

"Project Formulation Survey" under the
Governmental Commission on the
Projects for ODA Overseas Economic
Cooperation in FY2012

Summary Report

The Republic of Kazakhstan

Survey for Possible Application of
Japanese Industrial Automation
Technology

March, 2013

Joint Venture of Shinko Engineering Research Corp.
and IC Net Limited

Introduction

The purpose of this project formulation survey (hereinafter the “survey”) was to identify the current issues on industrial automation technology (IAT) and vocational education in Kazakhstan. The survey team considered the feasibility of IAT education in Kazakhstan utilizing the technology and products of small and medium enterprises (SMEs) of Japan as a project of Japan’s official development assistance (ODA).

The survey was conducted from November 2012 to January 2013 by the team from Shinko Engineering Research Corp., an IAT education system producer, and IC Net Limited, a consulting firm specializing in international development assistance.

I. Description of the current situation and development needs of the concerned development issues in the surveyed country

The Republic of Kazakhstan is a landlocked country in Central Asia, with a territory of 2.72 million km², which is the ninth largest in the world, and a population of 16.7 million. Kazakhstan became independent in December 1991, shortly after the collapse of the Soviet Union. The government has established a centralized system by the strong leadership of President Nursultan Nazarbayev since the independence. From the 2000s onwards, Kazakhstan achieved a rapid economic growth led by the export of abundant natural resources. In 2011, Kazakhstan’s nominal Gross Domestic Product (GDP) was US\$ 186.2 billion, and GDP per capita reached US\$ 11,167, which is the level of a middle income country. Kazakhstan is rich in natural resources including oil, coal, uranium, chromium, zinc and many other minerals, drawing attention from all over the world. Meanwhile, it is a challenge for Kazakhstan to be less dependent on natural resources and diversify its economy for sustainable growth. The Government of Kazakhstan tries to promote the manufacturing industry and innovative technologies. Moreover, the government gives priority to market-based economic growth in its national strategic plans such as *Kazakhstan 2030* and the *Strategy of Industrial and Innovation Development for 2003–2015*.

To address the issues that occurred through rapid economic growth in Kazakhstan, the Government of Japan made support to balanced nation development in both social and economic aspects the most important objective of its assistance to Kazakhstan. The Kazakhstan Japan Center (KJC) for Human Development is the flagship project of Japan’s ODA to Kazakhstan in industrial promotion and related human resource development. Other international donors also provide support to vocational training in Kazakhstan through such

means as the Technical and Vocational Education Modernization Project of the World Bank.

II. Possible applicability of the SME's products and technologies, and prospects for future business development

Shinko Engineering Research Corp. (hereinafter “Shinko”) provides a comprehensive IAT education system consisting of IAT training equipment and the firm’s original educational materials that enable integrated vocational education on both hardware and software. This is a unique system that makes it possible to learn a wide range of subjects in industrial technology by simply combining the modules on elements of IAT. This system is much more cost-effective than competitors’ products which have a single function. It has also been highly evaluated by many vocational schools in Japan. Moreover, Shinko has much experience in IAT education in many countries through ODA projects as well as acceptance of trainees from abroad. Thus, in promoting IAT education, Shinko’s advantages are in its technology, products, training materials, and experience in technology transfer abroad.

Mainly with the Ministry of Education and Science (MES) of Kazakhstan, the survey team discussed Shinko’s business in the country. MES is interested in introducing Shinko’s IAT education system to enhance the technical level of vocational education so that skilled human resources trained at schools and colleges can help modernize the manufacturing industry in Kazakhstan. As IAT is becoming common in the industry through vocational education, IAT equipment will likely be introduced to the private sector, particularly in the manufacturing industry. Shinko aims to promote its products to schools and enterprises in Kazakhstan, including 200 vocational colleges, in cooperation with local sales partners. In a prospective ODA project, IAT education would commence in Kazakhstan first, and then be expanded to neighboring countries.

III. Expected development impact and effect on business development of the proposing SMEs in the surveyed country through proposed ODA projects

The survey team reviewed the content of the current training programs in order to propose the introduction of IAT education to MES, which is in charge of curriculum development at vocational schools. It was found that many of their curricula and equipment were not updated, although training equipment plays an important role in industrial vocational training. IAT is necessary for the modernization of the manufacturing industry, but it was also revealed that

vocational training had more emphasis on maintenance of vehicles and construction than IAT.

In the vocational education of Kazakhstan, training is carried out in both schools and companies; this is called the dual system. This system, however, may not be feasible for IAT training because very few factories have IAT equipment to provide employees with on-the-job training. Therefore, it is important to establish a vocational training system that enables students to acquire enough skills even without on-the-job training in companies. In this sense, training equipment must be flexible and ready to provide students with the same experience as in the real production line.

MES stressed that, as assistance from overseas, it primarily desired technical transfer, and the grant of equipment was less important. MES had been granted with equipment, but it did not have much impact because technical transfer was insufficient. Through discussions with MES, the survey team found that expectations were high on technical transfer from Japan.

IV. Proposals for formulating ODA projects

The Government of Kazakhstan plans to introduce IAT for the promotion of vocational education modernization. MES showed an interest in technical transfer from Japan and notified the survey team that it would bear in principle the expense for facilities and equipment. Thus it is fair to say that a technical cooperation project is the most suitable ODA scheme for IAT education in Kazakhstan. Specifically, the prospective project may consist of dispatch of experts from Japan, acceptance of trainees from Kazakhstan in Japan, and training of IAT education trainers in MES and the Ministry of Industry and New Technologies. These trainers are to help build a system for human resource development on IAT. Expected development impacts through the project are modernization and improved efficiency in the manufacturing industry in Kazakhstan, and the introduction of Japanese technical standards on IAT. The framework of the project is as follows:

- Overall Goal: IAT Human resources are developed in Kazakhstan to fulfill the need of the industries.
- Project Purpose: Technical Education and Vocational Training Capacity on IAT of Kazakhstan are enhanced.
- Expected Outputs:
 - (1) Industrial and educational sectors raise the awareness about the importance of the IAT, through the promotion activities.

- (2) Industrial Automation Technology department is established in the selected Vocational Colleges of Kazakhstan and middle class technical human resources on IAT are trained.
- (3) Program for in-service training in industrial sector is implemented and technical workers become capable of operation and design of basic factory automation.
- (4) Information system and networking of the Japanese and Kazakhstan educational institutions, and private companies related with IAT are established to facilitate the technical transfer and consultancy among above mentioned bodies.

The prospective project may be able to work with similar JICA projects such as the Kazakhstan Japan Center and the IAT Extension Project in Turkey.

The survey team discussed with the Department of Technical and Professional Education of MES a proposal for an ODA project and the curriculum for MES's pilot IAT project commencing in September 2013. During the survey, the department signed a request letter for technical cooperation assistance and made a draft proposal for the ODA project including a Project Design Matrix (PDM) and a Plan of Operation (PO).

The following is a summary of the outputs of this survey.

Framework of the Survey

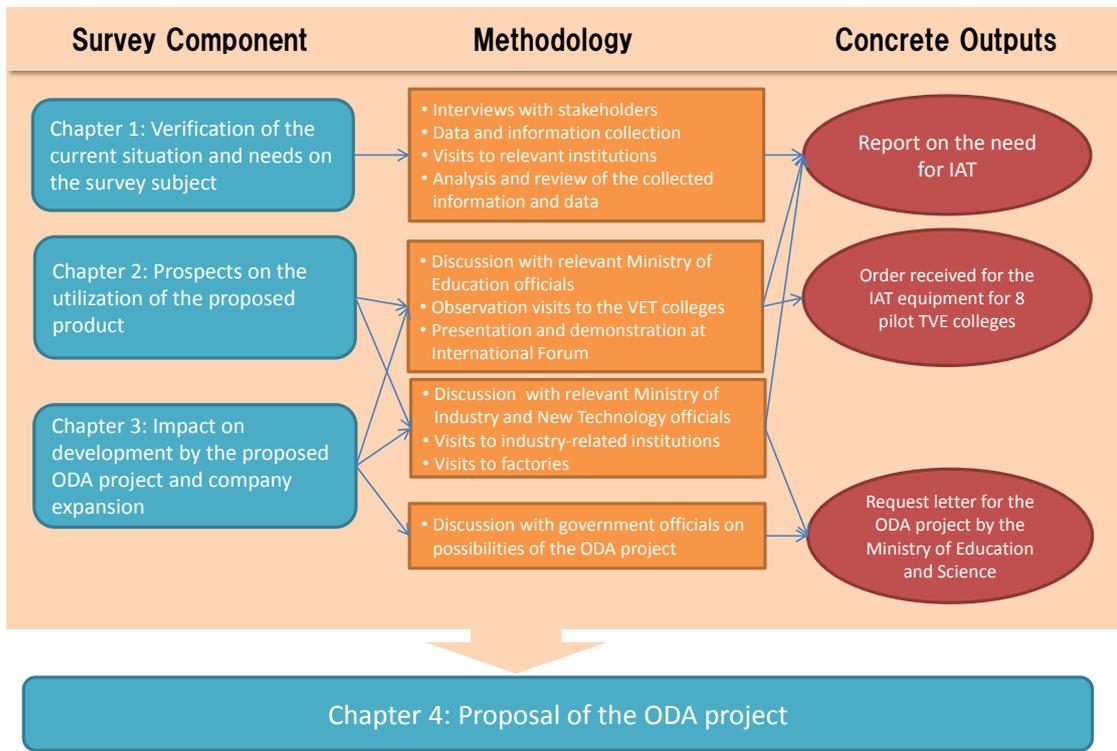


Figure: Framework of the Report and related outputs

Attachment: Outline of the Survey

Project Formulation Survey Kazakhstan, Survey for Possible Application of Japanese Industrial Automation Technology (IAT)

SME and Counterpart Organization

- Name of SME : Shinko Engineering Research Corp.
- Location of SME : 6-6-18 Kinuta, Setagaya-ku, Tokyo 157-0073, Japan
- Survey Site, Counterpart Organization : Republic of Kazakhstan, Ministry of Education and Science

Relevant Development Issues

- Kazakhstan 2030 and Productivity 2020 emphasize modernization of the industry and improvement of quality and productivity.
- Strategy of Industrial and Innovation Development for 2003-2015 stresses diversification of the economy by promotion of the manufacturing industry.
- State Program of Education Development in the Republic of Kazakhstan for 2011-2020 sets as one of the goals the modernization of technical education.

Products and Technologies of SME

- Industrial Automation Education System MM3000V Series
 - Able to conduct integrated education by unique automation practice equipment and educational methodology
 - Helps users acquire applicable knowledge by element technology materials
 - Flexible combination by the module equipment units
 - Utilized in more than 70% of vocational high schools in Japan as standard IAT material

Proposed ODA Project and Expected Impact

- Kazakhstan IAT Human Resource Development Project
 - Kazakhstan will be able to develop IAT human resources by itself
 - Japanese technology will be introduced as standard for IAT
 - Connection with Japanese IAT-related suppliers will be established

Future Business Development of SME

- Upon the current survey, received order for IAT Education System for 8 vocational colleges
- By the end of the technical cooperation project, IAT will be introduced to 16 vocational colleges
- After the Project, IAT may be to expanded to more than 200 vocational colleges

