparing for Emerging Skills and Jobs*, Education in the Asia-Pacific Region: Issues, Concerns and Prospects 55, https://doi.org/10.1007/978-981-15-7018-6_18

143

- Coordination and articulation between secondary and tertiary TVET and between TVET and general education were lacking.
- The quality of TVET was low due to shortages of qualified TVET teachers in general and to rapid expansion of tertiary TVET.
- TVET programs and curricula were poorly designed to develop the skills required by employers.
- Legal and policy frameworks and institutional arrangements for TVET at the national level, as well as mechanisms for daily TVET administration at local levels, were inadequate.
- Funding was insufficient to develop quality TVET facilities (Hao 2012).

The State Council's report was followed by a series of key TVET system reform and development plans.

PRC's TVET System Reform and Development in 2010–2020

In 2010, the PRC adopted the National Long- and Medium-Term Outline Plan of Education Reform and Development (2010–2020). The Outline Plan aimed to establish, by 2020, a modern, multilevel, balanced TVET system that responds to labor market needs as well as people's demand for quality TVET. This goal would be achieved by (i) institutionalizing cooperation between TVET institutions and employers to improve TVET facilities, provide work-based learning opportunities for students, and offer work placements for TVET teachers; (ii) expanding TVET in rural areas to better serve agriculture, rural areas, and farmers; and (iii) making TVET more attractive through the exemption of tuition fees for senior secondary TVET and the provision of financial aid for students from poor and disadvantaged backgrounds, the award of dual certificates for TVET graduates,¹ and the alignment of TVET curricula with occupational standards. These measures were reflected in the 12th Five-Year Plan (2011–2015) and implemented through a national pilot project carried out at 56 pilot sites nationwide (Hao 2012).

During the early stages of TVET system reform and development, the PRC attached high priority to enhancing senior secondary TVET. A case in point was the Action Plan for Secondary TVET Reform and Innovation (2010–2012), which aimed to improve the basic capacity of senior secondary TVET. Under the Action Plan 10 projects supporting senior secondary TVET were launched to better serve the needs of industrial restructuring and upgrading, agricultural modernization, and new rural development initiatives; enhance school-enterprise cooperation and joint ventures; promote resource sharing and regional cooperation between advanced eastern provinces and underdeveloped western provinces; introduce ICT and improve

¹“Dual certificates” for TVET graduates constitute a completion certificate or diploma and skills certificate(s).

school management; develop school principals and “dual qualification” teachers²; and drive program and curriculum reform and innovation (Hao 2012).

The next phase was marked by more comprehensive approaches to reforming and developing the TVET system. The vision for a “modern TVET system” was presented under the Modern TVET System Development Plan (2014–2020), referring to a world-class TVET system adapted to the PRC’s context that would drive needed national and local socioeconomic development; promote integrated industry and TVET development; articulate senior secondary and tertiary TVET; provide pathways between TVET and general education; and support lifelong learning, career, and skills development. The Plan introduced a variety of measures to develop a modern TVET system, including: strategically planning and rationalizing the provision of TVET and aligning TVET standards, programs, and curricula with local industry needs; enhancing TVET at both the senior secondary and tertiary levels, strengthening the articulation between senior secondary and tertiary TVET, and providing pathways to further TVET (undergraduate-level TVET) and general education; establishing quality assurance for TVET; improving systems for developing dual qualification teachers; expanding the use of information technology platforms and international cooperation in TVET; and involving industry and employers in governance of TVET institutions, particularly tertiary TVET colleges. These measures were incorporated into the 13th Five-Year Plan (2016–2020) and elaborated more in ensuing plans.

The focus in subsequent stages was shifted onto tertiary TVET. In particular, the Action Plan for Tertiary TVET Reform and Innovation (2015–2018) prioritized the following three areas: (i) quality improvements by introducing advanced standards, programs, and materials through international cooperation; establishing systems for professional development of teachers and recruitment of part-time industry teachers; creating pathways to undergraduate- and postgraduate-level TVET programs and qualifications; using technologies to expand quality TVET resources and support ubiquitous, mobile, and personalized learning; and strengthening students’ core competencies; (ii) development of credit-based, flexible, and diversified tertiary TVET and continuing education programs to be offered both at public and nonpublic TVET institutions, and using public–private partnership approaches; and (iii) capacity enhancements of specialized tertiary TVET colleges and universities to develop a pool of technical skills for priority industries in cooperation with industry, employers, and international organizations.

As discussed further below, the State Council released the National Implementation Plan for TVET Reform in January 2019 to address remaining challenges in developing a modern TVET system. Although challenges remain, the decade of reform (2010–2020) in the PRC has contributed to the development of stronger local TVET systems, especially in advanced eastern provinces, relying on local governments’ supporting measures to systematically involve and coordinate with industry and employers and using technologies in the provision of TVET.

²A “dual qualification” teacher refers to a teacher who has both a teaching license and an occupational skills certificate relevant to the subject or subjects taught.

Good Practices in TVET: Local Examples from the PRC

International evidence suggests that systematically involving and coordinating with industry and employers in the provision of TVET is essential to develop a strong TVET system. Specifically, the following characteristics underpin a strong TVET system: (i) the mix and content of TVET programs and qualifications and progression paths through initial to higher level qualifications, are determined together with industry and employers, considering the need for lifelong learning and career development, and with due attention to those who are disadvantaged in the labor market; (ii) work-based learning with proper quality assurance, assessments, and certification/credits is systematically integrated into all TVET programs, and mechanisms exist for encouraging industry practitioners to teach part-time or enter TVET teaching in mid-career; (iii) TVET programs, curriculum, and assessments are organized based on competency and skills standards set by industry and employers, and qualifications meet labor market needs and are aligned with a national qualifications system or framework which allows flexibility toward local needs; and (iv) supporting policies, practices, and institutions are established to involve and coordinate with different stakeholders in the provision of TVET and career guidance, as well as monitoring and evaluation of TVET programs and systems, and funding (OECD 2015).

Through implementation of the plans discussed above, and of more specific policies and programs at the national and local levels, some local TVET systems in the PRC have come to bear some of the characteristics of a strong system. Examples below, which are by no means exhaustive, show how some local governments have been attempting to build stronger TVET systems that meet the needs of local industry and communities.

Joint Determination and Development of TVET Programs with Industry and Employers

“One town, one product, one major” model, Guangdong Province: In 2009, Zhongshan Polytechnic, a tertiary TVET college in Zhongshan Prefecture, established a school in Guzhen town that specializes in the lighting design program (started at the Polytechnic in 2006) with the support of the Guzhen town government³ and local business association. The program at the specialized school was developed in partnership with large local lighting firms and small- and medium-sized enterprises in Guzhen town. The local business association, together with the town bureau of human resources and social security, coordinates skills demand and development. This model has been replicated in other towns with schools specializing in different programs (Yang 2018; Liu 2019).

³One of 18 towns in Zhongshan Prefecture.

TVET-industry cooperation and coordination platforms, Guangdong and Guangxi Zhuang Autonomous Region: To coordinate student enrollment, program offering, work-based learning, employment, and training and technical services for enterprises, Guangdong Province established 66 regional and industrial vocational education groups, involving more than 300 TVET institutions, 200 industry associations, and 4000 enterprises, along with relevant local government entities. Specialized TVET institutions were also set up through these groups (Liu 2019). Likewise, Guangxi Zhuang Autonomous Region formed 16 provincial industry TVET steering committees, led by relevant government entities and comprising tertiary TVET colleges, senior secondary TVET schools, industry associations, and enterprises, with a view to develop both TVET and industry. For example, the Electronic Information Industry TVET Steering Committee, led by the Guangxi Industry and Information Technology Commission, developed industry standards for skills, operating environment, and safety; conducted skills demand analysis; and advised TVET institutions on student enrollment, program offering, work-based learning, and employment.

Promotion of Work-Based Learning and Recruitment of Industry Practitioners

Financial incentives for employers to provide work-based learning opportunities, Guangdong, Jiangsu, and Shandong Provinces: Bao'an District of Shenzhen City (Guangdong) provides a subsidy for enterprises (CNY300 per student per month) that accept interns from senior secondary TVET schools. Taicang City of Suzhou Prefecture (Jiangsu) offers subsidies to enterprises that have established dual training centers (CNY2 million), and that develop new dual training programs addressing the needs of local industries (CNY100,000 annually for 3 years).⁴ By contrast, Shandong Province has established a cost compensation mechanism for enterprises that provide work-based learning opportunities for students (Liu 2019).

Recruitment of industry practitioners for TVET, Guangdong and Jiangsu Provinces: Guangdong Province reformed the TVET teacher recruitment policy to allow TVET institutions to create positions such as industry teachers (mentors) and high-skilled leaders and to recruit industry practitioners by applying different assessment methods. The Jiangsu provincial education, and human resources and social security departments jointly recruited in 2018 more than 160 industry practitioners from enterprises as industry professors who participated in the development of programs and provided guidance for teachers and students on up-to-date industry practices and technological innovations at tertiary TVET colleges. The

⁴“Dual training” refers to a training modality that combines theoretical instruction provided by the TVET institution and practical training provided by the enterprise. Dual training centers are the places where enterprises provide practical training as part of dual training programs.

departments also provided subsidies and financial aid for more than 400 industry practitioners (high-skilled professionals, engineering managers, crafts persons) recruited as part-time teachers at tertiary TVET colleges (Liu 2019).

Development of dual qualification teachers, Guangxi Zhuang Autonomous Region: Guangxi Zhuang Autonomous Region established provincial dual qualification teacher assessment and certification frameworks that incorporate up-to-date industry standards, qualifications, and certifications in 2017. Guangxi also developed a dual qualification assessment and certification management information system (accessible on mobile devices and computers), generating data on TVET teachers' qualifications that can be used to tailor training programs to the needs of individual teachers.

Skills Standards, Qualifications Framework, and Quality Assurance

Skills standards and local qualifications framework, Guangdong Province: Guangdong Province has supported, with funds of more than CNY20 million since 2013, 74 standard development projects for advanced manufacturing, modern service, and strategic emerging industries, involving senior secondary TVET schools, tertiary TVET colleges, universities, enterprises, industry associations, and industry experts (Liu 2019). In 2017, Guangxi developed the first local qualifications framework in the PRC, modeled on Hong Kong, China's qualifications framework.

Learning management platform, Guangxi Zhuang Autonomous Region: Guangxi Electrical Polytechnics, a pilot institution for the national digital campus program in 2015, collaborates with Tsinghua University to develop a learning management platform for students, teachers, and classrooms as part of internal quality assurance systems. The platform supports the evaluation of teachers and teaching both in the classroom and in blended learning; provides real-time feedback on teaching and learning; and supports collaboration and communication between teachers, and between students and teachers, and individualized learning for students.

Challenges and Future of TVET System Reform and Development in the PRC

Since the State Council's special report on the reform and development of TVET in 2009, the PRC has successfully expanded access to TVET, upgraded TVET facilities, and promoted cooperation between TVET institutions and employers through the implementation of a series of plans and policies. Some local governments have also

succeeded in strengthening their TVET systems. However, the six major problems identified in the report largely persist to date.

The pool of higher skills for key industries remains small. Articulation and pathways between secondary and tertiary TVET, and between TVET and general education, have not fundamentally improved, although some reforms of TVET college entrance examination and admission systems are ongoing. While improving, TVET teachers who have industry knowledge and experience are still in shortage. Despite the employment rates of graduates exceeding 90% both at the senior secondary and tertiary levels, the quality and relevance need further improvements. Dropout rates in senior secondary TVET remain high, and both TVET graduates and employers have the perception that TVET graduates do not have the skills required for work. Legal, policy, and regulatory frameworks and institutional arrangements for systematically involving and coordinating with industry and employers in the provision of TVET and for promoting lifelong learning remain incomplete both at the national and local levels.

To address these challenges, the State Council adopted the National Implementation Plan for TVET Reform in January 2019. By 2022, the Plan aims, among others, to enhance the basic capacity of tertiary TVET colleges; transform general higher education institutions into application-oriented universities (undergraduate-level TVET); build a TVET standards system that is compatible with international advanced systems; further strengthen cooperation among TVET, industry, and employers in the provision and quality assurance of TVET; increase the hours of work-based learning and the proportion of dual qualification teachers; and pilot a “1 + X” certification system.⁵ A number of specific policies, regulations, and programs have been adopted to support the implementation of the Plan.

Lessons from TVET System Reform and Development in the PRC

The PRC’s TVET system is grand and diverse, with each local government left to develop its own TVET system to meet the needs of local industry and communities, within overarching national legal, policy, and regulatory frameworks. The sheer scale and diversity of the TVET system makes it challenging to glean lessons from the PRC’s experience. Nonetheless, there are several commendable characteristics that can be highlighted regarding the PRC’s efforts to develop and reform the TVET system. These include:

- Successful expansion of access to senior secondary TVET through the exemption of tuition and other fees and the provision of financial aid for students from poor and disadvantaged backgrounds

⁵A “1 + X” certification system allows each TVET graduate to obtain an academic certificate and a number of occupational skills or competency certificates. The system is to work in conjunction with the establishment of a credit system for TVET and continuing education.

- Development of a multilevel TVET system comprising senior secondary TVET (certificate), tertiary TVET (diploma), undergraduate and graduate-level TVET (degree), and continuing TVET (diploma and non-diploma)
- Strengthening of the TVET teaching force by increasing dual qualification teachers and recruiting industry practitioners
- Promotion of the use of ICT to improve the quality of TVET
- Formulation of national policies and regulations for reforming and developing the TVET system based on pilot initiatives and local-level innovative practices
- Continuous and consistent efforts to develop and reform the TVET system through supporting laws, policies, plans, and practices since the late 1990s, building on the country's political, economic, and social stability.

Links to the presentation materials: <https://events.development.asia/materials/20190828/key-features-ADB-supported-tvet-projects-peoples-republic-china>. <https://events.development.asia/materials/20190828/enterprises-involved-tvet-chinese-experience>.

References

- Hao, Y. (2012). The reform and modernization of vocational education and training in China. Discussion Paper, Social Science Research Center Berlin (WZB), Project Group Globalization, Work and Production, No. SP III 2012-304, Berlin.
- Liu, Y. (2019). Enterprises involved in TVET: Chinese experiences. Presentation Delivered at the 8th International Skills Forum: Future of Skills and Jobs in the Age of Digital Disruption, Asian Development Bank, 27–29 August 2019, Manila.
- OECD. (2015). *OECD reviews of vocational education and training: Key messages and country summaries*, Paris.
- Yang, P. (2018). Effective skill eco-system and regional experiences in China. Presentation Delivered at the University-Industry Linkages Workshop. Asian Development Bank and Peking University, 1–7 December 2018, Beijing, Changsha, and Shenzhen.

The views expressed in this Chapter are those of the authors and do not necessarily reflect the views and policies of the Asian Development Bank (ADB) or its Board of Governors or the governments they represent.

ADB does not guarantee the accuracy of the data included in this Chapter and accepts no responsibility for any consequence of their use. The mention of specific companies or products of manufacturers does not imply that they are endorsed or recommended by ADB in preference to others of a similar nature that are not mentioned.

By making any designation of or reference to a particular territory or geographic area, or by using the term “country” in this Chapter, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

This work is available under the Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) <https://creativecommons.org/licenses/by/3.0/igo/>. By using the content of this Chapter, you agree to be bound by the terms of this license. For attribution, translations, adaptations, and permissions, please read the provisions and terms of use at <https://www.adb.org/terms-use#openaccess>.

This CC license does not apply to non-ADB copyright materials in this Chapter. If the material is attributed to another source, please contact the copyright owner or publisher of that source for permission to reproduce it. ADB cannot be held liable for any claims that arise as a result of your use of the material.

