

**Handbook of National Movements for
Quality and Productivity Improvement
(*Kaizen*)**

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**JAPAN INTERNATIONAL COOPERATION AGENCY
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List of Abbreviations

5S	Seiri, Seiton, Seisou, Seiketsu, Shitsuke (Sort, Straighten, Shine, Systematize, Standardize/Self-discipline)
ABCERQ	Association Burkinabé pour les Cercles de Qualité et le Management Participatif (Burkinabe QC Circle Association)
ABMAQ	Association Burkinabé pour le Management de la Qualité (Burkinabe Quality Management Association)
ABPAQ-EA	Association Burkinabé pour le Promotion de l' Assurance Qualité dans les Entreprises Alimentaires
ACP	Africa, Caribbean, and Pacific
APO	Asian Productivity Organization
ASEAN	Association of South East Asian Nations
BCA	Building and Construction Authority
BIAC	Botswana Institute of Administration and Commerce
BNPC	Botswana National Productivity Center
BQW	Botswana Quality Workforce
CAF	Common Assessment Framework
CNSS	Caisse Nationale de Sécurité Sociale (National Social Security Fund)
CSR	Corporate Social Responsibility
CWQC	Company-wide Quality Control
DPIFs	District Productivity Improvement Forums
EC	European Commission
ECOWAS	Economic Community of West African States
EDB	Economic Development Board
EKI	Ethiopian Kaizen Institute
ESC	Economic Strategies Committee
ESP	Enterprise Support Program
EU	European Union
F&B	Food and Beverage
FASONORM	Direction de la Normalisation et de la Promotion de la Qualité (Directorate for Standardization and Quality Promotion)
FCFA	CFA Franc
FDI	Foreign Direct Investment
FY	Fiscal Year

GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GHQ	General Headquarters
GRIPS	National Graduate Institute for Policy Studies
ICT	Information and Communication Technology
IE	Industrial Engineering
IFC	International Finance Cooperation
IMF	International Monetary Fund
IRS	Information and Research Service
ISO	International Organization for Standardization
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
JIT System	Just-In-Time System
JK Activities	Jisyu-Kanri (self-management) Activities
JMA	Japan Management Association
JMAC	JMA Consultants Inc.
JPC	Japan Productivity Center
JPC-SED	Japan Productivity Center for Socio-Economic Development
JSPP 21	Japan-Singapore Partnership Program for the 21st century
JUSE	Union of Japanese Scientists and Engineers
LMR	Labor-Management Relations
MEBF	Maison d'Entreprises du Burkina Faso
MITI	Ministry of International Trade and Industry
MOI	Ministry of Industry (Ethiopia)
MOM	Ministry of Manpower (Singapore)
MOTI	Ministry of Trade and Industry (Ethiopia) (Botswana)
MOU	Memorandum of Understanding
MSD	Management and Supervisory Development
MSE	Micro and Small Enterprises
MTI	Ministry of Trade and Industry (Singapore)
NGO	Non-Governmental Organization
NPB	National Productivity Board (Singapore)
NPC	National Productivity Council (Singapore)

NPCEC	National Productivity and Continuing Education Council
NSO	National Strategy Office
NTUC	National Trade Union Congress
ODA	Official Development Assistance
OJT	On the Job Training
ONAC	Office National du Commerce Extérieur (National Export Promotion Bureau)
P&Q	Productivity and Quality
PAPA	Pan-African Productivity Association
PBRs	Performance Based Reward System
PDCA	Plan-Do-Check-Act
PDP	Productivity Development Project
PHRD	Policy and Human Resources Development
PMS	Performance Management System
PSB	Productivity Standard Board
PSP	Public Service Program
QC	Quality Control
QCC	Quality Control Circle
QCD	Quality, Cost, Delivery
QMS	Quality Management System
R&D	Research and Development
SADC	Southern African Development Community
SCP	Singapore Cooperation Program
SDF	Skills Development Fund
SECJ	Social and Economic Congress of Japan
SME	Small and Medium Enterprise
SMED	Single-Minute Exchange of Die
SMME	Small, Micro and Medium Enterprise
SPA	Singapore Productivity Association
SPPF	Special Project Preparation Facility
SPRING	Standards, Productivity and Innovation Board
SQ	Singapore Airlines
TAP	Total Approach to Productivity
TPM	Total Productive Maintenance
TPS	Toyota Production System

TQC	Total Quality Control
TQM	Total Quality Management
TVET	Technical and Vocational Education and Training
UEMOA	Union Economique et Monetaire Ouest Africaine (West African Economic and Monetary Union)
UNIDO	United Nations Industrial Development Organization
US	United States
WCPCE	Working Committee for Productivity and Continuing Education
WIT	Work Improvement Team
WW2	Second World War

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Foreword

The purpose of this handbook is to compile the experiences of national movements for quality and productivity improvement (*kaizen*) in selected countries in Asia and Africa, in order to contribute to the ongoing efforts by the Ethiopian government to disseminate, scale-up, and institutionalize *kaizen*.¹ At the request of the government of Ethiopia, the Japan International Cooperation Agency (JICA) conducted the Study on Quality and Productivity Improvement in Ethiopia from October 2009 to May 2011. The study supported the implementation of pilot *kaizen* activities for 28 manufacturing companies, skill transfer and capacity development of the Ministry of Industry (MOI) staff, and the formulation of a national plan to disseminate *kaizen* activities for manufacturing companies in Ethiopia. Building on the achievements examined in this study, the Ethiopian government has decided to establish the Ethiopian Kaizen Institute (EKI), which is responsible for promoting *kaizen* awareness, assisting companies in quality and productivity improvement, disseminating information on *kaizen*, and coordinating with other organizations involved in quality and productivity improvement. In November 2011, JICA has begun a new technical cooperation project to support the design and initial implementation stage of the EKI.

The experiences of Japan and the other countries which successfully introduced and disseminated *kaizen* confirm the vital importance of changing popular mindset toward hard work, team work and creativity. Mindset change also enables the spread of *kaizen* to as many as social actors as possible. However, in many developing countries, such change does not occur spontaneously. This is why the role of the government is crucial. It is important for the government to make a conscious policy effort to orchestrate a national movement by involving the entire population and driving the transformation of their attitudes.

Some countries have successfully introduced national movements with brilliant results by creating the necessary institutional mechanisms and organizing a series of activities for igniting mindset change. However, there are countries which face challenges sustaining such momentum, especially after the completion of donor support. Therefore, it is useful to examine the experiences of national movements in various countries and extract factors for success and lessons learned—so that those countries interested in introducing *kaizen*, including Ethiopia, can have referential information when they embark on introducing and diffusing *kaizen* in their respective countries.

¹ *Kaizen* means “continuous improvement” involving the entire workforce from the top management to middle managers and workers. According to Masaaki Imai (1986), it is not just a management technique but a philosophy which instructs how a person should conduct his or her life. *Kaizen* shows how management and workers can change their mindsets together to improve their productivity. Imai argues that *kaizen* is an umbrella concept for a large number of Japanese business practices, such as 5S, suggestion system, Quality Control Circle (QCC), Total Quality Management (TQM), the Toyota Production System, the Just-in-Time System, the *Kamban* System, etc.

This handbook is one of the outputs of the Japan-Ethiopia Industrial Policy Dialogue, which took place from June 2009 to May 2011, supported by JICA and with the participation of a team from the National Graduate Institute for Policy Studies (GRIPS). Those interested in the issues discussed at the series of eight bilateral policy dialogues are encouraged to read a separate report, *The Study on Industrial Policy Dialogue in the Federal Democratic Republic of Ethiopia* (2011).

The handbook is structured in five chapters. Chapter 1 provides an overview of national movements and a synthesis of selected country experiences in Asia and Africa. This is followed by case studies on Japan (Chapter 2), Singapore (Chapter 3), Burkina Faso (Chapter 4), and Botswana (Chapter 5). We hope that it will serve as useful reference for those countries which are contemplating policy initiatives for nurturing a dynamic private sector.

Chapter 1: Overview

National Movements and the Synthesis of Selected Country Experiences

Izumi Ohno¹

This chapter provides an overview of the experiences of national movements for quality and productivity (*kaizen*) in selected countries in Asia and Africa. The chapter consists of two parts. The first part (sections 1-1.–1-3.) discusses why national movements are needed in countries which lack private sector dynamism. Drawing on the experiences of four countries, it discusses the factors that have contributed to successful national movements and the lessons learned from cross-cutting perspectives. The second part (section 1-4) briefly reviews national movements for *kaizen* in four countries—Japan, Singapore, Burkina Faso, and Botswana—from comparative perspectives, with special attention to the factors that have contributed to their successes and failures. In doing so, it also intends to provide a summary of the remaining chapters, which contain case studies of national movements for quality and productivity improvement in the four countries.

1-1. Why is a national movement necessary?

A national movement is a policy involving the entire population for a decade or more, to transform the popular mindset toward hard work, teamwork, and creativity. Particularly, the movement for quality and productivity improvement is a national effort of many public and private stakeholders to attain economic and social progress, involving active participation of business, industry, workers, government, academia, community groups, and other interested parties (Prokopenko, 1999). Why is such a policy effort necessary, and what are key ingredients for success?

Many developing countries suffer from weak private sector response. Firms are too passive. Workers do not learn skills; job hopping is rampant. Short-term speculation is preferred over long-term investment in manufacturing technology. Under such circumstances, good policy alone may not induce dynamic growth. What is required is a spiritual revolution in a country where a relaxed attitude toward production and services rules. Then, policy must go much deeper than just providing infrastructure or unleashing the power of markets. The country must be engaged in a national campaign to transform people's values, mindsets and aspirations.

If mindset change does not come spontaneously from the private sector, the state may have to force it from the top until it becomes part of the national culture. In this sense, a national movement requires a conscious policy effort; it is not just a collection of individual projects. Policy will bear no fruit if its

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spirit and goals are shared only within a narrow circle of political leaders, government officials, and experts and academics. To be successful, a comprehensive and self-sustaining system of principles, implementing mechanisms, and necessary resources backed by the state's will and popular passion are required.

Such a forced national movement may work brilliantly, but may also fail. While permanent state guidance detached from market forces or popular sentiment is inconsistent with the development of a market economy, temporary use of such an approach is not only permissible but may even be highly effective in the early stage of economic take-off. Such top-down persuasion has produced significant lasting performance in some countries as well as failure in others—as seen in socialist production drives with collective farms and state-owned factories. A national movement is a double-edged sword. If it is to be adopted, it must be designed with knowledge and care. Systematic policy learning from international experience is essential to avoid mistakes.

In the 1950s, Japan launched a *kaizen* movement for quality and productivity improvement featuring Quality Control Circles (QCCs).² In the 1970s, Korea launched the Saemaul Movement which transformed Korean villages significantly. In the 1980s, Singapore engaged in the Productivity Movement in which even taxi drivers talked about productivity. After these movements, these countries became more productive and competitive. Several African countries also introduced QCCs and productivity movements with foreign assistance, with a mixed degree of success. Therefore, it is important to review the country experiences of national movements and understand the factors for their successes and challenges with due attention to the country-specific context.

1-2. Country cases to be examined in this report

Policy for creating national movements can be designed and implemented in various areas. In light of strong interest shown by the Ethiopian government during the course of Japan-Ethiopia industrial policy dialogues, this handbook focuses on creating a national movement for quality and productivity improvement. In particular, it will review the experiences of the following four countries.

- Japan's quality and productivity improvement (*kaizen*) movement (1950s-), with US assistance:
The origin of Japan's *kaizen* movement was the quality control (QC) method imported from the United States (US) in the post-WW2 period. Japan quickly assimilated and developed this as its own management practice method; it began to produce results which even surpassed the performance of American manufacturers. Compared with the original US model, the adapted

² It should be noted that even in Japan, workers were lazy, short-sighted, and hardly productive in the early 20th century (Ministry of Agriculture and Commerce, 1901). Disobeying company rules and executive orders were the norm rather than the exception. Through the effort of private firms and public policies, these “ungovernable” workers were transformed into *kaizen* workers half a century later.

method emphasized process orientation, worker participation, and hands-on pragmatism. This method, which came to be known as *kaizen*, spread rapidly among Japanese companies, large and small, to form a core of the Japanese *monozukuri* (making things) spirit.

- Singapore's productivity movement (1980s-), with Japanese assistance: Singapore is the first country where the Japan International Cooperation Agency (JICA) provided comprehensive technical cooperation—in a venture called the “Productivity Development Project”—to transfer Japan's know-how in quality and productivity improvement. This project was requested by the then-Prime Minister Lee Kuan Yew to the Japanese government. With his strong commitment and leadership, the Productivity Movement was launched in 1981. The JICA project supported a substantial part of this initiative by mobilizing Japanese experts during 1983–1990. Singapore successfully internalized, scaled up, and institutionalized the Productivity Movement. Based on this experience, Singapore came to offer technical cooperation for productivity improvement in developing countries, including neighboring ASEAN countries and Botswana.
- Burkina Faso's QCC movement (1990s-), with the World Bank and Japanese assistance: Burkina Faso is a country where Japan's QCC activity was introduced in the 1990s, under the World Bank-supported technical assistance program (partly funded by the Japanese government through the Policy and Human Resources Development (PHRD) Fund). The World Bank's support lasted for about eleven years, mobilizing Japanese experts to support the pilot implementation of QCC activity and the establishment of an organization charged with QCC promotion. The project enjoyed strong interest among the Burkinabe policy makers and businesses, and QCC activity was implemented in selected companies and public organizations throughout the 90s. Even after the completion of the World Bank support, some companies continue to practice QCCs. Nevertheless, the extent of the diffusion of QCCs remains limited, and there are institutional challenges to sustaining the QCC movement.
- Botswana's productivity movement (1990s-), with Singaporean assistance: Botswana launched the productivity movement in the early 90s. The Singaporean government provided technical cooperation from 1991 for about ten years at the request of the president of Botswana. Based on the experience of their JICA-supported project, Singaporean experts assisted in the establishment of the Botswana National Productivity Center (BNPC) and the launch of an awareness-raising campaign. The productivity movement was introduced in both the private and public sectors, and the BNPC has played a key role in promoting productivity awareness. Nevertheless, Botswana is yet to make substantial progress in translating “awareness” into practical action for productivity improvement on the ground.

1-3. Factors affecting the success of national movements for quality and productivity improvement

The experiences of these four countries and other national movements (such as Saemaul Movement in

South Korea) suggest that six factors are critical for designing and implementing a national movement that can successfully transform the mindset of the people.

- Strong personal commitment of the top leader
- Establishment of core organizations responsible for quality and productivity improvement (such as national productivity organizations)
- Supporting institutions and mechanisms at central and local levels
- Massive campaign for mass participation
- Authorized and standardized training programs and materials for those concerned
- Developing private sector capability, especially, fostering expertise of private productivity management consultants.

First, the movement must be launched and sustained by a top leader with strong personal interest and commitment. Second, there is a need to establish core organizations (e.g., national productivity organizations, QCC centers) responsible for implementing and coordinating various activities related to quality and productivity improvement. Since productivity improvement depends on both national (economic and structural policies and the quality of public administration) and micro (the quality of managerial, professional and labor resources) levels, the institutional mechanism to support the productivity movement should embrace both aspects (Prokopenko, 1999). Third, related to this, supporting institutions and mechanisms must be created at the central and local levels. This could include the establishment of a high-level national council with a central ministry or agency assuming the role of the lead organization (or national productivity organization) and the secretariat to the national council, and regional, district, and community-level mechanisms for productivity promotion (Prokopenko, 1999). It is important to note that the national productivity organization is not the only entity promoting productivity improvement; rather, it should coordinate with other institutions in a catalyst role. By networking and helping other institutions, the national productivity organization should help build a strong, supportive institutional infrastructure.

Fourth, public awareness campaigns are a crucial element of productivity movement. To change people's attitudes, massive campaigns are effective for fostering positive attitudes, values, and a culture of productivity. Public awareness campaigns should target not only workers and managers, but also government officials and politicians, professionals, students, and the general public. Highly visible incentive and recognition mechanisms should also be implemented at the national and local levels. Various instruments can be mobilized, such as TV, public speeches by senior government officials, and national conventions. Also, award programs are effective for promoting campaigns to reward good performers and stimulate interest in best practices and corporate efforts to excel. Fifth, authorized and well-designed training programs must be created to educate government officials in charge as well as private leaders and participants of the movement in the frontline of implementation. Sixth, the movement must continue for a sufficiently long time, typically over a decade or more, with

evolving emphasis. The movement can be initiated and led by the government at the initial stage, but it must be gradually transferred to the private sector. This is critical for fostering a feeling of ownership of the productivity movement by individuals. To this end, it is important for core organizations to train private management consultants so that they support productivity improvement at industry and company levels.

At the same time, it is important to note that country-specific factors might affect the outcome of national movements. These include: (i) drivers of the productivity movement, (ii) the degree of private sector dynamism, and (iii) the level of technology to be introduced in the movement.

On the first point, while political drive is absolutely necessary, economic incentives are crucial to sustain the national movement. Thus, it is important to understand what drives the movement and how strong these factors are. Second, the degree of private sector dynamism matters. Where a dynamic private sector exists, it can take a lead in initiating, scaling-up, and sustaining productivity movement, and the government can play a supportive role. This was exactly the case of Japan. However, if the private sector is weak as in the case of many developing countries, the government is required to lead the introduction, adaptation, and development of the productivity movement. Under such circumstances, the productivity movement must start with top-down instruction to encourage grassroots participation. Private sector dynamism also includes the absorptive capacity to learn, adapt and internalize foreign technology. So, the educational and training levels of the general workforce become important. Third, the level of technologies to be introduced for the productivity movement can differ, depending on the stages of development: developing countries may wish to focus on basics of *kaizen* such as 5S and QCCs, while more advanced countries like Taiwan and Korea may wish to address R&D and technological innovation in the productivity drive (see Appendices 2-3). Because each country differs in these three aspects, special attention must be paid when designing the policy for a national movement for quality and productivity improvement.

Tables 1-1 and 1-2 show, respectively, how the four countries differ in light of the six determinants for success, as well as country-specific factors that might affect the outcomes of national movements.

Table 1-1. Overview of Quality and Productivity Movements (1): Factors for Success

	Japan	Singapore	Burkina Faso	Botswana
Leadership	○	○	△	△
Core organization	○ (private)	○ (public)	△/× (public→private)	△ (public)
Supporting institutions	○	○	△	△
Massive campaign	○ (national movement)	○ (national movement)	△	△
Training programs and materials	○	○	△	△
Fostering private sector capability (productivity mgt. consultants)	○	○	×	×

Note: Assessment by the GRIPS Development Forum: ○good, △moderate, ×poor.

Table 1-2. Overview of Quality and Productivity Movements (2): Country-Specific Factors

	Japan	Singapore	Burkina Faso	Botswana
Drivers of productivity movement	Strong •Domestic •Need for export drive (resource-poor country)	Strong •Domestic •Perceived poor work ethics •Need for FDI attraction (resource-poor country)	Moderate •Domestic + External •Need to enhance supply-side response during SAP	Moderate •Domestic •Perceived poor work ethics •Need for economic diversification (resource-rich country)
Degree of private sector dynamism	Strong •Private sector-led national movement	Moderate •Govt.-led national movement	Weak •Govt.-initiated movement	Weak •Govt.-initiated movement
External support	US & Europe	Japan	WB/Japan	Singapore

SAP: Structural Adjustment Program

Note: Assessment by the GRIPS Development Forum

In Table 1-1, Japan and Singapore score good marks compared to Burkina Faso and Botswana. However, Japan and Singapore differ in the nature of leadership and core organizations. The Japanese *kaizen* movement was led by the private sector. It was driven domestically, namely by a sense of urgency for post-war economic reconstruction and export drive. In contrast, Singapore's Productivity Movement was initiated by the government and led by Prime Minister Lee Kuan Yew himself, who lamented the poor work ethics of the Singaporeans. So, the domestic drive was strong. At the same time, the presence of foreign direct investment (FDI) companies served as important benchmarks for assessing Singapore's productivity level and made policymakers aware of the need for its

improvement. Being a resource-poor country, Singapore desperately needed to attract FDI to sustain growth.

In Burkina Faso and Botswana, the movement was initiated by the governments. In Burkina Faso, the QCC movement was launched by the government in response to the Structural Adjustment Program agreed with the World Bank in the early 90s. The Burkinabe government also came to regard the QCC activity as a key instrument to enhance the supply-side response to the reform program. In this sense, the drivers of the Burkinabe QCC movement were both external and domestic. In Botswana, the leadership perceived poor work ethics and the need for economic diversification from heavy dependence on mineral resources. The productivity movement was driven domestically, initiated by the government. Respective governments created the core organizations charged with QCC promotion (Burkina Faso) and the productivity movement (Botswana), and there was a certain level of commitment of key government officials and the private sector. These experiences suggest that it is possible to apply Japanese-style management in countries with different socio-cultural contexts. Nevertheless, the initial efforts in Burkina Faso and Botswana are yet to produce a lasting change in the popular mindset. The diffusion in QCC activity and practical implementation of productivity improvement on the ground are yet limited, and the private sector capability remains weak. In Burkina Faso, the core organization has been gradually transferred to non-government, non-profit organizations, which currently face the challenge of institutional sustainability after the completion of donor support.

1-4. Synthesis of country case studies (Summary of Chapters 2-5)

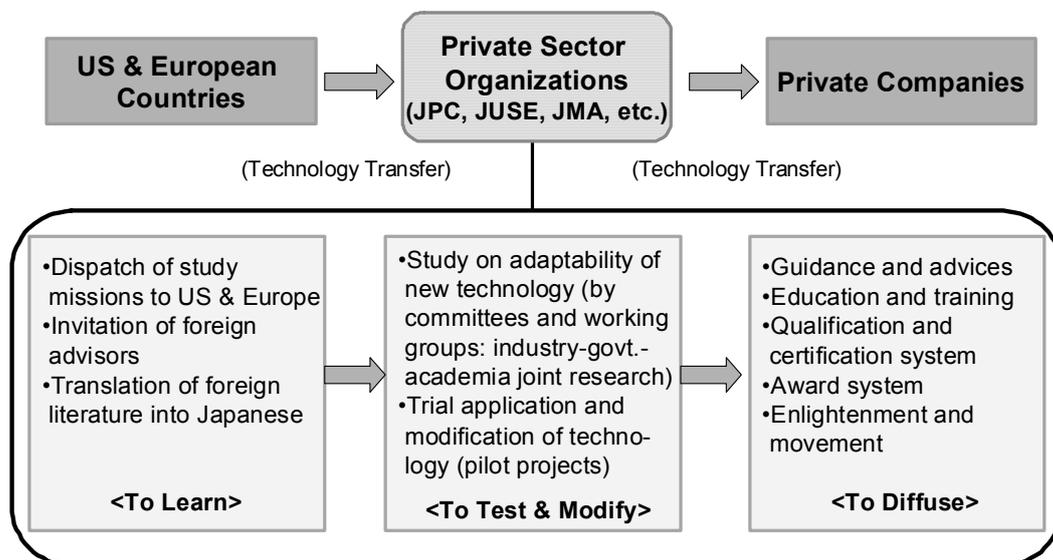
This section analyzes the experience of national movements in the four countries, especially in light of the above mentioned factors for success and failure. It also gives attention to country-specific factors that have affected the outcomes of the national movements. First, the Japanese experience will be presented as a case where a national movement was driven by the private sector. Then, the experiences of Singapore, Burkina Faso, and Botswana will be shown as cases where government-led national movements have taken place. The three countries vary in the degree of leadership commitment, private sector dynamism, possibility of attracting FDI and so on; this has led to different results in their respective national movements.

1-4-1. The experience of the private sector-led movement: Japan

Japan's productivity movement was driven by a sense of urgency for post-war economic recovery and industrial catch-up. The devastation of WW2 made both the government and business sectors work hard to improve the quality and productivity for exporting processed products. At that time, "Made-in-Japan" was perceived as "low-price and low quality," and quality and productivity improvement was high on the national agenda. Also, throughout the second half of the 1940s and 50s,

the Japanese labor movement was ideologically leftist and radical, and there was an acute need to introduce cooperative labor-management relations in the economy (Prokopenko, 1999). The Japanese business and government leaders were eager to learn the QC methods developed in the US, as well as the harmonious labor-management relations promoted by the British Productivity Council at that time.

Leadership and core organizations: In Japan, the private sector took the initiative to create the core organizations responsible for introducing, adapting and disseminating a method for improving quality and productivity. Three non-profit, private organizations spearheaded this initiative—the Union of Japanese Scientists and Engineers (JUSE), the Japan Productivity Center (JPC), and the Japan Management Association (JMA). As summarized in Figure 1-1, these organizations played active roles in three critical stages of technology transfer: (i) learning new technologies from advanced Western countries; (ii) examining the adaptability and validity of technologies in Japan and making necessary adjustments; and (iii) diffusing new technologies (see Chapter 2).³



Source: Adapted from Tsuyoshi Kikuchi “The Roles of Private Organizations in the Introduction, Development and Diffusion of Production Management Technology in Japan” (original paper published in the Bulletin of the Graduate School of International Cooperation Studies No. 4, 2011, Takushoku University).

Figure 1-1. The Role of Private Sector Organizations in Introduction, Development and Diffusion of Foreign Technologies

At the first stage, many study missions were dispatched to the US and Europe. Also, foreign experts were invited for lectures. Mission reports and lecture notes were widely disseminated among the organization members. Foreign text books and materials were translated and distributed to companies and researchers, as well. At the second stage, various committees and working groups were established,

³ See chapter 2 for details. JUSE contributed to quality improvement in Japan, with greater emphasis on the transfer and diffusion of production management technology from an industry-wide perspective. JPC contributed to the development of productivity improvement movement from a macro-socioeconomic perspective. JMA contributed to the development of Japanese industry through “noritsu” (efficiency) improvement towards scientific management.”

comprised of experts and researchers from industry, government, and academia, to study the adaptability of foreign technologies and make necessary adjustments. Pilot projects were also implemented. So, the private organizations did not simply diffuse Western technologies in their original forms; foreign technologies were adapted to the Japanese context through self-study. At the third stage, various measures were mobilized for diffusing quality and productivity improvement technologies and developing the private sector capability for providing consultancy on practical productivity improvement methods and techniques. The measures included consulting services for guidance and advice; education and training; qualification and certification systems; and a nationwide campaign through an annual award ceremony, conventions and seminars, and newsletters and publications.

Top management of all three organizations had a strong sense of mission and commitment to developing companies and industries to realize Japan's postwar economic recovery. Their strong leadership was critical to learning the knowledge and technology from the US and Europe, adapting them, and diffusing *kaizen* movements nationwide.

The history of the establishment of the JPC exemplifies the strong commitment of visionary leaders of such private organizations. By the early 1950s, Europe was rapidly recovering from the WW2 devastation with US assistance (Marshall Plan) and embarking on a productivity movement based on collaboration between employers and workers. In 1951, Mr. Kohei Goshi (who later became the first chairman of the JPC), visited Europe as a member of a Keizai Doyukai (Japan Association of Corporate Executives)⁴ mission. He was convinced of the need for a productivity movement in Japan and thought that this issue must be broadly shared with the entire business sector. Upon his return, Mr. Goshi invited major business organizations (e.g., the Japan Federation of Economic Organization (Keidanren), the Japan Federation of Employers' Association (Nikkeiren), and the Japanese Chamber of Commerce) to collaborate for the establishment of the JPC.

The Japanese government had also recognized the need for productivity improvement. In 1954, the Cabinet adopted a policy for productivity improvement. The Enterprise Bureau of the Ministry of International Trade and Industry (MITI) planned to set up a productivity organization. However, business leaders insisted that the JPC be created as a private organization. Finally, the JPC was established in 1955, funded by both public and private sectors, on the premise that the government would not intervene into the JPC spending policies and personnel affairs. A government-business coordination committee was established in 1955, attended by vice ministers of various ministries and the JPC-selected private sector members. The coordination committee was chaired by a private sector

⁴ Keizai Doyukai is a private, non-profit, non-partisan organization that was formed in 1946 by 83 far-sighted business leaders united by a common desire to contribute to the reconstruction of the Japanese economy. Now, its membership comprises approximately 1,400 top executives of some 900 large corporations.

representative. During 1955–61, the JPC received support from the US government on various activities, such as sending study missions, inviting experts, collecting materials and information, and making movies about technologies.

Training programs, massive campaign, and network organizations: To increase the awareness of business managers, executives, production managers and employees of the importance of improving quality, productivity and efficiency, all three organizations held conventions and symposiums to discuss specific themes. Furthermore, they all promoted nationwide public relations and education activities, such as the Deming Prize and the Japan Quality Medal (JUSE), the Japan Quality Award (JPC), and the JMA Human Resources Development Excellent Award (JMA).

An often-cited example in this regard is the QCC movement initiated and diffused by JUSE. This shows how the US-originated concept and techniques of statistical QC have been adapted and disseminated nationwide, with the initiative of the private organizations. In July 1950, Mr. Koyanagi, Managing Director of JUSE, took the initiative to invite Dr. W. D. Deming, renowned American expert on statistical process control, to Japan. Dr. Deming held a series of lectures and seminars, teaching basic principles of statistical QC to executives, managers, and engineers of Japanese industries. His transcript of the eight-day course on QC was compiled from stenographic records and distributed for a fee. The lectures inspired many participants, and JUSE immediately established “the Deming Prize” in 1951, with the aim of rewarding Japanese companies for major advances in quality improvement. The awards ceremony is broadcast every year in Japan on national television.

The QC movement introduced at the workshop level in the 1950s was developed into the QCC by the 1960s. To promote the movement, JUSE created nationwide networks—at the central and regional and prefectural levels. At the central level, in 1962, the QCC Center was created as a national registration system. Educational materials were developed and distributed through journals and field quality centers, etc., providing a common framework for workers from different companies. In 1963, QCC Conventions began where diverse companies and circle members presented their problem-solving successes. Local chapters and regional branches of the QCC Center were also created. It was at this chapter level of the QCC Center that much of the normal learning about circles and quality control took place. Chapter activities included running QCC Conventions (held throughout the country), arranging for factory tour exchanges and various study meetings. The membership unit of the QCC Center was the local factories of national corporations. Large numbers of workers, including shop and office floor workers, were involved in these local-level activities. Through chapter activities, a feeling of solidarity and mutual development has been forged among workers across their companies. QCC activity was promoted by broadcasting training programs on radio/TV and publishing journals. In this

way, JUSE successfully created mass organizations and networks for QCC movement (Cole, 1989).⁵

Supporting institutions: A comprehensive approach was taken to quality and productivity improvement. Various national systems were established to support the quality and productivity improvement efforts. These include:

- Standards system (JIS: Japan Industrial Standards, from 1949)
- Public research organizations (testing and research centers that meet the industrial needs of local communities)
- Export inspection system (1957)
- *Shindan* system (small and medium enterprise (SME) management consultants system),⁶ etc.

For example, when certifying products for the JIS label, not only the products themselves but also the factory's quality management systems and facilities were examined in light of whether they had enough capacity to meet the standards. Also, public research organizations conducted tests and inspections and provided technological information to local SMEs (prefectures, and municipalities). An export inspection system was introduced to improve the quality of export products. On-site inspections were conducted annually by government organizations. As a result, the percentage of rejected products decreased, and product quality was improved. Under the *shindan* system, advice was provided to SMEs on the adoption of scientific management methods and new technologies. A visiting consulting system was established in 1952. These systems were mutually reinforcing.

Development of private sector capability: All three organizations have provided training programs for company managers and workers on theoretical knowledge, practical skills and techniques required. Furthermore, they have created qualifications and certification systems, such as QC Specialist (JUSE), Management Consultant (JPC) and CPE Qualification (JMA), which have contributed to developing the abilities of those who are engaged in technology transfer and diffusion and maintaining their abilities above a certain level. Qualification and certification have also helped increase customers' trust in the personnel who are engaged in technology transfer and diffusion.

Here, it is important to note that Japanese companies had personnel with sufficient educational background and technical knowledge to absorb foreign technologies and make them Japanese. Subsequently, many companies developed their own systems of *kaizen*, including the globally known Toyota Production System (developed by the Toyota Motor Corporation) and *jishukanri* (self-management) activity in the steel industry. These efforts laid a solid foundation for establishing the so-called Japanese production management system. Instead of heavily relying on external

⁵ This paragraph is based on Cole, Robert E. (1989).

⁶ In Japanese, *shindan* means enterprise diagnostic and advice. It is a state-authorized and supported system or enterprise and advisory services targeted mainly at SMEs in both manufacturing and services. *Shindanshi* is a specialist who diagnosis and gives advice to SMEs, concerning various management issues.

management consultants, Japanese companies have endeavored to train their workers to develop in-house systems for quality and productivity improvement.

Specific factors for Japan: As explained above, the Japanese *kaizen* movement was initiated with strong ownership of the private sector. Also, with the support of private organizations such as JUSE, the JPC, and the JMA, companies endeavored to learn and internalize their own production management system. With the existence of such a dynamic private sector, Japan did not face a serious problem with the sustainability or the development of private sector capability. All three of the organizations possessed the capacity to absorb the new technologies and techniques introduced from the West. Furthermore, the companies' top management and engineers had enough knowledge to understand the relevant skills and techniques and the desire to adopt them. Factories also had workers capable of absorbing the new technologies.

1-4-2. The experiences of government-led national movements

1-4-2-1. Singapore

Singapore succeeded in inculcating the spirit of productivity into its residents. From the early days of independence, productivity was high on the agenda of the Singaporean government. The Productivity Unit was created in 1964, and it was upgraded to the National Productivity Center in 1967 and to the National Productivity Board (NPB) in 1972. In 1979, Prime Minister Lee Kuan Yew remarked that “Workers here are not as proud of or as skilled in their jobs compared to the Japanese or the Germans.” Lee Kuan Yew met with a number of Japanese companies active in Singapore and Mr. Goshi, then the chairman of the JPC, and became interested in Japan’s productivity movement. He was convinced of the need for a productivity movement in Singapore, and in 1981, the Productivity Movement was launched. Multitudes of programs and massive public campaigns were introduced until even taxi drivers talked about productivity. After five years of awareness-raising, the focus shifted from national promotion of productivity to company-level promotion. Model company projects and company-based consulting were implemented.

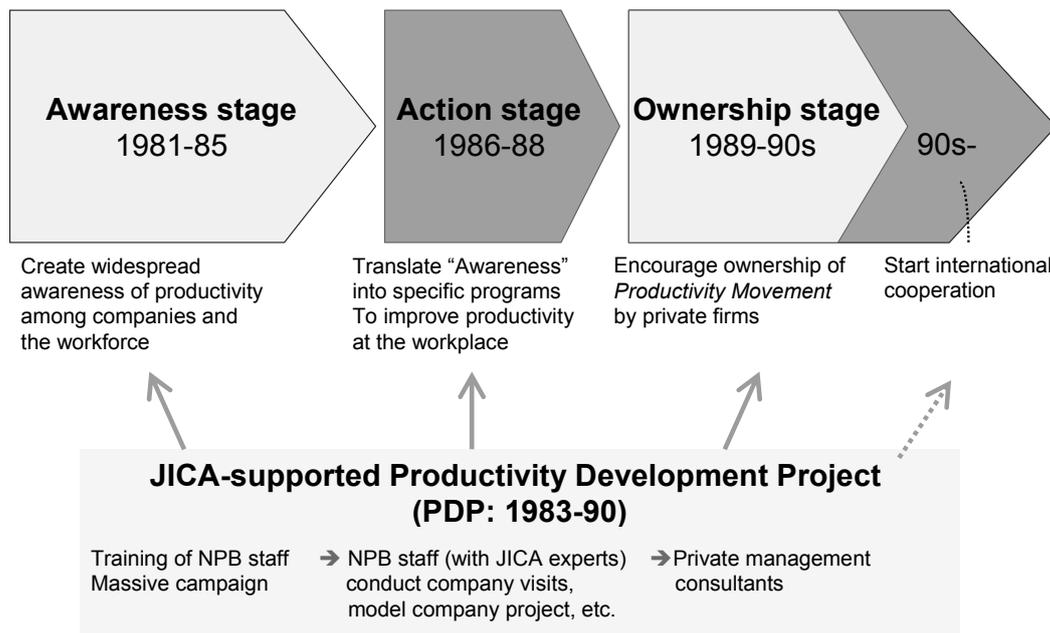
At a request from Lee Kuan Yew, JICA assisted this national initiative with its first large-scale cooperation, the Productivity Development Project, from 1983–1990. A number of the JPC experts were dispatched by JICA and provided technical cooperation throughout the period. The productivity campaign was actively promoted in the public sector as well, linked with a civil service reform program. Notably, Singapore adapted the Japanese QCC and developed it into Work Improvement Teams (WITs) to improve the performance of the workforce in the public sector.⁷

⁷ A WIT is a group of civil servants from the same work unit, irrespective of divisional status, who meet regularly to solve problems, examine improvement opportunities, and develop problem solving skills.

Tripartite cooperation among the government, employers, and labor unions is a key institutional feature of Singapore’s Productivity Movement. This again was inspired by the Japanese *kaizen* movement experience. The National Productivity Council (NPC) was established in 1981 as an oversight and policy coordination body for productivity movement. The NPC was chaired by the State Minister of Labor (later by the State Minister of Trade and Industry) with high-level representation from the government, employer groups, unions, and academia. The NPB was restructured and expanded to carry out its mission of promoting productivity concepts and culture nationwide. It also served as the secretariat to NPC.

Immediately after the establishment of the NPC, the government launched the Productivity Movement, which evolved in the following three stages (Figure 1-2).

- Awareness stage: create widespread “awareness” of productivity among companies and the workforce.
- Action stage: translate “awareness” into specific programs to improve productivity at the workplace.
- Ownership stage: encourage “ownership” of the Productivity Movement by private companies.



Source: Elaborated by the author, based on the information provided by Mr. Lo Hock Meng, Executive Director of Singapore Productivity Association (SPA) to the GRIPS mission on Sept. 2, 2010.

Figure 1-2. Evolution of the Productivity Movement in Singapore

Strong political will and policy persistence transformed Singapore into a very competitive nation with high productivity. By the early 1990s, Singapore began to teach productivity skills to developing countries in East Asia, Africa, and Eastern Europe. As such, Singapore is widely regarded as a

successful case of a government-led productivity movement. As Chapter 3 explains, it is possible to say that all of the following six determinants for success were in place in Singapore's Productivity Movement.

- Strong commitment of visionary top leadership, namely, then Prime Minister Lee Kuan Yew
- Establishment of national productivity organizations by the government, under a tripartite cooperation mechanism. With the oversight of the NPC, the NPB coordinated and promoted the diffusion of the Productivity Movement by organizing massive awareness campaigns, implementing training programs and consultancy for skills upgrading, and developing manuals and training materials. Various groups and institutions were involved, facilitating the scaling-up of the Productivity Movement.
- Supporting institutions and mechanisms. Related to the above, Singapore's Productivity Movement were made possible by the establishment of centralized oversight and coordination mechanisms, strong involvement and support of key stakeholders (public sector, unions, employers, and academia), and sharing productivity gains among those stakeholders.
- Massive public campaigns. Singapore dedicated five years to awareness raising. The NPB made major efforts to disseminate productivity culture to the public. The slogan "Together We Work Better" and the mascot character of Teamy Bees were adopted; November was designated as Productivity Month; and the Prime Minister delivered a productivity speech for seven consecutive years.
- Production of authorized and standardized training programs and materials. With JICA support, various training manuals and promotional materials were produced and utilized. The areas cover management and supervisory development, labor-management relations, QCCs, industrial engineering, total quality control, audio-visual technology, production management, occupational safety and health, consultancy for SMEs.
- Developing management consultancy capability in the private sector by designing systems and incentives to mobilize those trained under the JICA project. The NPB allowed people from the private sector to participate in training fellowships in Japan. Those trained became NPB Associate or Referral Consultants. Thus, a pool of consultants was created to supplement NPB's effort in reaching out to industries.

1-4-2-2. Burkina Faso

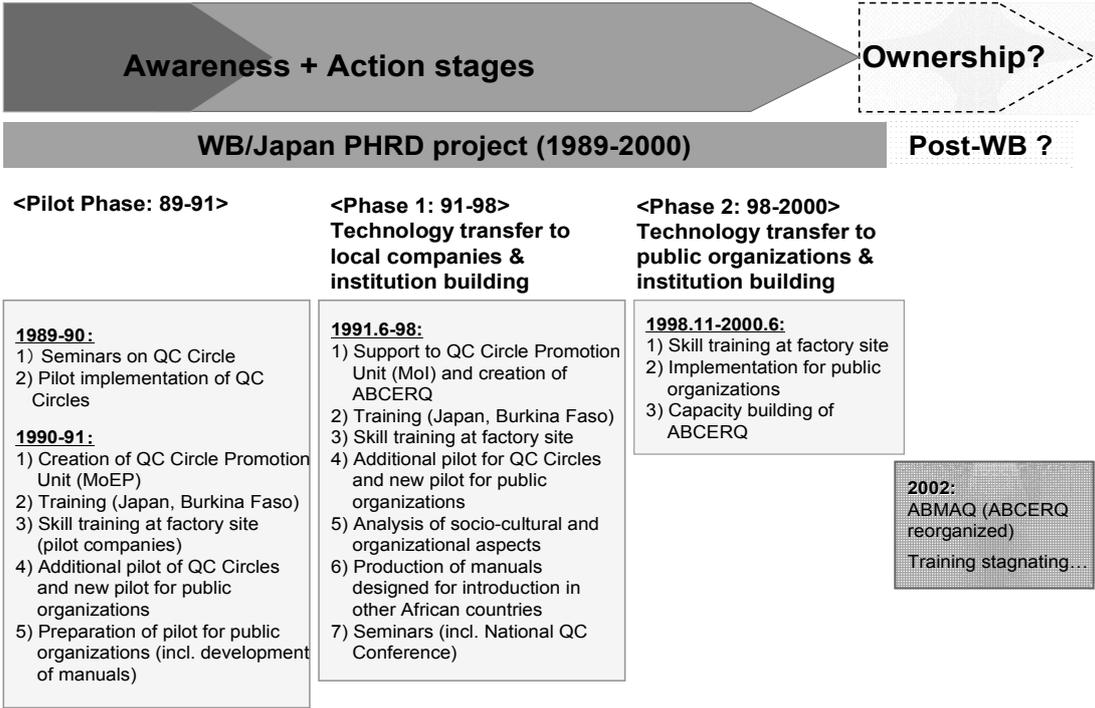
In 1989, the Burkinabe government introduced QCCs on a pilot basis, at the recommendation of the World Bank. A Japanese task manager (Mr. Hiroaki Suzuki)⁸ of the World Bank, who was inspired by the Burkinabe spirit of teamwork, proposed the possibility of introducing QCCs in Burkina Faso,

⁸ See Suzuki (1993) for the background and the initial phases of the World Bank and Japan PHRD supported project of QCC implementation.

which was favorably received by the government. Both the Burkinabe government and the World Bank regarded QCCs as a means of complementing the Structural Adjustment Program by enhancing the supply-side capacity of the economy. The technical assistance project was launched, funded by the World Bank and the Japanese government (through the PHRD Fund) and implemented during 1989–2000. As such, the driver of the QCC introduction was external, but it was fully owned by the government. Throughout the period, a team of Japanese experts (JUSE) visited Burkina Faso periodically to help establish the core organization, conduct training and seminars, and implement pilot QCCs in selected companies and public organizations.

Initially, the government assumed responsibility for QCC promotion. In the late 1990s, the QCC Promotion Unit was created within the Ministry of Export Promotion. In 1992, the Burkinabe QCC Association (ABCERQ), non-government, non-profit organization, was established to support and disseminate QCC activities. For the initial few years, the QCC Promotion Unit continued to serve as the secretariat of ABCERQ; but gradually, the responsibility was transferred to ABCERQ. From 1995, ABCERQ became independent of the Ministry of Industry, Commerce and Mining (former Ministry of Export Promotion), assuming full responsibility for conducting seminars and training, implementing pilot QCCs, organizing annual National QC Conventions, etc. ABCERQ also started to collect membership fees and to charge for consulting. Throughout the 1990s, QCC activity attracted strong interests from senior policymakers and business. With the support of the World Bank/Japan PHRD project, ABCERQ played a central role in the diffusion of QCCs in both private and public organizations. In 2002, ABCERQ was reorganized into the Burkinabe Quality Management Association (ABMAQ) by expanding its functions to include the International Organization for Standardization (ISO), quality management, and SMEs.

Figure 1-3 shows the evolution of the QCC movement in Burkina Faso. Roughly, the World Bank/Japan PHRD project evolved in three phases: (i) the pilot phase, which supported seminars and pilot implementation of QCCs, the creation of the QCC Promotion Unit in the Ministry of Export Promotion, and staff training; (ii) technology transfer to private companies; and (iii) technology transfer to public organizations. The latter two phases supported the expansion of pilot QCCs implementation, skill training at the factory sites, production of manuals and training modules, and creation and capacity development of ABCERQ.



Source: Sayoko Uesu, "Case Study: QC Circle Experience in Burkina Faso", Ch.2. in *Japanese Approach to Growth Support in Developing Countries: International Comparison and Case Studies*, GRIPS Development Forum, 2010

Figure 1-3. Evolution of the QCC Movement in Burkina Faso

A notable feature of the Burkinabe case was that the awareness and action stages were combined in the promotion of QCC movement. This is different from the case of Singapore, which dedicated the initial five years to awareness raising before moving into the action stage. In Burkina Faso, pilot QCCs activity was linked with annual National QC Conferences. With high-level attention and good publicity, National QC Conferences motivated the members of pilot QCCs to present the best results of their activities. The first National QC Conference was held in July 1991, with the attendance of high-level government officials (six ministers, including the Minister of Finance and Plan, the Minister of Industry, Commerce and Mining, and the Minister of Civil Service and Modernization of Public Administration). The day was designated as "Quality Day." Annual National QC Conferences continue even now.

Even after the completion of the World Bank support (in 2000), some companies remain committed to quality and productivity improvement and have developed their own QC systems, taking a comprehensive approach. They continue to practice QCCs, and ABMAQ (previously ABCERQ) offers training and seminars. This suggests that the Japanese-style QCCs can be introduced in Burkina Faso, if proper adjustments are made to fit the local context (see Chapter 4). Nevertheless, the extent of the diffusion of QCC activity remains limited, and there are institutional challenges to sustaining the QCC movement.

The first challenge is the sustainability of the core organization, i.e., ABMAQ, both technically and financially. Technically, ABMAQ experts and QC managers of companies have had difficulty updating their knowledge and techniques for quality and productivity improvement. The absence of Japanese FDI in Burkina Faso has limited opportunities for local experts and companies to constantly access the latest knowledge and techniques. Now that ten years have passed since the project completion, ABMAQ experts and QC managers of companies are being replaced by the second generation of members who have not received skills training from Japanese experts. Financially, ABMAQ faces the challenge of securing sufficient revenues to cover its administrative and operational costs. Due to economic stagnation, companies (especially SMEs) are reluctant to pay for membership fees. As a result, the size of ABMAQ membership remains small, which limits the expansion of its training programs. Moreover, ABMAQ faces competition from private consulting companies, which specialize in Western management techniques.

Another challenge is the lack of a coordinated approach among quality-related institutions (such as standards and testing). As explained earlier, in Japan, the government set up various complementary systems, which mutually reinforced each other to improve quality and productivity. In Singapore, the establishment of centralized oversight and coordination mechanisms ensured the strong involvement and support of key stakeholders and other institutions. In Burkina Faso, the government's attention to quality is yet insufficient, leaving ABMAQ and the other institutions fragmented and uncoordinated.

In short, the Burkinabe government showed a certain level of leadership and interest in the QCC promotion in the early days of its introduction. The government took the initiative to create ABCERQ and helped its transition to a non-profit organization (which later became ABMAQ). QCC pilots were enthusiastically implemented in selected companies and public organizations, and national conventions and campaigns were organized. However, it may be said that leadership has not been strong enough to transform enthusiasm at the organizational level into a national movement. In light of the six factors for success, Burkina Faso has faced the following challenges with national movement:

- Sustainability of the core organization, technically and financially, especially after donor-funded project is over.
- Lack of a coordinated approach among quality-related institutions (which is related to top leadership problem).
- Developing private sector capability, especially, fostering expertise of the second generation of QCC experts.

1-4-2-3. Botswana

In 1993, the government of Botswana launched a productivity movement with two main features: (i) the introduction of Singapore-inspired WITs, adapted from Japan's QCCs; and (ii) the establishment of

the BNPC, based on a tripartite cooperation mechanism (Modisi, 1996). The driver of the movement was domestic, namely, the urging of President of Botswana, Sir Ketumile Masire himself. President Masire perceived that Botswana has a problem of loose ethics (“a culture of laxity”) that prevailed in the civil service and led to a productivity deficit. Being dependent on mineral resources, the country also had been urged to diversify the economy. At a request by President Masire to the then-Singaporean Prime Minister Gho Chok Tong, the Singaporean government provided technical cooperation for productivity improvement from 1991 to the early 2000s.

First, the Singaporean model of WITs was introduced in 1993 as the basis for the Strategy for Productivity Improvement in the Public Service. A twinning arrangement between the Botswana Institute of Administration and Commerce (BIAC) and Singapore's Civil Service Training Institute was adopted as the instrument for transplanting WITs into Botswana (World Bank, 1996).

Second, the government established the BNPC in 1993 as a national productivity organization, aimed at promoting productivity consciousness in Botswana. The BNPC was created as a parastatal, public organization, which reports to the Minister for Presidential Affairs and Public Administration. Drawing on the Singaporean experience, a tripartite board was established, comprised of representatives from the government, employers’ and workers’ organizations, and a few other stakeholders, to provide oversight of the BNPC activity. The scope of the BNPC activities covers both the public and private sectors.

The BNPC made major efforts to raise public awareness on productivity. A series of seminars on productivity were undertaken for both the public and private sectors, including ministers, parliamentarians, and chief executives (Modisi, 1996). “Productivity Week” was launched. At the district level, District Productivity Improvement Forums (DPIFs) were created, which were tripartite and had a community-based structure and were conceived as networks of change agents from the government, private sector organizations, community and non-government organizations. The idea was to share productivity information with the productivity movement tripartite.

However, a recent study (Chapter 5) shows that the BNPC has focused too much on public awareness without progress on the implementation of practical productivity enhancement on the ground. Despite twenty years of awareness-raising effort, the involvement of the private sector in practical activity for quality and productivity improvement has been limited. In particular, since SMEs cannot afford consulting fees, they have faced difficulty in accessing practical guidance and advice on productivity improvement. Moreover, the BNPC has had problems attracting and retaining qualified and experienced experts, and there have been frequent staff changes.

In sum, the Botswana experience indicates that there was enthusiasm and commitment of leadership when the productivity movement was introduced. The core organization was created and supported by the government, and massive campaigns were implemented. However, in light of the six factors for success, Botswana is yet to achieve progress on implementation of productivity improvement on the ground. The experience of Botswana shows the following challenges with the national movement.

- Sustainability of the core organization, especially retaining those experts who received professional training for quality and productivity improvement.
- Difficulty of making progress at the action stage (going beyond the awareness stage), especially practical implementation of productivity improvement at the industry and company levels.
- Developing private sector capability, especially, fostering the expertise of private, productivity management consultants.

1-5. Implications for Ethiopia—toward a national movement for *kaizen*

Regarding the six determinants mentioned in this chapter, Ethiopia does not have problems of leadership, since *kaizen* was driven by strong commitment of the top leader. During the two-year period of JICA support (the Study on Quality and Productivity Improvement in Ethiopia, from October 2009 to May 2011), pilot company projects were implemented, and their results have been disseminated; the JICA experts conducted training for the staff of the Kaizen Unit of the Ministry of Industry (MOI) to transfer relevant skills and techniques; and a national plan has been formulated to disseminate *kaizen* activities for manufacturing companies. As a result, *kaizen* has come to be known among policy makers and business managers in Ethiopia. Based on these achievements, the Ethiopian government has decided to establish a core organization responsible for quality and productivity improvement, i.e., the Ethiopian Kaizen Institute (EKI). The Kaizen Unit of the MOI, created in 2009 as the counterpart of the above JICA study, has been upgraded into the EKI with functional strengthening. At the request of the government in November 2011, JICA has begun new support the institutionalization of the EKI in such areas as organizational development, human resource development, and nationwide dissemination of *kaizen*.

The experiences of national productivity movements in the four countries suggest that Ethiopia may wish to pay special attention to the following points when it endeavors to disseminate and scale up *kaizen* through a national movement.

First, as the core organization, the EKI must assume various functions such as *kaizen* promoter, catalyst, mobilizer, capacity builder, and so on. These include: formulating overall policies, plans, and programs for *kaizen* dissemination; providing training of trainers and developing authorized and standardized training programs and materials; conducting diagnosis and consulting services through model company projects; creating national awareness on quality and productivity, and establishing

mechanisms for nationwide outreach, including micro and small enterprises (MSEs) and the future workforce through technical and vocational education and training (TVET). Such functions cannot be realized by the EKI alone. There is a need to establish a mechanism for overall coordination of *kaizen* dissemination to ensure smooth implementation of these activities. Furthermore, in developing training programs and materials, it is important that the government, private sector, and academia work together to study the adaptability of foreign technologies and make necessary adjustments tailored to the Ethiopian context. This is what the Japanese and Singaporean experiences suggest.

Second, it is important to be mindful of the three stages of a national movement—i.e., awareness, action, and ownership—and consider the role of the EKI in each stage. Building a national movement is a long-term undertaking and must continue over a decade or more, with evolving emphasis. Singapore spent the initial five years raising productivity awareness and moved to the action stage by introducing specific programs at the workplace (e.g., model company projects, management consultancy programs for local companies). Then, it moved to the ownership stage to encourage private and public organizations to lead the Productivity Movement. Burkina Faso combined the awareness and action stages by linking QCC pilots with annual QCC National Conventions. Botswana has faced difficulty translating “awareness” into concrete action. Since Ethiopia has already implemented *kaizen* pilots at model companies with JICA support, it may be effective to combine awareness with action stages in the future.

Third, among the three stages, the ownership stage is critical to self-sustain the national movement. However, this is the most difficult stage. Conscious policy efforts are necessary on two aspects. First, it is important to sustain core organizations technically and financially—especially after the completion of donor support. Over the medium-term, the EKI should have a strategy for how to constantly update *kaizen* knowledge and techniques. One option might be to link the transfer of *kaizen* technology with an FDI attraction strategy. Financially, the government should commit to supporting the EKI for a sufficient time. These are the experiences drawn from Singapore, Burkina Faso, and Botswana. At the same time, the Japanese case suggests the importance of working with business associations from early on. Second, it is necessary to gradually strengthen private sector capability so that companies can develop their own systems of *kaizen* and that capable management consultants can be nurtured and scaled up in the country. Awards may be effective to stimulate interests in best practices and motivate excellence. Certification and qualification systems may be also useful for retaining capable national experts and developing private management consultants.

Lastly, as the experiences of Burkina Faso and Botswana suggest, it is necessary to recognize that in those countries where the presence of FDI (for manufacturing in particular) is limited, donor support might play a larger role in updating the knowledge and techniques on *kaizen*. The situation is different from East Asia, where Japanese companies shifted their production bases in the mid-1980s and

assisted their local partners to learn *kaizen* philosophy and practices. Therefore, in Africa and other countries which have limited access to FDI, donors may wish to consider providing “light” technical cooperation programs even after they have completed comprehensive support. For example, it would be useful for donors to dispatch short-term experts for seminars and training and/or organize international conferences to share best practices. Such “light” cooperation would help those countries gain regular access to the latest necessary knowledge and techniques. The countries may also wish to formulate FDI attraction strategies, targeting multi-national and Asian companies (not limited to Japanese ones) which have mastered *kaizen* practices.

The transferability of Japanese-style management practices, such as *kaizen*, to the socio-economic environment of developing countries is a hotly debated issue. The experiences of JICA’s *kaizen* assistance programs suggest that the diffusion of *kaizen* philosophy and practices is already observable in some parts of the developing world (Ohno, Ohno and Uesu 2009).⁹ The case studies included in this handbook also confirm that efforts are being made by local institutions to introduce Japanese-style quality and productivity improvement and assimilate it in the country-specific context. However, the introduction must be conducted with proper leadership and with adjustments that reflect the uniqueness of the targeted society. Moreover, a few years of pilot implementation is not enough to create popular mindset change. This is why having a national movement becomes so important. For this reason, the country case studies on national movements should serve as useful references for Ethiopia and other developing countries to understand key factors for its success and failure.

⁹ Please see GRIPS Development Forum (2009) for the discussions on applicability of *kaizen* to different socio-cultural contexts.

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Chapter 2

The Role of Private Organizations in the Introduction, Development and Diffusion of Production Management Technology in Japan

Tsuyoshi Kikuchi¹

2-1. The role of Japanese private organizations in the introduction, development and diffusion of production management technology

In Japan, private organizations played a significant role in the introduction and adaptation of production management technology, as well as its transfer and diffusion in Japanese industry.² The three major organizations that assumed such roles are: the Union of Japanese Scientists and Engineers (JUSE), an incorporated foundation that contributed to quality improvement in Japan; the Japan Productivity Center (JPC), a public interest incorporated foundation that developed the productivity improvement movement; and the Japan Management Association (JMA), an incorporated association that contributed to the development of Japanese industry through the “*noritsu* (efficiency)” improvement towards scientific management or management innovation.³

In this chapter, the term “production management technology” is used as a general concept that refers to the skills, techniques and approaches that are used to improve productivity and quality (including the elimination of defective products), reduce costs, and shorten delivery time or lead time in the manufacturing industry.⁴

2-1-1. Overview of the Union of Japanese Scientists and Engineers (JUSE)

The JUSE significantly contributed to the quality improvement in Japanese industry. JUSE originated

¹ Senior Industrial Consultant, Japan Development Service Co., Ltd. This paper, originally written in Japanese, is published in “The Bulletin of the Graduate School of International Cooperation Studies,” No.4, Takushoku University, 2011.

² As Tadao Miyagawa and Takashi Ishiguro point out in their article (Miyagawa et al., 1989, p. 146), Japanese companies took an active part in introducing business management technology along with manufacturing facilities and technology from Western countries in the postwar period. Apart from it, JMA (established before the WW2) and JPC (established in 1955) also played a pivotal role in the introduction of business and production management technology. Akira Suehiro points out the important role played by intermediary organizations that mediate between government and private companies (Suehiro, 2002, p.65). The term “intermediary organizations” includes business associations in the private sector, private local economic organizations, and the Industrial Structure Council. The private organizations analyzed in this paper also can be categorized as “intermediary organizations” that acted as intermediaries between Western countries with advanced technology (technology source) and Japanese private companies.

³ The following organizations also played an important role: the Japan Institute of Industrial Engineering (established in 1959), which was an offshoot of JPC and contributed to the promotion of industrial engineering (IE); JMA Consultants Inc. (established in 1980), the former consulting division of JMA; and the Japan Institute of Plant Maintenance (established in 1981), which was an offshoot of JMA, and contributed to the promotion of Total Productive Maintenance (TPM; maintenance of production facilities based on the company-wide participation).

⁴ The term “production management technology” in this chapter has the same meaning as the term “kaizen (improvement)” in a broad sense. It is roughly the same as the concept that Masaaki Imai presents in his book *Kaizen* (Imai, 2010).

from the following three organizations: the *Koseikai* Association (established in 1918), *Nihon Kojin Kurabu* or the Japanese Engineers' Club (established in 1920; renamed *Nihon Gijutsu Kyokai* or the Japan Technology Association in 1935) and *Zennihon Kagaku Gijutsu Toudoukai*, or the National Science and Technology Association of Japan (established in 1940). These three organizations were merged on November 3, 1944 into *Dainihon Gijutsu Kai* or the Japan Technology Association, which was subsequently dissolved on April 30, 1946. JUSE was established on May 1946 to take over the business, assets and staff of the Japan Technology Association. In 1962, JUSE was officially approved as a foundation under the jurisdiction of the Science and Technology Agency.

JUSE's current articles of endowment states that their objectives are to "promote systematic studies needed for the advancement of science and technology, that contribute to the development of culture and industry" (Article 3). Although this article defines the JUSE's objectives broadly as promoting science and technology and improving the status of scientists and engineers, the foundation has, since its establishment, focused its efforts on promoting the quality improvement movement.⁵

2-1-2. Overview of the Japan Productivity Center (JPC)

On September 24, 1954, the Cabinet adopted a policy to improve productivity. The resolution was based on the recognition that the productivity improvement in Japanese industry was an urgent priority in order to achieve cost reductions, improve quality, promote exports and increase the national income. Based on this Cabinet resolution, the JPC was established on March 1, 1955 as a leading organization to improve the productivity of Japanese industry (Foundation Prospectus) (JPC-SED, 2005a, pp.4-5).

JPC established in 1973 the Social and Economic Congress of Japan (SECJ) as a sister organization with the objective of realizing a welfare society. JPC succeeded the function of the SECJ in 1994 in order to pursue the productivity movement from a more social perspective than ever before, and the name of organization was changed into Japan Productivity Center for Socio and Economic Development (JPC-SED), which was renamed as JPC in 2009.⁶

⁵ Article 4 of JUSE's current rules defines that JUSE engages in the following operations in order to achieve their goals.

- 1) Research and public relations services on policies for the science and technology promotion
- 2) Exchange of information on science and technology in Japan and overseas
- 3) Promotion of support and collaboration with science and technology related organizations, scientists and engineers
- 4) Research and studies related to science and technology
- 5) Lectures and training sessions to improve the capability of scientists and engineers
- 6) Publication of materials related to science and technology
- 7) Technological consultation on business management
- 8) Other operations required to achieve the organizational goals

As shown in the above articles, it is clear that their operational goals are not limited to quality improvement but are aimed at achieving the promotion of science and technology in general.

⁶ www.jpc-net.jp (April 21, 2011).

The JPC's Foundation Prospectus defines the purpose of productivity improvement as reducing production costs through the effective and scientific use of resources, manpower and facilities in order to expand the market, increase employment and raise the level of real wages and living standards, thereby promoting the common interests of labor, management and general consumers (JPC-SED, 2005a, p.4). It should be noted that productivity improvement is defined as a concept designed for the promotion of companies' interests, as well as those of workers and the general public.

2-1-3. Overview of the Japan Management Association (JMA)

The JMA was established on March 30, 1942 as the sole nationwide private organization for the promotion of technology, after the dissolution and integration of the Japan Management Federation (established in 1927) and the Japan Industry Association (established in 1931). These two were regarded as the leading organizations for the promotion of “*noritsu*” through scientific management approach in Japan at the time.

JMA's current organizational goals are to “conduct investigations and research relating to management, to collect and provide this information to others, and to enhance the overall development of human resources, thereby encouraging business management innovation of enterprises and organizations and contributing to the national economy, the national standard of living, and the international community” (Article 3 of JMA's Articles of Incorporation). In short, JMA is an organization established to provide support for companies and organizations in achieving management innovation and in solving related problems.

The term “*noritsu*” is said to have come into use around the end of the Meiji period in Japan. Japan was lagging far behind Western countries in industrial development at the time and scientific management technology was adopted to catch up with the West. Eminent scholars and business leaders coined the phrase “*noritsu zoshin* movement” or “efficiency improvement movement” with the aim of promoting scientific management or management innovation. The term “efficiency” is referred to as the production management technology required to make maximum use of human resources, physical facilities, and materials.⁷

Both JUSE and JPC provide support to solve the problems that companies face (regarding quality and productivity). However, JPC focuses more on the productivity improvement movement from a macro-socioeconomic perspective, while JUSE places greater emphasis on the transfer and diffusion of production management technology for improving quality and solving problems from an industry-wide perspective. Unlike these two organizations, JMA focuses on activities to help

⁷ Based on a document from JMA Consultants Inc., *JMAC: Introduction Note*.

individual companies solve respective problems from the view point of scientific management or management innovation while also taking into consideration the overall trends of industry. The JMA has promoted the transfer and diffusion of production management technology (including techniques and approaches) through this process.

2-2. Introduction, development and diffusion of production management technology by Japanese private organizations

2-2-1. The three stages of technology transfer

The process of introduction and diffusion of production management technology by JUSE, JPC and JMA includes three stages: learning new technology from advanced Western countries (first stage); examining the adaptability and validity of the introduced technology in Japan (second stage); and the full-scale diffusion of the technology (third stage). In this paper, these are referred to as the “three stages of technology transfer.” The term “technology transfer” here includes technology introduction from technologically advanced countries, as well as its diffusion to companies and industries in Japan.

In the following paragraphs, we will summarize the activities of the three organizations at each stage of technology transfer.

(1) Learning new technologies from advanced Western countries

There are many ways to learn about the technologies of advanced Western countries, such as sending missions, inviting foreign consultants and experts, obtaining literature for translation and publication, sending students and long-term trainees abroad and attending international conferences and academic conventions.

The three organizations analyzed in this paper have respectively sent study missions almost every year in order to learn the advanced business and production management technologies of Western countries. These organizations have provided all their member companies with the knowledge of new business and production management through various means, such as holding briefing sessions after the missions returned to Japan or distributing mission reports to their members.

They have also invited prominent experts and consultants from advanced Western countries and held lectures and training seminars in Japan in order to provide companies with opportunities to learn advanced management methods and production management technologies directly from these experts.

Moreover, they have obtained literature and materials from Western countries for translation and publication and distributed them to a wide range of companies and researchers.

In addition, they have encouraged their members to actively participate in international academic conventions, conferences and symposiums, in order to provide opportunities to obtain new information.

(2) Examining the adaptability and validity of technologies in Japan

There is a need to examine whether new technologies from advanced Western countries are adaptable and valid for Japanese companies. Once their validity has been confirmed, it is still necessary to examine how to adapt them to Japanese companies. The three organizations formed committees and study groups to examine these issues. Experts and researchers from industry, government agencies, universities and research institutes participate in these committees and study groups in order to conduct industry-government-academia joint discussions and research. In some cases, tests were conducted at manufacturing sites to check the adaptability and validity of new technologies.

Thus, the three organizations have not transferred and diffused Western-originated production management technology to Japanese industries and companies simply by imitating it. Technologies for facility management, quality management and production management are good example of how they have made it possible to improve the technologies originally introduced from Western countries, through examination and self-study (JMA Group Collaboration Promotion Committee, 2010).

Technology for facility management was introduced from the United States (US) around 1945. While the technology was mainly used for reducing maintenance costs in the US, it was uniquely developed in Japan by focusing on the maintenance of facility function.

Similarly, technology for quality management was originally developed in the US to improve economic performance by keeping a balance between quality and cost. In Japan, the highest priority was given to improving and stabilizing product quality itself, resulting in significant improvements to the original technology. In addition, emphasis was placed on raising awareness of quality among all factory workers rather than among experts in charge. Technology for production management was also improved from the original technology introduced from the US, resulting in a highly sophisticated management system designed to reduce the stock of in-process items and provide materials to each manufacturing process in a timely manner.

In addition, the Japanese private organizations developed the following technologies: technology for

Company-wide Quality Control (CWQC) or Total Quality Management (TQM),⁸ QC Circles and New Seven Tools for Quality Control were developed by JUSE with its member companies; approaches such as Single-Minute Exchange of Die (SMED) and Total Productive Maintenance (TPM)⁹ were developed by JMA.

Various meetings and seminars were held to present these achievements to member companies, and reports and publications were widely distributed. In addition, training programs were organized to disseminate newly developed technologies among companies, and develop human resources capable of utilizing these technologies.¹⁰

(3) Diffusing of new technologies

Means and methods for the diffusion of new technologies include advice and guidance (consulting services) for solving problems using production management technology, human resource development, public relations/education activities, qualification certification systems, and awards for the excellent companies and experts that have made outstanding contributions to the development of technology.

Consulting services using production management technology are the most practical and effective form of technology transfer and diffusion. These services enable companies to acquire new technology by solving specific problems and provide opportunities for on-the-job training (technology transfer).

Not all organizations provide consulting services. JUSE gives priority to personnel training and does not provide consulting services for companies. However, at the request of companies, it provides support for the development of in-house education and training programs and introduces lecturers for training sessions. JPC provides individual companies with consulting services on productivity improvement. However, these services are only a small part of the JPC's overall business, considering that its operational strategy takes a macro perspective (socio-economic perspective) rather than a micro perspective (company-based perspective), as mentioned earlier.

⁸ TQM was originally developed in the US. There is a difference in its concept and way of practice between the US and Japan. In the US, TQM is practiced under the guidance of quality control experts, while company-wide participation is most required in Japan.

⁹ TPM was initially an acronym for Total Productive Maintenance, but it subsequently evolved into a broader concept that covers not only facility management but also business management in general.

¹⁰ Efforts were also made by respective companies to improve the skills, techniques and approaches introduced (learned) from abroad through the three organizations or their own routes and to develop their own technology. As a result of their improvement and development, skills and techniques became more advanced than those adopted from Western countries, and these techniques were transferred and shared within companies or company groups. The Just-in-Time (JIT) system of Toyota Motor Corporation, Cellular Manufacturing System, Small-Group Activities and the 5S are amongst the unique production management technology and methods developed by Japanese companies.

JMA was originally established as an organization for providing consulting services and has continued to give priority to these services since its establishment. However, JMA established JMA Consultants Inc. (JMAC) in 1980 by converting its consulting division into an independent company. JMAC took over JMA's experience and know-how and provides companies with its own technology, methods, and approaches through consulting services (technology transfer). JMA now focuses its efforts on education and training services. JMA has other independent affiliated organizations and works in collaboration with all JMA group organizations to provide companies and organizations with various support services for management innovation.

Technology transfer and diffusion is supported by human resources. Therefore, based on the recognition that human resource development is of crucial importance for the development of technology, all three organizations have provided companies with various training programs on technical skills and methods (training courses tailored to the level of each target group such as top executives, middle-ranking managers, workers as well as training programs for different industries). These organizations have also invited prominent experts, researchers and consultants from Western countries and actively organized training seminars and lecture sessions given by these guests in order to promote and advertise new technologies and approaches for production management. However, these lecturers from abroad have gradually been replaced by Japanese lecturers as excellent production management technologies are developed in Japan.

Qualification and certification systems play an important role in developing the abilities of personnel who are engaged in technology transfer and diffusion and in maintaining their abilities above a certain level. To this end, all three organizations have trained personnel in order to help them gain theoretical knowledge, practical skills and techniques required in their priority areas. For example, they have created qualification and certification systems, such as Quality Control Specialist (JUSE), Management Consultant (JPC) and CPE (Certified Production Engineer) Qualification (JMA). Qualification and certification also serves to increase customers' trust in the personnel who are engaged in technology transfer and diffusion.

All three organizations provide awards for companies that have achieved outstanding performance in improving quality, productivity or "*noritsu*" in industry. These awards have enabled award-winning companies to improve their corporate image and reputation, resulting in increases in their sales and exports. These results, in turn, have had the effect (known as the demonstration effect) of increasing other companies' motivation for improving their own quality, productivity and efficiency. Typical examples of these awards are: the Deming Prize and the Japan Quality Medal (JUSE), the Japan Quality Award (JPC) and the JMA Human Resources Development Excellence Award (JMA).

They also promote public relations/education activities through their bulletins. JUSE publishes a monthly magazine entitled *Quality Management*, JPC publishes the *Seisansei Shimbun* (Productivity Newspaper) three times a month, and JMA publishes *JMA Management Review*. They also undertake other activities, such as the publication of technical literatures, the provision of radio training courses and correspondence courses, and the development of audiovisual training materials (by all three organizations).

To raise the awareness of business managers, executives, production managers and employees toward the improvement of quality, productivity and efficiency, all three organizations hold conventions and symposiums to discuss specific themes. At these conventions and symposiums, successful companies often present important achievements that they have attained by applying production management technology. These events were also utilized to stimulate the other participating companies to work harder. Some of these conventions and symposiums are attended not only by company members but also by the general public.

Furthermore, JUSE, JPC and JMA all promote nationwide public relations/education activities. JUSE annually holds the Deming Prize Award Ceremony during its Quality Improvement Month and creates slogans for nationwide quality improvement campaigns. JPC has issued “declarations” whenever required, while JMA has published various “suggestions” in order to attract the interest of those working in industry and of the general public.

2-2-2. Categorizing the activities of the three organizations

The activities of the three organizations described above are developed in three stages: introducing or learning new technologies (including techniques and approaches) (first stage); examining their adaptability and validity and then making adaptation and implementing pilots (second stage); and widely diffusing the developed technologies that have been adapted and validated (third stage). Their activities in the three stages of technology transfer can be categorized (abstracted) in the following table (see Table 2-1).

JUSE, JPC and JMA have successfully managed their activities in all three stages shown in Table 2-1. These organizations did not possess management capabilities from the beginning, but acquired the capabilities required throughout all the stages by undertaking activities to achieve their respective goals. The experiences of the three organizations suggest that the most crucial factor required for developing countries to continuously introduce and diffuse production management technology is the formation of management capabilities in the “three stages of technology transfer.”¹¹

¹¹ There are the terms used in the existing research papers and literatures on technology transfer, such as “social capability for technology absorption,” “social capability,” “society’s technological capability,” “social capability for

Table 2-1. Categorization of the Activities of the Three Organizations

Stage	First stage	Second stage	Third stage
Main Activities	Introducing or learning new technologies, skills, and approaches	Examining the adaptability and validity of the introduced or acquired technologies, skills, and approaches, including pilot implementation	Widely diffusing technologies, skills, and approaches that have been adapted and validated.
Specific activities	<ul style="list-style-type: none"> - Sending study missions and presenting reports - Inviting prominent experts/researchers and holding training sessions - Obtaining literature and materials for translation - Sending students and long-term trainees abroad 	<ul style="list-style-type: none"> - Establishing committees and study groups (industry-government-academia joint research) - Trial introduction of new technologies (modification and development) 	<ul style="list-style-type: none"> - Provision of consulting services (advice and guidance) - Personnel training (including training for promoters/specialists and instructors) - Qualification certification systems - Award systems - Conventions and symposiums - Public relations/education activities (publication of bulletin and technical books) - Suggestions and declarations

Note: Compiled by the author based on materials from JUSE, JPC and JMA

2-3. Conditions that supported the activities of Japanese private organizations

The year 2010 marked the 64th anniversary of the establishment of JUSE, the 55th of JPC and the 68th of JMA. All these organizations have continued to provide their services for over half a century. In general, an organization loses its *raison d'être* when it has completed its mission. The fact that they are active more than fifty years after their establishment suggests that there is still a need for their services from industry and the Japanese public.¹² We are therefore led to conclude that they still have missions and roles to play in Japanese industry.

What then are the reasons why the three organizations have continued to play an important role over

industrialization.” More details on these terms will be analyzed in my upcoming doctoral dissertation. In my opinion, “management capability in the three stages of technology transfer” in this paper is a narrower concept than that of the above terms, but more specific. They are used in the following materials:

“social capability for technology absorption”: Ohkawa, Kazushi and Henry Rosovsky, *Nihon no Keizai Seicho: 20 Seiki ni okeru Susei Kasoku* [Japanese Economic Growth: Trend Acceleration in the Twentieth Century], Toyo Keizai, 1973.

“social capability”: Watanabe (1986), and idem, *Seicho no Ajia, Teitai no Ajia* [Asia; its Growth and Agony], Kodansha, 2002.

“society’s technological capability”: Nakaoka (1991).

“social capability for industrialization”: Suehiro (2002).

¹² As a result of the Lehman Crisis that occurred in 2008 in the US and subsequently spread worldwide, the number of participants in the training courses and seminars by these organizations is decreasing.

so many years in improving quality, productivity and management efficiency in Japanese industry? What special conditions were required to enable them to play their roles? Furthermore, are these conditions unique to Japan, or can they also be applied to developing countries?

In this paper, we will analyze the following six conditions, which provided considerable advantages to the three organizations in developing their activities: (i) the strong need for production management technology; (ii) collaboration among industry, government and academia; (iii) strong leadership of top management of private organizations; (iv) capacity of private companies to absorb and develop new technologies; (v) collaborative relationship between managers and workers; and (vi) the establishment of various national systems to support their activities. We will analyze these conditions in turn.

2-3-1. Strong needs for production management technology

Devastated by the Second World War (WW2) and with scarce natural resources, Japan was faced with the strong needs to promote industries that exported goods by processing resources imported from abroad in order to survive in the post-war world. At that time, Japan lagged behind Western countries in terms of its product quality and manufacturing productivity. The poor quality of Japanese products attracted the attention of GHQ (General Headquarters, the Supreme Commander for the Allied Powers), which occupied Japan shortly after the end of the WW2. Manufacturing productivity in Japan was said to be one-ninth or one-eighth of that in the US and one-third of that in Germany (Ohno, 1978/2005, p.8). The US Embassy in Japan even offered support to improve Japan's productivity level. The three organizations frequently sent missions to the US in order to study their measures for improving quality and productivity, as well as methods and approaches for production management technology. Japanese companies actively sent their employees to the education/training programs held by these organizations. These facts show that there was a strong need for production management technology among Japanese companies. During the post-war period, Japanese industries and companies had a strong motivation to absorb production management technology, which led them to actively participate in the activities promoted by the private organizations. In other words, the activities of respective organizations evolved, driven by the strong need for new production management technology among Japanese companies.

2-3-2. Collaboration among industry, government and academia

Since their establishment, the three organizations have successfully mobilized support and cooperation from government and academia for their activities.

JUSE has received the cooperation of scholars and researchers since its establishment. In particular, its association with Dr. Deming (an American statistician) provided an opportunity to strengthen the

cooperation with statisticians and stochastics, which facilitated the introduction, research and development of new technologies and methods for quality improvement.¹³ Scholars actively collaborated, as they considered it a good opportunity to apply their theories in practice. Related government agencies and local governments also provided cooperation and support through hosting or co-hosting the events annually held by JUSE during its Quality Improvement Month.

As an organization established based on a Cabinet resolution, JPC has received support from government and academia from the beginning. Despite their initial opposition, labor organizations also participated in the productivity improvement movement.¹⁴ As mentioned above, the participation of labor organizations in this movement was of crucial importance, because the active participation of employees and factory workers in productivity/quality improvement movement was essential to the development of production management technology based on QCCs and small-group activities.

As for the relationship with academia, these organizations invited university professors as directors or members of various committees.¹⁵ JPC also received support from abroad (the US). From its foundation in 1955 until 1961, JPC received support from the US government for its various activities, such as sending study missions, inviting experts from abroad, collecting literature and information, and making movies on technologies.

During the WW2, JMA, as a private consulting organization, promoted the rationalization and efficiency improvement of manufacturing processes, and also provided training for factory workers in the war industry. For this reason, JMA received subsidies from the Japanese government. However, these subsidies were terminated by GHQ in 1945, when the war ended, presumably because the association had been working for the war industry. This is in sharp contrast to JPC, which received financial support from the US government.

JMA was not as active as JUSE or JPC in developing relationships with academia. This is probably due to the “association’s three major principles” which were formulated by its first Chairman, Takuo Godo. The three principles are: developing an efficiency improvement movement with Japanese characteristics; placing emphasis on practice over theory; and making a focused effort. Godo’s views about the relationship with academia can be seen from his statement on the emphasis of “practice over theory”: “Theories of manufacturing efficiency, production technology and management discuss

¹³ Tetsuro Nakaoka, emphasizes the importance of JUSE’s function of “promoting communication among industry, government and academia.” (Nakaoka, 1980, vol. 82, No. 3, p.57).

¹⁴ The General Council of Trade Unions of Japan made a statement in February 1955 that they would not participate in the productivity movement. However, the Japan Federation of Labor made their decision to follow the movement in June and officially joined in September (see JPC-SED, 2005b).

¹⁵ Ichiro Nakayama, President of Hitotsubashi University, was appointed as the JPC’s first Vice-Chairman. (The President was Taizo Ishizaka, Chairman of Keidanren, and another Vice President was Shigeo Nagano, President of Fuji Iron & Steel Co., Ltd).

general principles that do not address specific and individual conditions. These academic arguments do not serve companies or factories well.” (JMA Group Collaboration Promotion Committee, 2010)

2-3-3. Strong leadership of top management of private organizations

JUSE, JPC and JMA were committed to and actively engaged in various activities to achieve their respective objectives. Of particular importance is the fact that the top management of each organization had a strong sense of mission and leadership.

JUSE’s first Chairman Ichiro Ishikawa and first Managing Director Kenichi Koyanagi, JPC’s first President Kohei Goshi, and JMA’s first Chairman Takuo Godo and President Kakuzo Morikawa are legendary figures who exercised strong leadership and played important roles in their respective organizations.

Ichiro Ishikawa of JUSE, who also served as the Chairman of *Nippon Keidanren* (herein after referred to as *Keidanren*), made considerable efforts to persuade Japanese industrial and business leaders of the importance of improving product quality. JUSE’s Managing Director Kenichi Koyanagi invited Dr. Deming to Japan and contributed to the establishment of “the Deming Prize.”

At the time of JPC’s establishment, the General Council of Trade Unions of Japan announced that they would not participate in the productivity improvement movement. In response to this announcement, JPC’s first President Kohei Goshi strongly urged labor unions to join the movement by carrying his message in “*Rondan*” of the *Asahi Shimbun*,¹⁶ which resulted in the participation of the Japan Confederation of Trade Unions. Goshi emphasized that the goal of productivity improvement was to increase employment and raise the level of real wages. His message was also of great historical significance in that it attracted public attention to the hitherto little known productivity improvement movement.

Takuo Godo of JMA is regarded as amongst “the three pioneers of the efficiency improvement movement.” Godo, worked at the Kure Naval Arsenal before joining JMA,¹⁷ promoted the efficiency improvement movement. Apart from him, Okii Yamashita¹⁸ of the Japanese National Railways and Yoichi Ueno¹⁹ who worked in the private sector, promoted the movement from their own standpoints.

¹⁶ Dated February 21, 1955. JPC-SED (2005b), pp. 9-13.

¹⁷ The Kure Naval Arsenal is the shipyard where the battleship *Yamato*, which was the biggest battleship in the world at the time, was constructed during the WW2. Various technologies adopted for the construction contributed to the progress of production management technologies in postwar Japan.

¹⁸ After working at the South Manchuria Railway Co., Ltd., Okii Yamashita joined the Japanese National Railways (Today’s Japan Railway Company). He achieved remarkable results in technology management and established the Japan Industry Association, forerunner of JMA. He started their consulting services by recruiting experts that could lead companies (see JMA Group Collaboration Promotion Committee, 2010).

¹⁹ Yoichi Ueno (1883–1957) was a psychologist and later became a researcher in industrial efficiency and scientific

These three people achieved outstanding results and are known respectively as “Godo of the military,” “Yamashita of the government,” and “Ueno of the private sector.” (JMA Group Collaboration Promotion Committee, 2010)

They all had the foresight to understand the importance of improving product quality, manufacturing productivity and management efficiency in Japanese industry. They led their respective promotion movements with a strong sense of mission.

2-3-4. Capacity of private companies to absorb and develop new technologies

Establishment of the organizations that promoted production management technology, led by strong top management, is not enough for a successful transfer of technology. It is indispensable that the companies have the desire and capacity to absorb new technologies.

Japanese industries and companies, including JUSE, JPC and JMA, possessed the capacity to absorb new technologies and techniques introduced from the West. Here, the absorptive capacity of new technologies means that the companies’ top management and engineers had knowledge to understand the relevant skills and techniques and the desire to adopt them. In addition, factories must have workers capable of absorbing the new technologies.

Dr. Deming, who was invited by JUSE to teach statistical methods for quality control, is said to have been deeply impressed by the fact that many Japanese engineers understood and acquired the methods in a short period. This means that Japanese business managers and engineers already had knowledge of statistics and stochastics as well as the capability to understand the new techniques and approaches of quality management taught by Dr. Deming. Tetsuro Nakaoka analyzes this point in his paper “The Scientific Management Movement in Japan during and after the Second World War.” (Nakaoka, 1980, vol.82, No.3) The following paragraph quoted from his paper reveals the secret of the success of the quality improvement movement in Japan and has important implications for technology transfer in developing countries in the future.

“The quality management movement during this period (when JUSE was established – note by Kikuchi) was aimed exclusively at learning from the US. It was therefore a one-way flow of technology, which can be accurately described by the term “technology transfer.” However, the acquired techniques themselves were based on the mathematical theory of stochastics. These

management. He introduced management philosophy and technology from the US into Japanese industry and became the first management consultant in Japan. In 1925, he established the Japan Management Research Institute, forerunner of SANNO College. After the WW2, he worked as a Commissioner of the National Personnel Authority on the establishment of the Japanese civil service system. He also established SANNO College in 1950 and greatly contributed to the modernization of Japanese business management. (<http://www.mi.sanno.ac.jp>).

techniques were not something that could be acquired simply with the decision to learn about the advanced production management methods of other countries. I would like to emphasize that what was of crucial importance for the quality management movement during this period was the capability of the Japanese to immediately comprehend and develop the theories learned, to adapt the techniques suitable for Japanese industry, and to diffuse them far more broadly than the US did. Dr. Deming, known as the father of the quality management movement in Japan, also believes that the extensive knowledge of stochastics that had been accumulated in Japan before his teaching was the secret of the success of the quality management movement there.”²⁰

As Masatake Wada states in his paper “Technology Transfer and Policy Support—Today’s Developing Countries as Recipients of New Policies,”²¹ the process of adopting industrial technology in Japan from the Meiji Restoration through to the postwar period was supported by private companies. Japanese private companies played active roles in introducing advanced industrial technology from Western countries, absorbing and applying it into their own production activities, and even exporting their own products, with a higher quality than those of Western countries, to the global market. Wada points out that this success was due to such factors as: the high motivation of recipients for learning new technologies; their constant efforts to understand the essence of modern technologies; and their recognition, through their own experiences, that the basic culture of Japan and Western countries were different so the technology developed in the West was unsuitable for use in Japan in its original form. In other words, Japanese companies, in adopting new technologies, had the capability to understand what was required to absorb new technologies.

One of the principal management policies that the JMA has adopted since its establishment is the formulation and establishment of a management efficiency improvement method with Japanese characteristics. Based on this policy, JMA has followed a strategy to develop unique technologies and techniques. Its goal is to contribute to the development of Japanese industries and companies by adapting knowledge and technology to the Japanese cultural climate rather than simply importing it from abroad. (JMA Group Collaboration Promotion Committee, 2010)

Meanwhile, one of the JPC’s three guiding principles specifies that, “labor and management must cooperate in researching and discussing specific methods to improve productivity, in consideration of the specific circumstances of companies.” Based on this principle, JPC has promoted research activities through cooperation between labor and management. From this perspective, it can be said

²⁰ Nakaoka also points out the factors that enabled Japan in the postwar period to adopt production management technology from Western countries and develop their own technology. According to him, this was because the groundwork for the development had already been laid down during the war. In other sources, similar concepts are also stated that the Japanese technology development in the Meiji period was not just a miracle, but due to the groundwork for the development prior to that Period. (Nakaoka, 2006 and Nakaoka et al., 1995).

²¹ Hashimoto (2008), pp. 123-140.

that JPC has contributed to creating an environment for improving the capacity of individual companies for technological development.

As Masatake Wada points out, it is likely that the cultural climate of Japan forms the general background of the industry to develop the capacity to absorb new technologies (capacity to improve the existing technology and adapt it to specific circumstances).

2-3-5. Collaborative relation between managers and workers

Improvements in quality, productivity and efficiency all require the understanding and cooperation of employees and factory workers involved in the production processes. No matter how much improvement is made to quality or productivity, failure to distribute the benefits to employees and workers leads to dissatisfaction among them and causes difficulties in the process of adopting production management technology. In Japan, a collaborative relationship has been maintained between management and labor. Although there was opposition to joining the productivity improvement movement among labor unions when JPC was established, they soon agreed to cooperate with the movement. This was made possible partly due to strong persuasion from JPC's top management, but it was also a result of an appeal to the workers from the President of the Japan Confederation of Trade Unions that the productivity improvement movement would also bring benefits to workers. He insisted that promoting conflict between management and labor in a small country like Japan, and trying to solve all problems by class struggle, would only lead to the destruction of the nation. (JPC-SED, 2005b, p.39)

Tetsuro Nakaoka also points out, in his paper "The Scientific Management Movement in Japan during and after the Second World War" cited above, that there was no conflict between management and labor in Japan, unlike the case of the US.²²

In Japan, new production management technologies were developed by adopting the ideas and suggestions of workers, as well as by responding to their complaints. Technologies, methods and approaches for production management were improved and developed through daily improvement activities (*kaizen*) based on collaboration between management and labor. These trends were common not only at major companies but also small and medium enterprises (SMEs), which was probably due to the JPC's three principles adopted at the time of its establishment. As mentioned above, these principles emphasize that "labor and management must cooperate in researching and discussing concrete methods to improve productivity giving consideration to the company's specific

²² "In contrast to Taylor's scientific management movement, which often led to head-on clashes with the labor union movement in the US, the scientific management movement in Japan did not cause any outright confrontation with the labor union movement." (Osaka City University, *Keizaigaku Zasshi* (Journal of Economics), op. cit.)

circumstances,” and that “the fruits of the productivity improvement should be distributed fairly among labor, management, and consumers in line with the state of the national economy.” (JPC-SED, 2005b, p.38)

It can be said that the collaborative relationship between management and labor was one of the key factors that facilitated the adoption and diffusion amongst Japanese companies of production management technologies and methods, such as Toyota Production System (TPS), TQM, TPM and QCC activities.

Frederick W. Taylor, who proposed the scientific management method in the US, also acknowledged the importance of the relationship between management and labor. He wrote that, “This close, intimate, personal cooperation between the management and the men is of the essence of modern scientific or task management.”²³ These words, written exactly a century ago, had been followed by Japan much faithfully than the US.

2-3-6. The establishment of various national systems to support their activities

Quality management was developed with the sincere efforts of Japanese industries and companies, for example, by attending lecture sessions held by the GHQ’s Civil Communication Section, and instructions and lectures by W. Edwards Deming and Joseph M. Juran, American statisticians. In addition, there were various national systems that played important roles in the development of quality management technology in Japan.

The Japanese standards system is one such crucial system. Based on the Industrial Standardization Act established in 1949, systems such as the factory labeling permission system of the Japanese Industrial Standards (JIS) and the commendation system for excellent factories with good performance (since 1953), promoted the diffusion of the standards systems in Japan. (MITI Trade and Industry Policy Editorial Board, 1990, p.352) According to Masatake Wada, “When certifying products for the JIS label, not only the products themselves but also the factory’s quality management systems and facilities were examined, in order to check whether they had enough capacity to meet the standards. Around 1,500 product items were selected for the JIS label. These items were originally chosen with the aim of improving quality, rationalizing production, simplifying transaction procedures, promoting fair trade, increasing international competitiveness and promoting SME’s technological improvement.” (Wada, 2009, p.67)

This standards system enabled SMEs in Japan to make positive efforts to improve their quality and

²³ Taylor, 2009/2010, p.30 (English original: Frederick W. Taylor, *The Principles of Scientific Management*, New York: W. W. Norton & Company, 1911, p.26).

technological skills. Some people even argue that this system has made a major contribution to the creation of high-quality industrial products in Japan today.

The export inspection system in Japan also contributed to improving the product quality of Japanese companies.

Products exported from Japan shortly after the WW2 were labeled as poor-quality goods by importing countries, where movements to restrict imports from Japan gathered strength. The Japanese government, forced to take measures to prevent the export of poor-quality products, enacted the Export Inspection Act in 1957 in order to enhance the inspection system and improve the quality of export products. The following gives an outline of the Act. (MITI Trade and Industry Policy Editorial Board, 1994, pp.334-335)

- Goods designated by government ordinances must be inspected by a government organization or government-designated inspection organization before they are exported.
- Export inspections include inspections of product quality, packaging conditions, materials, and manufacturing.
- Inspection organizations with the capability to conduct fair inspections and perform public functions are designated based on application and are placed under the supervision of the government.
- Provisions regarding orders to suspend illegal exports and crimes related to attempts to export illegal goods are specified.²⁴

Based on this Act, on-site inspections were conducted annually by government organizations. As a result, the percentage of rejected products decreased from 2.1% in 1960 to 0.8% in 1965 and to less than 0.5% in 1969. These results show how this system contributed to the improvement of product quality. (MITI Trade and Industry Policy Editorial Board, 1989, p.142)

In his paper “Japanese SME Policies in the Postwar Period” (*The Teikyo University Economic Review*, vol. 42, no. 2, March 2009), Masatake Wada evaluates the government’s policies that contributed to the improvement of the technological skills of SMEs in Japan. He mentions that apart from the export inspection system and the standards system mentioned above, the *Shindan* system (management consultant system) and *Kosetsushi* (public research organizations) played important roles.

The *Shindan* system is a “SME management consultant system” in which public organizations

²⁴ While there was progress in the development of the inspection system for quality improvement, problems regarding design duplication became more serious. In order to prevent these problems, the Export Product Design Act was enacted in April 1959 (MITI Trade and Industry Policy Editorial Board, 1994, p.335).

evaluate SME's business performance and provide them with advice and consultation for improving their management systems and facilities. In 1948, the Small and Medium Enterprise Agency was established under the Ministry of International Trade and Industry (MITI) based on the Outline of SME Measures adopted by the Cabinet. Then the *Shindan* system was adopted by the MITI's regional office, prefectures and five principal metropolitan areas of Japan. According to Wada, more than 10,000 consultations were provided to companies in 1950 upon the adoption of the scientific management method. This result shows not only the keen interest of individual companies in the new management technology, but also the deep and nation-wide influence of the *Shindan* system. A visiting consulting system was also established in 1952. (Wada, 2009, p.65)

Unlike national research institutes, *Kosetsushi* are the public research organizations which conduct public testing and research that meet the industrial needs of local communities. These institutions conduct tests and inspections and provide technological information to local SMEs. Through these services, they have greatly contributed to improving the technological skills of local SMEs, their quality and productivity. Data as of 1997 shows that more than 600 public research organizations have been established by municipalities, including 32 organizations created by prefectures. (Wada, 2009, p.65)

2-4. Conditions required of public organizations in charge of the introduction and diffusion of production management technology in developing countries

In this section, we will examine the conditions that enable public organizations in developing countries to successfully introduce and diffuse production management technology, based on the experience of private organizations in Japan.

As mentioned above, the following conditions were needed for Japanese private organizations to play their important role in the introduction, development and diffusion of production management technology: (i) the strong needs for production management technology; (ii) collaboration among industry, government and academia; (iii) strong leadership of top management of public organizations; (iv) capacity of private companies to absorb and develop new technology; (v) collaborative relationship between managers and workers; and (vi) the establishment of various national systems to support their activities. All of these conditions are required not only for Japanese private organizations, but also for those in developing countries. In this section, we analyze these conditions in turn in order to examine whether they can be replicated in developing countries.

The first condition that enabled Japanese private organizations to develop their activities was the strong need of Japanese private companies for production management technology. Where did those needs come from? The Japanese economy was completely devastated by the WW2. To restore the

national economy, Japan as a country with scarce natural resources needed to promote the processing trade (exports) and improve product quality and productivity through collaboration between the public and private sectors. Such historical needs existed at the time.

Whether or not production management technology can be successfully adopted depends on the needs of companies for the technology. Needless to say, the circumstances of today's developing countries can not be the same with those of postwar Japan. However, the current progress of economic globalization makes it imperative for all companies—in both advanced and developing countries and regardless of whether or not they are exporting their products—to improve their competitiveness. Therefore, companies in all industries are faced with the need to enhance their competitiveness. Industrial technologies in the manufacturing industry include business management technologies, research & development and design technologies, manufacturing technologies, and production management technologies. In order to improve overall competitiveness, it is necessary to enhance all of these technologies. Although the adoption of technologies other than production management is also required, there is likely to be a potential need amongst the companies of all developing countries for production management technology in order to enhance competitiveness.

Secondly, in Japan, industry, government and academia worked together to assist private organizations in their efforts to improve quality and productivity. They cooperated with each other to actively adopt related technologies and techniques from advanced Western countries, examining their adaptability and validity for Japan and promoting them accordingly. Are these conditions replicable to today's developing countries? Although the possibilities for such collaboration vary from one country to another, private organizations are generally not fully developed in developing countries. Nevertheless, collaboration among industry, government and academia is essential for the development of technology in any country in the long run. Government organizations in charge of the introduction and diffusion of production management technology need to build collaborative relationships with private sectors and academia, through promoting private organizations and keeping close contact with universities. I was engaged in several technical cooperation projects, such as Japan International Cooperation Agency (JICA) technical assistance for Tunisia (The Study on Formulation of a Master Plan for Quality/Productivity Improvement in Tunisia, from August 2006 to July 2008) and for Argentina (The Study on the Diffusion Plan for the Business and Production Management Technology for SMEs in the Argentine Republic, from April 2009 to March 2010). My experience in these projects confirms that the introduction development and diffusion of production management technology cannot be carried out by government organizations alone and that collaboration among industry, government and academia is indispensable for achieving successful results.

Thirdly, the top management of the three Japanese organizations all had a strong sense of mission and were committed to developing companies and industries in order to advance the postwar economic

recovery. They demonstrated strong leadership in introducing and diffusing the production management technology. Their commitment and leadership promoted the activities of the respective organizations and stimulated the interests of business managers and engineers in production management technology. In developing countries where private organizations are not yet fully developed, the top management of public organizations will be required to assume such roles. In this respect, the top management of the counterparts (public organizations) in both the Tunisian and Argentine projects fully recognized the importance of production management technology and were firmly committed to its promotion. The existence of such institutions is essential for the development of technology. The prime minister of an African country, who was informed of the JICA cooperation project in Tunisia, requested that Japan provide similar support to his country. As a result, a cooperation project is currently underway and preparations are being made to establish a core organization responsible for the introduction and diffusion of production management technology in his country. There is no doubt that government initiatives like this will make it easier to introduce and diffuse production management technology. However, government leaders do not always have a proper understanding of production management technology, nor do they always exercise strong leadership in promoting it.

Fourthly, Japanese private organizations had the capacity to absorb new technologies, improve the original technologies and methods introduced from the West, and develop them further on their own. This effectively means that Japanese companies had personnel with the necessary educational background, technical knowledge and experience. Countries like Tunisia and Argentina still lack such personnel. This is due to the small number of production management technology courses available in universities and technical colleges, as well as the lack of practical experience in factories. Therefore, with a view to developing human resources for the future, core government organizations will be required to collaborate with academia and industry and improve the capacity of companies and industries to absorb and develop technology.

Fifthly, the collaborative relationship between management and labor, involving factory workers and employees, promoted the improvement of quality and productivity in Japan. Most developing countries are unlikely to follow the example of Japan from its beginning. However, in our pilot projects in Tunisia and Argentina, we introduced new technology on an experimental basis in order to check its adaptability and validity. Considering the local counterparts' performance, we acknowledged the following points: even if there is not much communication between managers and workers, workers became more cooperative, once they had understood that the introduction of the 5S (the 5S stands for *Seiri* (Sort), *Seiton* (Straighten), *Seiso* (Shine), *Seiketsu* (Systematize) and *Shitsuke* (Standardize/Self-discipline), which are the five basic principles for effective management in the workplace) improved their working environments; and if the management placed suggestion boxes to ask for workers' ideas and gave incentives to the workers whose ideas were adopted, their motivation

for participation increased. These findings suggest that developing a collaborative relationship between management and labor may not be easy, but is nevertheless possible.

Finally, various national systems, such as the export inspection system, designated factory system based on JIS and *Kosetushi*, supported the activities of Japanese private organizations. In particular, the following incentives contributed to improving the product quality of the companies in Japan: there was a period when all export products had to be inspected, therefore exporting companies had no other choice but to improve their product quality; JIS labels guaranteed the product quality and helped to earn customers' trust and increase sales; and technical consultation services were always available at public research organizations nearby. The establishment of such favorable conditions may not be expected immediately in developing countries. Therefore, the core government organizations in developing countries will be required to examine how to establish systems and frameworks appropriate for their respective countries, in the process of introducing and diffusing product management technology.

It can be concluded that although developing countries may not satisfy the same conditions that supported the activities of the three Japanese organizations in Japan, similar conditions are required for any organization—whether public or private—in order to introduce and diffuse new technologies.

2-5. Conclusion

In this paper, we analyzed and generalized the activities of three Japanese organizations (JUSE, JPC and JMA) in the introduction, development and diffusion of production management technology after the postwar period. This paper aims at drawing implications for the public organizations of developing countries that will be in charge of the introduction and diffusion of production management technology in the future.

Apart from these three organizations, many other private organizations (e.g. industry associations²⁵) have worked towards the introduction and diffusion of production management technology in Japan. Although the scope of their activities is more limited, they have also been engaged in activities similar to those of these three organizations (sending study missions, conducting research, providing education and training seminars, developing public relations activities, etc.).

Will developing countries need as many organizations as in Japan to introduce and diffuse production management technology? Although conditions may vary from one country to another, it is not always necessary to have as many organizations. If only one organization were to perform all the functions

²⁵ In addition to JUSE, JPC and JMA, there are many other associations and organizations specializing in specific business fields. They have also sent overseas missions to Western countries in order to acquire new technological information.

required for improving quality, productivity and efficiency, conflicts or difficulties are unlikely to occur. The top priority in developing countries is to establish organizations that can play a pivotal role in the introduction and diffusion of production management technology. It would be preferable to leave the role to the private sector as much as possible. But in many developing countries, where private organizations are not yet fully developed, public organizations are expected to play a central role.

Our analysis in this paper was limited to three Japanese private organizations and we did not analyze the activities of private companies as recipients of transfer of production management technology. A further study is required of how the activities of JUSE, JPC and JMA have affected private companies in the introduction, development and diffusion of technology. Such a study may reveal more about the roles of these three organizations.

Many of the existing research papers on technology transfer analyze the capacity and initiatives of recipients to absorb new technologies rather than those of providers. Although technology transfer itself is a one-way flow of technological knowledge, the communication process flows two ways. (Rogers, 2007) It is therefore necessary to study the conditions and capacity²⁶ required for the providers of technology.

In the three stages of transferring production management technology, all three Japanese organizations possessed the necessary capabilities to develop the activities required at each stage and to manage these activities through all three stages. Of course, these organizations did not have such capabilities from the beginning, but developed them step by step by undertaking various activities to achieve their respective goals. It is recommended that when Official Development Assistance (ODA) projects support public organizations in charge of the introduction and diffusion of production management technology, a final goal should be set in developing their capability to manage the three stages of transferring production management technology.

²⁶ The capabilities required of the donors will be analyzed in detail in my upcoming doctoral dissertation, by referencing “Study on Human Resources Development Policy in the International Cooperation Field (Human Resources Assignment Department, JICA, 2002).”

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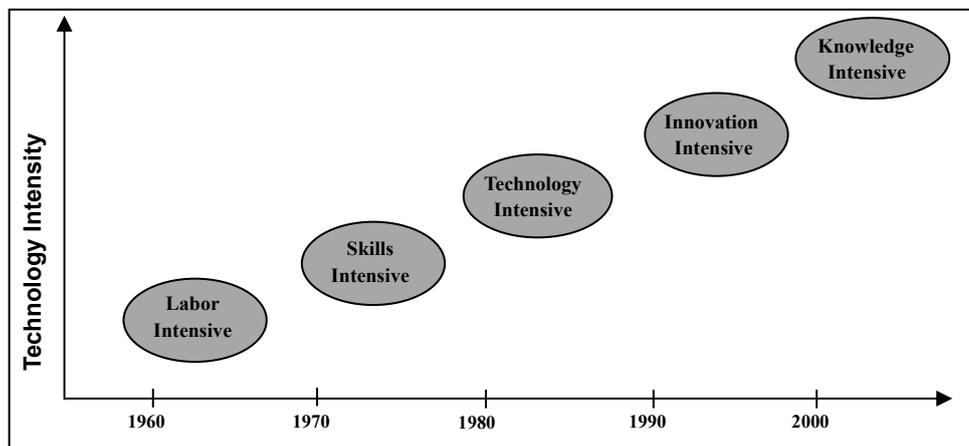
Chapter 3 Productivity Movement in Singapore

Izumi Ohno¹ and Daniel Kitaw²

3-1. Introduction

Singapore is a small citystate with total population of about five million.³ It is a multicultural country, with ethnic composition of Chinese 74%, Malay 13%, Indians and others 13%.⁴ Singapore faced severe racial, religious, and political turmoil, intensified by its 1965 separation from Malaysia (Lee, 2000). With no natural resources, the only significant resource Singapore had was (and is) manpower. The government has placed its highest priority on human resource development and made proactive efforts to enhance labor productivity and global competitiveness. Since the 1960s, the Singaporean economy has undergone significant development. The country has grown from its traditional role as a regional port and distribution center in the 1960s to an international manufacturing and knowledge-intensive technical services center (Lee et al., 2008). Its per capita income grew from USD533 in 1965 to USD37,220 in 2009.⁵

Singapore's industrial development can be divided into five phases: labor-intensive in the 1960s, skills-intensive in the 1970s, technology-intensive in the 1980s, innovation-intensive in the 1990s, and knowledge-intensive in the first decade of the 21st century as can be seen in the figure below.



Source: Chan Lee Mun (2008), Figure 6.2

Figure 3-1. Singapore's Industrial Development Phases

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³ According to the Department of Statistics, Singapore, total population was 5,076,700 in 2010. Total population comprises Singapore residents (i.e., Singapore citizens and permanent residents) and non-residents.

⁴ Figures are the ethnic composition of the Singapore residents as of June 2010. Based on the Department of Statistics, Singapore.

⁵ Based on the World Development Indicators, World Bank. Gross National Income (GNI) per capita.

It is widely held that the national productivity drive made an important contribution to this Singaporean miracle. In 1981, the Singaporean government launched the Productivity Movement at all levels of the economy to sharpen the country's competitive edge. The movement was initiated domestically, with strong leadership of the then Prime Minister Lee Kuan Yew. After meeting with Mr. Kohei Goshi, the then Chairman of the Japan Productivity Center (JPC), Lee Kuan Yew immediately requested the Japanese government to transfer Japan's productivity improvement know-how. To support this national initiative, the Japan International Cooperation Agency (JICA) implemented the Productivity Development Project (PDP) during 1983–1990. The PDP was the first project that JICA provided comprehensive technical cooperation for productivity improvement. Singapore became quite successful in at internalizing, scaling up, and institutionalizing the Productivity Movement, and the country now offers technical cooperation in this area to developing countries. Even now, productivity continues to be high on the national agenda. Singapore is among the top three most competitive countries in the world (World Economic Forum, 2010) and is the best business environment worldwide (World Bank and IFC, 2010).

The Singaporean experience demonstrates the importance of six common factors for a successful national movement (discussed in Chapter 1). Moreover, Singapore presents a case of a government-led movement—unlike Japan where the private-sector-led *kaizen* movement took place thanks to strong private sector dynamism. Thus, its experience should serve as a useful reference for the governments of developing countries striving to enhance private sector capability by transforming the popular mindset.

This chapter is organized as follows. First, it will review the history of the Productivity Movement and its three-stage evolution. It will then explain the institutional framework for the Productivity Movement, giving attention to the channels of scaling-up and the role of key agencies involved. It will also discuss how the JICA project (PDP) supported Singapore's productivity improvement, including the country's process of graduating to become a donor in this area. Finally, it will explain the most recent national drive to boost skills and enterprise productivity.

The analysis will give special attention to the following factors that contributed to the success of Singapore's productivity movement.

- High-level political commitment, including strong leadership by Prime Minister Lee Kuan Yew himself
- Evolution of national productivity organizations as the core agencies charged with productivity development
- Institutional mechanisms involving all parties concerned, particularly tripartite cooperation among the government, industry, and labor unions

- A massive campaign aimed at awareness raising, and subsequent company-based, practical consultancy to translate the awareness into specific actions for productivity improvement
- Development of management consultancy capability in the private sector, by designing systems and incentives to mobilize those trained under the JICA project.

3-2. History of the Productivity Movement

3-2-1. Creation of a national productivity organization

Singapore's interest in productivity dates back to the early days of independence. The first step was the creation of the Productivity Unit within the Economic Development Board (EDB) in 1964 and creation of the Charter for Industrial Progress in 1965. The Charter for Industrial Progress is a joint declaration by employer groups and unions to work together to increase productivity under a Productivity Code of Practice. This historic joint declaration was witnessed by the Ministers for Finance and for Labor. The Charter also proposed the establishment of the Singapore Productivity Center as a national productivity organization to promote productivity in Singapore.

In 1967, the National Productivity Center was established under the EDB. Since then, national productivity organizations have evolved with the stages of development and the needs of the Singaporean economy (Table 3-1). In 1972, the Center was upgraded to a separate agency, the National Productivity Board (NPB), and in 1981 the government launched the Productivity Movement. The movement continued for about two decades. The NPB was made the principle agency to implement this national productivity drive. Separately, the Singapore Productivity Association (SPA) was established in 1973 as an affiliated body of the NPB with the purpose of promoting active involvement of organizations and individuals in the Productivity Movement and spreading the idea of productivity and its techniques. In 1996, the NPB merged with the Singapore Institute of Standards and Industrial Research to become the Productivity Standard Board (PSB). In 2002, the PSB's productivity-related functions were transferred to the Standards, Productivity and Innovation Board (SPRING).

Table 3-1. History of Productivity-related Organizations

Period	Organization	Remarks
1964	Productivity Unit, Economic Development Board (EDB)	1965: Charter for Industrial Progress, Productivity Code of Practice
1967–1972	National Productivity Center - Autonomously run division under the EDB	1971: Tripartite Interim Management Committee (to prepare NPB)
1972–1995	National Productivity Board (NPB) - Statutory body, initially affiliated with Ministry of Labor and later with Ministry of Trade and Industry (MTI)	1973–present: Singapore Productivity Association (SPA)
1996–2001	Productivity Standard Board (PSB) - Statutory body, affiliated with MTI	1981–85: Awareness stage 1986–88: Action stage 1989–90s: Ownership stage
2002–present	Standards, Productivity and Innovation Board (SPRING) - Statutory body, affiliated with MTI	

3-2-2. Driver of Singapore’s Productivity Movement

Despite over fifteen years of efforts to enhance productivity, the leaders of Singapore felt that the country remained far behind other countries in productivity development. In 1979, Prime Minister Lee Kuan Yew was concerned: “Workers here were not as proud of or as skilled in their jobs compared to the Japanese or the Germans.”⁶ In early 1981, Lee Kuan Yew met key Japanese employers in Singapore to discuss practices, work attitudes and productivity in Japan. Immediately, the Committee of Productivity was formed to study Japan’s productivity movement and examine the issues of productivity improvement, work attitudes, and labor management relations. In June 1981, Lee Kuan Yew met with Mr. Kohei Goshi, then JPC Chairman, and was strongly convinced of the need for a Productivity Movement. The Committee of Productivity compiled a report, which emphasized the importance of “human aspects” or mindset change, and proposed the establishment of a high-level council to review productivity efforts and outline future strategy.

Based on this proposal, in September 1981, the National Productivity Council (NPC) was established as an oversight and policy coordination body for the Productivity Movement. The NPC was chaired

⁶ According to Low Choo Tuck, former Director of the Planning Division, SPRING Singapore, by the early 1980s, an increasingly tight labor market had driven up wages. Companies realized that to compete successfully, they must introduce better management systems and more importantly have good labor management relations and teamwork. Nevertheless, the state of labor-management relations then was fragile and there were many industrial disputes.

by the State Minister of Labor (from 1986, by the State Minister of Trade and Industry) with high-level representation from government, employer groups, unions and academia. The first action of the NPC was to launch the Productivity Movement with the NPB as the primary implementing agency. The NPB was re-structured and expanded to carry out its mission of inculcating the concept of productivity in every man, woman and child in Singapore (NPB, 1987).

In this process, the Singaporean government requested bilateral cooperation from the Japanese government for productivity improvement, and the JICA-supported PDP was implemented for seven years. A large number of Japanese experts (including those from JPC) were mobilized. As such, the Productivity Movement in Singapore was primarily a nationally driven initiative. The practices of foreign direct investment (FDI) companies operating in Singapore also served as important benchmarks for assessing Singapore's productivity level.

3-2-3. Concept and principles of the Productivity Movement⁷

In Singapore, “Productivity Movement” refers to the commitment and active involvement by the government, employers and workers in activities to increase productivity. All industries and public sectors—regardless of the scale of these enterprises and organizations—are encouraged to participate in such activities.

According to NPB, the goal of the Productivity Movement is to improve the welfare of the Singaporeans through economic progress based on the three guiding principles.

- Improvements in productivity will increase employment in the long run.
- Government, employers and labor must work together to implement measures to improve productivity.
- Fruits of improved productivity must be distributed fairly among management, labor and consumer.

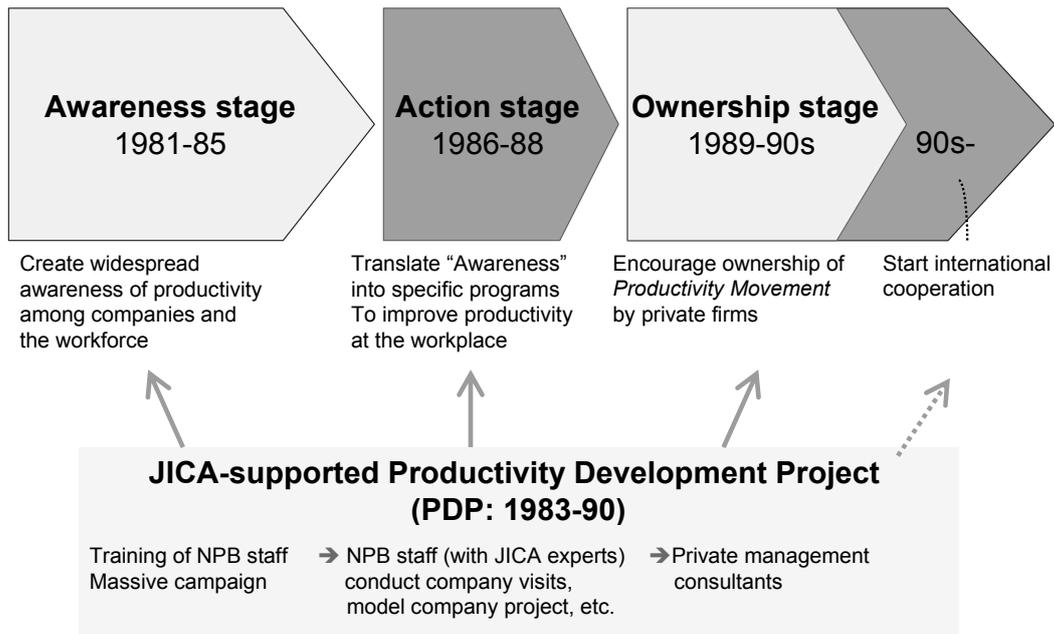
It should be noted that the basic idea on the three guiding principles was drawn from those of the JPC in 1955 (the time of its foundation).

3-3. Three-stage evolution of the Productivity Movement: awareness, action, and ownership⁸

The Productivity Movement in Singapore evolved in three stages: (i) awareness (1981–85); (ii) action (1986–88); and (iii) ownership (1989–90s), as shown in Figure 3-2.

⁷ This section is based on the Power Point material, “Evolution of the Productivity Movement in Singapore,” SPRING Singapore.

⁸ This section is largely based on an interview with Mr. Low Hock Meng, Executive Director of the SPA and the information provided by him to the GRIPS mission on September 2, 2010. Mr. Low was one of the counterparts of JICA-supported PDP.



Source: Elaborated by the author, based on the information provided by Mr. Lo Hock Meng, Executive Director of Singapore Productivity Association (SPA) to the GRIPS mission on Sept. 2, 2010.

Note: Reprinted from Figure 1-2.

Figure 3-2. Evolution of the Productivity Movement in Singapore

3-3-1. Awareness stage

The objective of the awareness stage was to create widespread awareness of productivity among companies and the workforce. The main focus was to foster positive attitudes and to promote teamwork and recognition for companies and individuals.

More specifically, the NPB took the following measures.

- Education of the public: launch of the productivity movement, publication of productivity data, media support, and changes in schools and tertiary institutions.
- Information dissemination and training: delivering courses with emphasis on human relations, creating a library of local case studies on good management practices, maintaining a registry of courses on productivity and management.
- Strengthening company identification: payment of variable bonus, special awards for long-serving employees, house unions, sports facilities (companies given preference during peak periods).
- Promotion of labor-management joint consultation: work excellence committees and quality control circles (QCCs).
- Promotion of productivity in the public sector: productivity campaign in the public sector,

work improvement teams (WITs),⁹ Productivity Working Committee.

- Formation of the NPC with high-level representation from the government, employer groups, unions and academia. This aimed to review productivity efforts and outline future strategy on an annual basis.

Throughout the awareness and action stages, the strong commitment and leadership of the then Prime Minister Lee Kuan Yew was critical. Massive productivity campaigns were launched at both national and company levels. November was designated as “Productivity Month,” in which Lee Kuan Yew delivered annual speeches on productivity starting in 1981 for seven consecutive years.

Moreover, the NPB made a great effort to disseminate the spirit of productivity to the public. They created a symbolic mascot, named Teamy, which was a tiny cute bee character. This Teamy Bee symbolized hard work, team work, and efficiency. Productivity campaign slogan and posters were created in 1982, around the key message “Together We Work Better.” This message was political. Productivity improvement often invites worker resistance because they fear that efficiency gains from improved productivity might lead to unemployment. Mindful of such resistance, this slogan deliberately aimed at creating a virtuous cycle such that: increased productivity will promote growth of the business and economy, which should generate more consumer demand for products; this should bring satisfaction for individuals and more work for workers; as a result, there will be welfare gains for individuals, including workers.

Unlike Japan, Singapore introduced the Productivity Movement to both the business and the public sector. This has had a remarkable impact on popular mindset change. WITs were implemented in the civil service. WITs emphasized worker involvement, participation and bottom-up management; team members worked together and focused on tackling problems facing their common work areas. The Productivity Working Committee was established in the form of a joint committee with management and labor. By the mid-1980s, a high level of awareness of productivity among the Singaporeans was achieved.

3-3-2. Action stage

Then, in the mid-1980’s, the focus shifted from national promotion of productivity to company level promotion. The objective of the action stage was to translate productivity “awareness” into specific action at the workplace through a participatory program. It focused on upgrading the skills of management and workers and upgrading companies’ operational efficiency. In 1986, the total approach to productivity (TAP) concept was introduced. TAP emphasized the productive interaction

⁹ The WIT is a Singaporean adaptation of the Japanese-style QCC concept in the private sector. In Singapore, WITs have been implemented in the public sector, as part of civil service reform program.

of man, machines and systems at the workplace (NPB and JICA, 1990).

In 1986, NPB established a Management Guidance Center to administer various management consultancy programs for local companies (NPB and JICA, 1990). Specific programs and activities implemented under the Center include

- Model Company Project
- Management Consultancy Referral Scheme
- Associate Consultants Scheme
- Industry-based Consultancy Assistance Scheme
- Training of workforce through the Skills Development Fund (SDF)¹⁰

The “Model Company Project” was implemented jointly by the Japanese (JICA) experts and NPB counterparts and provided assistance to companies. This paved the way for on-the-job training (OJT) of NPB staff to equip them with relevant skills. Together with training sessions and workshops, and other company-related productivity improvement programs, the Japanese experts transferred skills to the NPB counterparts under the PDP. The Management Consultancy Referral Scheme and the Associate Consultants Scheme are the systems to mobilize those trained under the JICA project as qualified private management consultants. The NPB allowed private sector participation in the PDP training fellowship in Japan. Those trained became NPB Associate or Referral Consultants. A pool of over 200 associate and referral consultants was created to supplement the NPB’s efforts in reaching out to industries (NPB and JICA, 1990). Furthermore, NPB introduced the Industry-based Assistance Scheme in 1986. The scheme was designed to raise the level of productivity in key industries and assist companies on an industry-wide basis to impact productivity levels. Six priority industries were identified and targeted for assistance under the scheme. The industries included food manufacturing, restaurant, hotel, retail, textiles and garment and finance.

It is notable that under the Management Guidance Center, the NPB assisted companies, particularly small and medium enterprises (SMEs), in improving their business efficiency and productivity management. Cases of successful companies were highlighted to serve as models for the others. NPB also promoted the growth of management consultancy services for SMEs. Some 105 local companies have benefitted from assistance rendered by NPB consultants and Japanese experts, as well as the Associate and Referral Consultants (NPB and JICA, 1990).

¹⁰ SDF was established in 1978 as an employer-based funding that provides financial incentives for staff training. Currently, through SDF, employers can enjoy course fee subsidies of up to 90%, though the amount of subsidies depends on each course. All employers must pay a Skills Development Levy for all workers up to the first S\$4,500 of gross monthly remuneration at a levy rate of 0.25%, or S\$2 per worker, whichever is higher. The Central Provident Fund collects the levy on behalf of the Workforce Development Agency. (In the latter 80s, the NPB administered the SDF.) The levy collected is channeled into the SDF, which provides grants to companies that send their workers for training. (Appendix 1, “Report on Singapore Mission,” September 13, 2010, GRIPS Development Forum, Tokyo)

Besides consultancy, in-company training was emphasized to equip the workforce with relevant skills to increase productivity. The NPB teamed up with reputable companies such as Singapore Airlines (Service Quality Center), Philips Singapore (Industrial Engineering Training Center), and Seiko Instruments (OJT Project) to develop national training programs in specific areas for managers and workers.¹¹ Moreover, extensive training for upgrading workforce skills was conducted, supported by SDF. In Singapore, all employers must pay a certain share of their workers' salary to the government. The government then provides subsidies to employers, through the SDF, who invest in upgrading the skills of their employees. While the SDF was initially managed by the Ministry of Labor, from 1986 it came under the NPB's responsibility. High priority was placed on productivity-related training programs, and companies were encouraged to send their staff for training.

3-3-3. Ownership stage

By 1989, companies and individuals had become actively involved in the Productivity Movement. Hence, sustaining this enthusiasm became the focus of the ownership stage.¹² This stage is critical to self-sustain the Productivity Movement to ensure that productivity habits become part of the work ethic. Private and public organizations as well as individuals are encouraged to lead the Productivity Movement. The government launched various initiatives to promote company-level productivity improvement.

For example, NPB encouraged the private sector to lead annual productivity campaigns. Employer groups were urged to chair the Campaign Steering Committee. In 1994, the Singapore Quality Award was introduced. In 1996, the Productivity Activist Scheme was launched.

The Productivity Activist Scheme aimed to develop a core of productivity "champions" in companies. Key activists from the public and private sectors were introduced into the Productivity Movement to lead, organize and influence other members of the workforce in various productivity-building activities.¹³ A network was formed to enable members to benchmark their productivity against partners and improve their skills and techniques. Resources are pooled for an effective exchange of information in support of productivity improvement.

In this regard, the following words of Mr. Mah Bow Tan, then Chairman of NPB are worth noting: "..... to have a successful Productivity Movement, we must have a critical mass of organizations and individuals who know that they will benefit from it, are proud to be part of it, and are willing and ready to make it succeed." (Mr. Mah Bow Tan, Chairman, NPB, 1987)

¹¹ Speech by Mr. Low Choo Tuck, former Director of Planning Division, SPRING, "Productivity movement and competitiveness—the Singapore's experience," delivered at the Vietnam Productivity Center.

¹² Ditto.

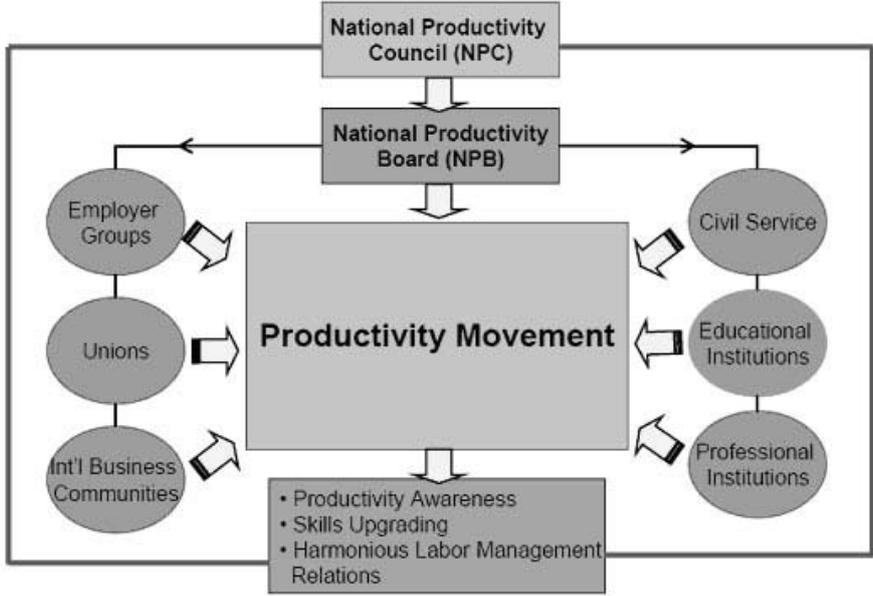
¹³ Ditto.

3-4. Institutional framework for implementing the Productivity Movement

To implement the Productivity Movement, Singapore established a strong organizational structure. A centralized oversight and coordination mechanism was created, and the existing national productivity organization was reinforced to perform such operational functions as running public campaigns, training, consulting, research, measurement, and conducting industrial relations. The mechanisms were built on strong involvement and support of tripartite key stakeholders (the public sector, unions, and employers) to ensure that productivity gains were shared among these stakeholders. These institutional factors contributed significantly to the successful awareness raising and scaling-up of the Productivity Movement.

3-4-1. Role of a tripartite council and national productivity organizations

Figure 3-3 shows the institutional framework for policy coordination and implementation of the Productivity Movement in Singapore. This framework has provided channels for involving various groups and institutions and thus facilitated the scaling-up of the movement. Because Singapore is a city-state, there was no need for a local-level coordination mechanism.



Source: Information provided by Mr. Lo Hock Meng to the GRIPS mission on Sept. 2, 2010.

Figure 3-3. Framework for Productivity Movement (Around the 1980s)

At the policy level, in 1981, the NPC was established as an oversight and policy coordination body for promoting the productivity movement. NPC was a tripartite council, initially chaired by the State Minister of Labor and later by the State Minister of Trade and Industry, with the participation of about

20 members from government, employer groups, unions and academia.¹⁴ By actively involving those key stakeholders, the NPC annually reviewed productivity programs and outlined its future strategy. As such, the NPC ensured national consensus on key productivity strategies and programs.

At the operational level, the NPB played a key role as the secretariat of the NPC and as the operational arm in charge of spearheading productivity campaigns in both the public and private sectors throughout the three stages of the Productivity Movement. Under the oversight of the NPC, the NPB coordinated and promoted the diffusion of the key objectives of the Productivity Movement, such as productivity awareness, skills upgrading of management techniques and harmonious labor management relations, and so on. It also provided training and management consultancy, spread Quality Control Circles (QCCs), promoted the concept of productivity, and administered the SDF, which provides financial incentives to companies to send their staff to productivity-related training.

3-4-2. Singapore Productivity Association (SPA)

The SPA, established in 1973 as an affiliated body of the then-NPB, also played an important role in spreading the Productivity Movement. SPA promotes the active involvement of organizations and individuals in the movement and expedited its diffusion and techniques. SPA charges fees to the members (institutional or individuals) and organizes courses and seminars, company visits, study tours, and so on, to encourage their knowledge and skills acquisition. The members have access to information, training and seminars, and networking opportunities. Mr. Lo Hock Meng, current Executive Director of SPA, was one of the counterparts of the JICA-supported PDP.

Unlike the case of Burkina Faso (see Chapter 4), SPA continues to be affiliated with the SPRING which replaced the PSB, successor of NPB, in 2002. SPA also provides international cooperation, in collaboration with the Ministry of Foreign Affairs, the Ministry of Trade and Industry (MTI), SPRING, the Asia Productivity Organization, and the Association for Overseas Technical Scholarship (Japan).

3-4-3. Channels of awareness raising and scaling-up

The Singaporean government promoted productivity improvement across the public and private sectors, building a partnership between the two sectors (Sum, 2000). Various channels were created to support awareness raising and scaling-up of the Productivity Movement. These included: employer groups, labor unions, international business communities, civil service, educational and professional institutions.

¹⁴ In 1986, NPB was transferred from the Ministry of Labor to the Ministry of Trade and Industry. The State Minister of Trade and Industry assumed the position of Chairman of NPB.

At the awareness stage, the productivity campaign was actively promoted in the public sector. The government, as the largest employer, endeavored to set an example for the private sector to improve productivity, work attitude, and human resource management. The productivity campaign was linked with civil service reform and was spearheaded by the Central Productivity Steering Committee. The Central Steering Committee was formed immediately after the launch of the Productivity Movement to oversee the movement within the civil service. Its members also included a representative of the civil service unions. An annual civil service campaign was launched in conjunction with the national productivity campaign. WITs were formed in all ministries to make up plans to promote teamwork spirit and productivity. A WIT is a small group of civil servants of different ranks from the same work unit in an organization. This voluntary groups met regularly to identify those improvements that could be achieved and formulate ways to attain the desired improvements (Sum, 2000).

For example, the Ministry of Defense and the Armed Forces launched the productivity drive in 1981. Since all young Singaporean males (age 18–21) were obligated to enroll in the national service (Singapore Armed Force, Singapore Policy Force, and Singapore Civil Defense Force) for 24 months, this has proved to be an effective way of disseminating the concept of productivity.¹⁵

Regarding labor unions, the National Trade Union Congress (NTUC) spearheaded the productivity campaign and created the Productivity Promotion Council. The campaign aimed to inculcate productivity and quality-consciousness at the workplace. Regarding employers groups, Singapore National Employers' Federation and Singapore Manufacturers' Federation supported the Productivity Movement. Both unions and employer groups supported workforce training, with financial incentives from the NPB-administered SDF. Furthermore, productivity-related programs were promoted at various educational institutions (including polytechnics) to raise productivity awareness in the future workforce.

3-5. The role of international cooperation

3-5-1. JICA-supported Productivity Development Project (PDP)

The JICA project supported a crucial part of the Productivity Movement by sharing best practices, training NPB staff and company workers, and developing manuals.¹⁶ The project was fully integrated into Singapore's national initiative and contributed to (i) upgrading the skills of the NPB staff and the private sector; (ii) developing manuals and promotional materials; (iii) developing a pool of management consultants; and (iv) raising productivity in key industries. Furthermore, the project

¹⁵ As of January 2008, obligatory military service was replaced with voluntary military service.

¹⁶ Over 200 Japanese long-term and short-term experts were dispatched from Japan to help improve the capabilities of NPB and local industries (NPB and JICA, 1990)

supported the process of transforming NPB into a donor by providing an opportunity for NPB to consolidate its acquired management consulting skills and share them with ASEAN countries through regional training programs.

As Figure 3-4 shows, two major pillars of the PDP were (i) training of trainers and (ii) upgrading of NPB staff. Various methods were used such as practical guidance, development of training materials, model company and pilot company projects, seminars and workshops, papers, and training in Japan (PDP fellowships). PDP emphasized human aspects, quality, cost, delivery (QCD), and the transfer of Japanese experience.

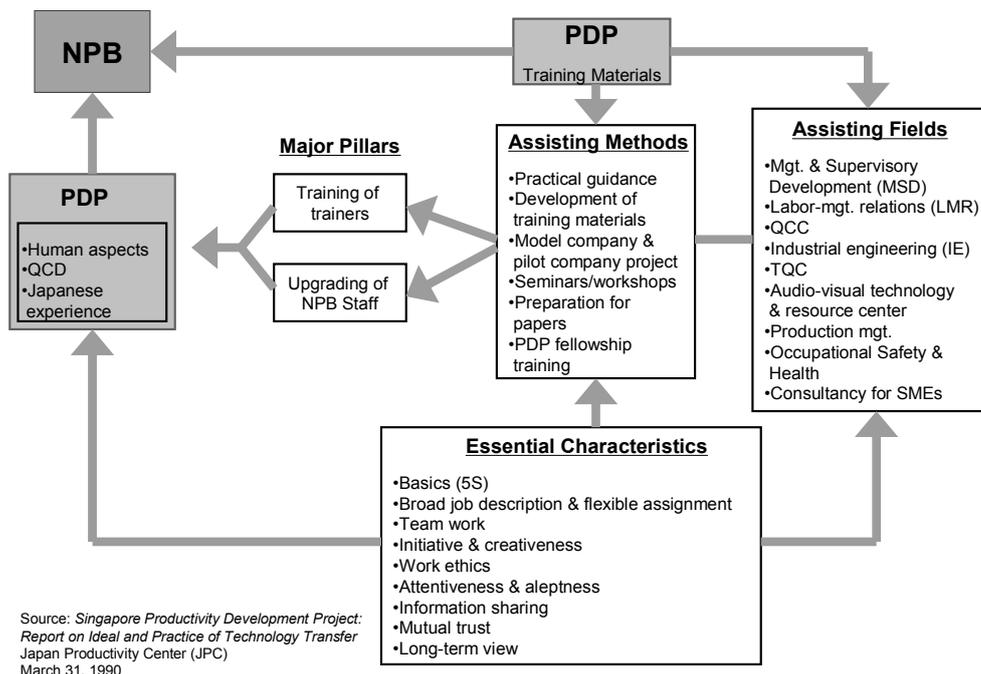


Figure 3-4. Summary of JICA-supported PDP (after restructuring)

The PDP lasted for seven years and developed through four phases: (i) preparatory phase (June 1983–March 1985); (ii) restructuring phase (April 1985–October 1986); (iii) implementing phase (November 1986–June 1988), and (iv) follow-up or consolidation phase (June 1988–June 1990 (NPB and JICA, 1990).¹⁷

Because this was the first experience for JICA to transfer software (humanware) technology through comprehensive technical cooperation, the initial years of PDP encountered some difficulties. The Japanese experts, assuming that the same steps should be taken in Singapore as in Japan, started to instill basic concepts and principles in their Singaporean counterparts. They believed that it was necessary to take this step in order to form a solid base before teaching concrete methods of

¹⁷ This and the following four paragraphs were based on the section “Four Phase of Technology Transfer in PDP” of NPB and JICA, 1990.

productivity improvement (Ueda, 2009). By contrast, the Singaporeans requested quick and tangible results, such as the transfer and application of production management technologies on the ground. This was partly because the NPB management felt strong pressure due to the close attention being paid to the PDP by the Prime Minister. Based on discussions between JICA and the NPB, the role of the Japanese partners changed. They no longer just trained their Singaporean counterparts in classrooms; they adopted OJT so that the counterparts were able to experience and learn how their jobs could be done (Ueda, 2009).

During the restructuring phase, a technology transfer plan was developed to enable expertise to be built up within the NPB to directly assist industries in improving their productivity (for example, through the Model Company Project).

The implementation phase saw the attachment of long-term JICA experts specializing in management consultancy for SMEs. This was in line with the NPB's focus on providing management guidance services for local companies. During this phase, the experts' role shifted from that of leaders to advisors for the NPB project teams. The NPB counterparts were then better equipped to lead industry project teams with the experts playing a supporting role as advisors. For the first time, fellowship training in Japan was extended to private sector managers and consultants. Upon their return, several of them were appointed as NPB Associate Consultants to supplement the expertise of the NPB in providing consultancy services to industries.

The two years of the follow-up or consolidation phase were devoted to upgrading management consultancy skills of NPB staff through practical OJT and to launching a two-month Japan-ASEAN Regional Training Program on management consultancy where the NPB took prime responsibility for sharing its acquired skills with ASEAN countries. Fundamental productivity practices (such as 5S) were firmly entrenched in industry. Attention was also placed on the service industries, with Japanese experts providing advice, particularly in upgrading customer service.

3-5-2. Singapore's international cooperation

After the PDP was completed in Singapore, the NPB and JICA conducted joint training programs in developing countries in Asia and Africa until around 2005.¹⁸ In parallel, under the Singapore Cooperation Program (SCP) managed by the Technical Cooperation Directorate of the Ministry of Foreign Affairs,¹⁹ SPA also provided cooperation to productivity improvement in Botswana from

¹⁸ Since 1997, JICA has been managing the Japan-Singapore Partnership Program for the 21st Century (JSPP 21) with the Technical Cooperation Directorate of the Ministry of Foreign Affairs. This includes a joint training program on productivity management in the Southern African Development Community (SADC) countries, implemented during 1997–2004.

¹⁹ The SCP was established in 1992 by the Singaporean government to share its development experience and public sector expertise with developing countries.

1991 for about ten years at the request of the President of Botswana to then Singaporean Prime Minister Goh Chok Tong. Based on the experience of the PDP, SPA supported (i) the promotion of tripartite cooperation among government, labor, and industry; (ii) staff training of the Botswana National Productivity Center (BNPC); and (iii) the implementation of pilot projects for model companies (see Chapter 5). For the public sector, a twinning arrangement was made between the Botswana Institute of Administration and Commerce (BIAC) and Singapore's Civil Service Training Institute in order to introduce WITs to Botswana's civil service (World Bank, 1996).

3-6. Latest initiative on productivity improvement

When the JICA-supported PDP came to an end in the mid-1990s, Mr. Mah Bow Tan, former Minister of State, Trade & Industry and Communications & Information and the Chairman of NPB, stated, “The Productivity Movement has been compared to a marathon with no finish line.” (NPB and JICA, 1990)²⁰ This is true. Singapore continues to work on productivity improvement. In fact, in recent years, productivity improvement has been resurrected as a high-priority, national agenda item.

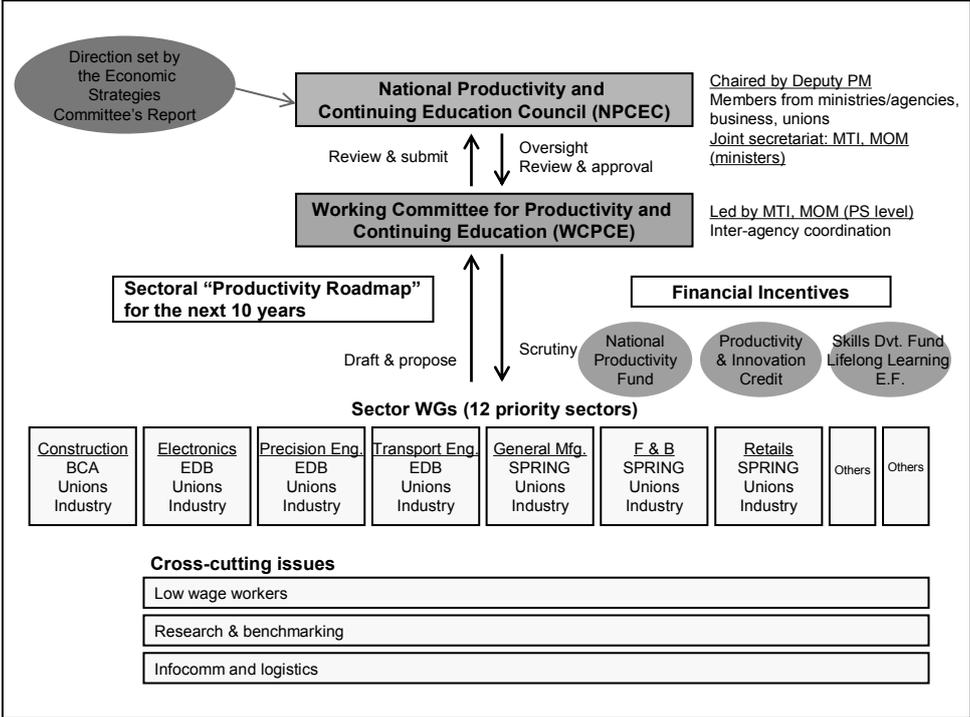
As the Singaporean economy came out of the recession caused by the global financial crisis, the government sees an opportunity to restructure its economy and maximize growth capability in the post-crisis era—the new world environment characterized by the rise of China and India. The government formed a high-level Economic Strategies Committee (ESC) in May 2009, chaired by Minister of Finance Tharman Shanmugratnam, with the participation of representatives of the government, labor unions, and business.²¹ The ESC submitted the final report to Prime Minister, Lee Hsien Loong at the end of January. It was officially launched on February 1, 2010. Envisioning “high-skilled people, innovative economy, distinctive global city,” the ESC Report recommended a drastic shift to productivity-driven growth (aiming at annual productivity growth of 2–3% and GDP growth of 3–5% on average in the next ten years) and presented seven key strategies to achieve this goal. The main thrust of the ESC Report was endorsed by the Prime Minister and reflected in the FY2010 budget (starting from April 1).

One of the seven key strategies is “growing through skills and innovation.” To oversee and drive the national effort to boost productivity and skills upgrading, the government established the National Productivity and Continuing Education Council (NPCEC) in April 2010. NPCEC is chaired by Deputy Prime Minister (DPM) Teo Chee Hean and its members come from government, the business

²⁰ Its original statement came from Mr. Kohei Goshi, former Chairman of JPC: “The transformation of mankind's way of thinking can be compared to a marathon with no finish line.” (From his letter to Prime Minister Lee Kuan Yew in September 1986)

²¹ The ESC is an *ad hoc* mechanism. Under the main committee chaired by the Minister of Finance (comprised of 25 members), eight subcommittees and several working groups were formed. Each subcommittee was co-chaired by representatives of the public and private sectors.

community, and labor unions. The chairpersonship of the DPM signifies the high priority accorded to the productivity issue. MTI and the Ministry of Manpower (MOM) jointly act as the secretariat. Under NPCEC, there are two layers of organizations: (i) the Working Committee for Productivity and Continuing Education (WCPCE) led by the Permanent Secretaries of MTI and MOM; and (ii) 12 sector working groups and horizontal thematic working groups coordinated by responsible government agencies (see Figure 3-5).



Source: Elaborated by the author based on the information gathered by the GRIPS mission to Singapore during Aug.29-Sept.3, 2010.

Figure 3-5. Institutional Mechanism for Boosting Skills and Enterprise Productivity through National Effort

NPCEC has selected 12 priority sectors based on the criteria of the size of contribution to employment and GDP and high potential for productivity gain. Each sector group formulates a productivity roadmap for the next ten years. These roadmaps are reviewed by the WCPCE and submitted to the NPCEC for final approval. A ministry or an agency is assigned to oversee each priority sector. For example, the EDB is responsible for electronics, precision engineering, transport engineering, logistics and storage, while SPRING is responsible for general manufacturing, food and beverages, and retail. In addition, horizontal working groups are created to work on cross-cutting issues such as low-wage workers, research and benchmarking, and infocomm (ICT) and logistics. Government, businesses, and unions participate in these sectoral and thematic working groups.

3-7. Conclusion

Singapore's successful experience with the Productivity Movement can be taken as a benchmark for countries which are striving to introduce such a government-led national movement. Following are some of the lessons learned from the Singaporean experience.

First, productivity is a question of paradigm shift. It is a movement, not an event. There is no finish line. Productivity mindset is an attitude with which people strive for and acquire the habit of improvement, as well as the systems and the set of practices that translate the attitude into action.²² Hence, what is required is a new mindset for all political, business, academic and union leaders: a curiosity and concern with context, acceptance of complexity and its contradictions, diversity consciousness and sensitivity, seeking opportunity in surprises and uncertainties, faith in organizational processes, focus on continuous improvement, extended time perspective, and systems thinking (Kitaw, 2011).

Second, productivity needs strong commitment. It needs strong commitment from higher officials, organizations, and individuals. In Singapore, the deep interest of Prime Minister Lee Kuan Yew was critical to making the Productivity Movement widespread and entrenched in the society. Even now, at the National Day Message (2010), Prime Minister Lee Hsien Loong states: "We must keep learning from others, improve in every area and strive hard to achieve our future goals. Tomorrow's Singapore is better than today."

Third, productivity needs strong organizational structure. As the Singaporean experience suggests, the establishment of a high-level tripartite council for policy coordination and a national productivity organization as an implementation body is vitally important. These organizations must be linked with broader members of the society, namely, key stakeholders such as the government, business (including business associations and chambers), labor, and academia. Such mechanisms should provide channels of disseminating productivity awareness and translating the awareness into actions in their workplace, training and education. While this Chapter primarily discussed tripartite partnership among the government, employers, and unions, the partnerships among the government, the private sector, and academia (including universities) are also important. Such linkages are important for (i) preparing suitably trained graduates to meet the manpower needs of industry; (ii) conducting practice-and application-oriented training; (iii) providing "industry attachment" (internship) for students; and (iv) collaborating with industry and development agencies.

Fourth, the three stages of the Productivity Movement—awareness, action, and ownership—can be a

²² This is the productivity concept of the NPB, Singapore, quoted in the Power Point material, "Evolution of the Productivity Movement in Singapore," SPRING Singapore, 2010.

useful reference for a country where the cultural awareness of productivity is low. Attitudinal change is achieved through the stages of awareness, understanding, conviction and action. In this regard, annual productivity campaigns are required to promote the theme of quality and productivity. Having campaigns launched by high-level ministers, developing nationwide program, and forming QCCs at the workplaces are several ways to promote productivity. Productivity promotion may be effectively carried out through (i) education, seminars and publication (e.g., support, teaching quality and productivity at all levels in the education system, quality award conferences, national quality circle conventions, publications and dissemination of quality news); (ii) promotion and establishment of national awards; and (iii) adoption of best practices.

Fifth, to self-sustain the Productivity Movement, there is a need to develop a cadre of private management consultants. As explained earlier, the JICA-supported PDP trained not only the NPB counterparts, but also private experts. Under the “Management Consultancy Referral Scheme” and the “Associate Consultants Scheme,” those trained under the JICA project became NPB Associate or Referral Consultants and were mobilized as “qualified” private management consultants (NPB and JICA, 1990). As such, a pool of associate and referral consultants was created to supplement the NPB’s efforts in reaching out to industries and ensuring the sustainability of the Productivity Movement.

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Chapter 4

Quality Control Circles in Burkina Faso: Lessons Learned and Implications for Other Developing Countries

Sayoko Uesu¹

4-1. Introduction

Burkina Faso, a small land-locked state in West Africa, was the first Sub-Saharan country to implement Quality Control Circle (QCC), an aspect of Japanese-style management (*kaizen*),² by donor support. Since 1989, the use of QCC has greatly contributed to improving individual and organizational capacities in the major private and public enterprises and enabled them to survive the harsh economic conditions that followed liberalization and privatization in the 1990s.

In this process, the Burkinabé Association for Quality Management (Association Burkinabé pour le Management de la Qualité: ABMAQ),³ a non-profit association, has been playing a key role in diffusing the QCC and other quality improvement techniques in Burkina Faso and in neighboring countries. ABMAQ has adopted the following principles for QCC and has been helping develop the *kaizen* culture in Burkina Faso for over twenty years since its introduction.

- Stimulating the motivation and participation of members
- Respecting individual independence (voluntary activities)
- Cultivating open mindedness and creativity
- Respecting group dynamics
- Highlighting roles of individuals in the organizations
- Providing training for members
- Promoting exchange between different circles

The objective of this chapter is two-fold: (i) to summarize the achievements and challenges of QCC in Burkina Faso and (ii) to draw some implications for other developing countries willing to introduce QCC and *kaizen*. Most of the information came from field surveys conducted in November 2009 and January 2011 at Ouagadougou and Bobo-Dioulasso, complemented by a literature review.

¹ Research Associate, GRIPS Development Forum, National Graduate Institute for Policy Studies (GRIPS).

² The Japanese word *kaizen* refers to a wide range of activities aimed at improving quality and productivity such as the 5S, just-in-time production and suggestion systems etc. *Kaizen* is also one of the basic concepts of the Toyota Production System (TPS). See GRIPS Development Forum (2009), Chapter 1, for details.

³ The ABMAQ is an organization created in 2002 from the former Association Burkinabé des Cercles de Qualité (ABCERQ: Burkina Faso QCC Association), which was established in 1992. In this chapter, we will use the name ABCERQ for the activities of the organization during the 1990s and the name ABMAQ for its activities in 2002 and later. The expression ABCERQ/ABMAQ will be used for overlapping periods.

4-2. What is QCC?

4-2-1. QC circle (QCC)

QCCs are small groups engaged in quality improvement activities in the same workplace. As a part of company-wide quality improvement, QCC aims to foster self- and mutual education by helping all members participate in the continuous improvement of their products and services.

QCC has its origin in the United States (US); the original model aims to reduce the percentage of defective products by using a set of simple statistical analysis tools. At the time of its introduction to Japan in the 1950s, the Union of Japanese Scientists and Engineers (JUSE)⁴ had revised the imported quality control methods and tailored them into a unique model. While the use of statistical tools is a common feature between US and Japanese models, one of the major differences is the level of worker participation. In Japan, individual workers have the responsibility and are allowed to take the initiative in solution of their own problems, with the assistance of management and technical personnel. This degree of worker responsibility and cooperation appears to be the unique contribution of Japanese management and workers to the process (JETRO, 1981).

The advantages of QCC are summarized in Table 4-1 below. QCC activities contribute not only to increasing profitability but to bringing changes in organizations as a result of work-process improvement and empowerment at the individual level.

Table 4-1. Advantages of QCC Activities

Individual level	Increased confidence; better relationships with colleagues and with management; customer orientation (New discoveries through creative activities; understanding of the basic approach and procedures for solving problems; ability to maintain the high quality product and service for the benefits of society)
Management level	Reduction in time required for shop floor supervision; establishment of smooth work procedures; improvement of the labor-management relationship, etc. (QCCs provide an important means of human resource development and skills training; raise the cost awareness; facilitate the sharing of problems and improve abilities to solve them)
Organization level	Improvement in the quality of products and services, productivity, competitiveness and profitability

Source: Based on the information provided on the JUSE website.

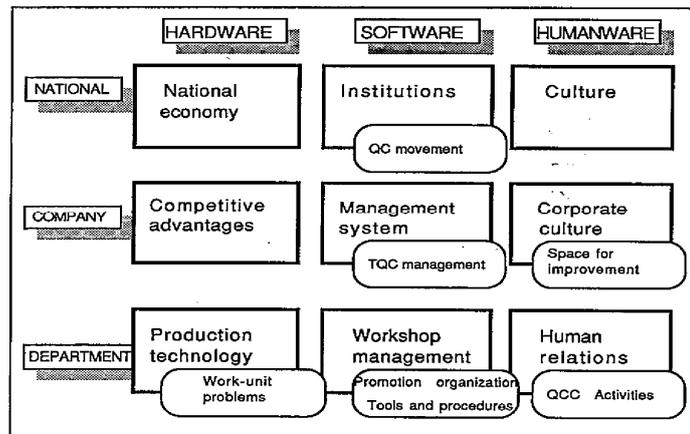
As for their impact on the overall quality of management, while QCC has significant effects, it is generally centered on solving “many trivial problems” (Lillrank and Kano, 1989). Meanwhile, based on their case study on QCC at the Nippon Steel Corporation Kimitsu Works (QCC was called “JK (*jishu kanri, self-management*) activities” in Japanese), Nonaka and Yonekura (1984) analyzed some

⁴ JUSE was established in May 1946. In 1962, it was reorganized and authorized as the foundation of a juridical body by the Science and Technology Agency (reformed Ministry of Education, Culture, Sports, Science and Technology) of Japanese government. The QCC Headquarters of Japan is located within JUSE, and 9 regional offices to facilitate and assist QCC throughout Japan.

key features that promoted the organizational learning in the company and suggested that JK activities had innovative effects on the shop floor organization, which far exceeded mere improvement of the working environments.

Although QCC or *kaizen* activities are normally introduced by the decision of top management, national promotion organizations also play crucial roles in promoting these activities. In Japan, the role of JUSE was particularly important, as there were hardly any recognition for quality and productivity in the country at the time of introduction in 1950s. Lillrank and Kano (1989) assessed that “it (JUSE) has served as the main agent of change and innovator for QC and related management systems. ...it has been able to establish neutral discussion forums, where companies, even competitors, can come together and learn from each other...” Since 1962, JUSE has been providing numerous manuals and trainings to the member companies throughout Japan and organizing the annual quality awards at national and international levels.⁵

Thus, establishing a national infrastructure (policy and/or organization) that supports QCC (or *kaizen* activities) at the national level is crucial, to support and complement the multilayered efforts in the individual companies. (Figure 4-1)



Source: Lillrank and Kano (1989)

Figure 4-1. Systems and Organizations Supporting QCC

A large number of studies are available on factors that facilitate the establishment of QCC. Recently, using case studies of Chinese companies, Zhang (2009) grouped these factors into three categories: (i) support system, (ii) activation system and (iii) production system or work system.⁶ Major factors pointed out by Zhang are shown in Table 4-2 below.

⁵ The latest International Convention on QCC was organized in Yokohama, Japan in September 2011, gathering 152 QCCs from 13 countries, including India, Singapore, Malaysia, Indonesia, Thailand and others. Zambia was the only participant from Sub-Saharan Africa (QCC is being promoted by the Japan International Cooperation Agency (JICA) project).

⁶ Since past studies mainly focused on Japanese companies, Zhang’s classification includes personnel management systems as a fourth category, which is omitted since it is irrelevant to the subject matter of this chapter.

Table 4-2. Factors that Facilitate the Establishment of QCC

Support system	<ul style="list-style-type: none"> • A clear vision • Company-wide support system • Division of roles and guidance by staff members • Training (management, engineering) to workers
Activation system	<ul style="list-style-type: none"> • Balance between organizational coercion and individual initiative • Support by staff organizations • Creation of opportunities for exchange • Incentive system • Assessment and feedback • Sharing and standardization of results
Production system or work system	<ul style="list-style-type: none"> • Delegation of authority and workers' participation in designing and planning processes • Exchange of information between departments

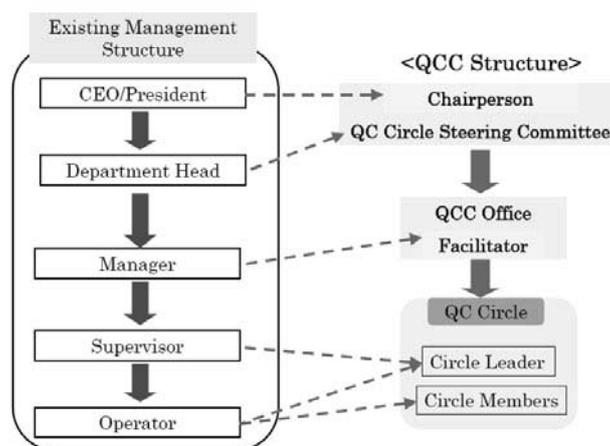
Source: Adapted from Zhang (2009).

Table 4-3 and Figure 4-2 show the functions and roles of different elements and actors within an organization. Various manuals⁷ have been created to specify the procedures required to organize QCC in organizations.

Table 4-3. Functions and Roles at Different Levels

	HARDWARE	SOFTWARE	HUMANWARE
TOP	Basic investment of money, time and facilities	Establish a QC policy and organization	Encouragement, Example, Enthusiasm
MIDDLE		Maintain the promotion organization	Management Support
FACILITATOR			Promotion style: Advice and help to QCC

Source: Lillrank and Kano (1989)



Source: Fukui *et al.* (2003)

Figure 4-2. QCC within an Organization

⁷ For details, see the Japanese manual (published by JUSE) and the English manual (Fukui *et al.*, 2003) created based on the experience in Burkina Faso and Asian countries.

4-2-2. Applicability for developing countries

Since 1970s, an increasing number of Japanese firms expanded their business overseas, and inspired by their successes, QCC were successively introduced in other countries. According to JUSE, QCC was introduced in over seventy countries, mainly in developed countries and Asian countries.⁸ The spread of QCC to developing countries was not predicted in early years and there were skeptical views that its introduction to other countries would be impossible because of cultural barriers and level of development. However, Wilson et al. (1995) points out that these Japanese continuous improvement (*kaizen*) are suitable also for developing countries, as it is “primarily an endogenous form of progress,” since “managers and workers of the firm are the driving force for most improvements,” thus “the production system is gradually tailored to suit the firm’s need and the local environment.” It also “offers opportunity for capital savings that would not be realized through alternative forms of technical progress.” Another aspect is the similarity with the Japanese economy at the time of introduction. Japan was still poor and Japanese companies did not have enough financial and human resources to assign quality control nor to discard large amounts of defective products (Lillrank and Kano, 1989).

Many studies on *kaizen* activities were conducted from the late-1980s to 1990s,⁹ and initial concern was focused on its transferability at firm-level.¹⁰ Subsequently the focus was turned to examine a wider range of aspects, including socio-cultural factors.¹¹ For example, in his study on the possibility of introducing the Total Quality Management (TQM) system into low-income countries (Sub-Saharan African countries in particular), Perry (1997) argued that despite some similarities found between the traditional collectivism in Africa and the TQM system based on small-group activities, it was difficult to transplant the system into Africa in its original form, thereby suggesting the need to reorganize the TQM system to match the socio-cultural context in Africa.

4-3. Introduction of QCC to Burkina Faso

4-3-1. Overview of the society and economy of Burkina Faso

Burkina Faso is a small land-locked country in West Africa, with a population of fifteen million, an area of 274,000km² and per-capita GDP of USD517 (2009).¹² It is one of the poorest countries in the

⁸ http://www.juse.or.jp/e/qc/01_qc.html

⁹ For examples in Asian countries, see Ichimura (1988) and Umeda ed. (1996); for examples of development support projects for transfer to Latin American and Asian countries, see GRIPS Development Forum (2009) Chapters 3 and 5.

¹⁰ According to Wilson *et al.* (1995), who examined examples of the *kaizen* (continuous improvement) system applied by UNIDO in companies in developing countries, the most serious impediment to the adoption of the *kaizen* system was company-level (management-level) factors.

¹¹ See Cole (1989) or Lillrank and Kano (1989) for details.

¹² Figures cited are from *Burkina Faso At A Glance* issued by the World Bank.

world; 44.8% of its population living below the poverty line and the country ranks 177th among 182 countries in the Human Development Index (2009). The agricultural sector accounts for 33.3% of its GDP, the industrial sector 22.4% and the service sector 44.4%. Due to a decrease in cotton production and world economic downturn, GDP growth rate of Burkina Faso remained at 3.5% in 2009.¹³ In the industrial sector, manufacturing accounts for 13.6% of GDP. The main manufactured goods are foods, cigarettes, textiles and tires, made in Ouagadougou or Bobo-Dioulasso and most of them are sold in domestic market.¹⁴ A total of 11.5% of its labor force is engaged in business in the informal sector, with the percentage of workers employed in the formal sector remaining at a very low level (2.8%).¹⁵

Burkina Faso's population is composed of more than sixty ethnic groups, including the Mossi (48%), who hold the leading role in the country's politics and economy, followed by the Peul and the Bobo. Despite its complex ethnic composition, there are no ethnic conflicts in Burkina Faso observed in other African countries. People are generally well mannered and industrious. The greatest asset of Burkina Faso, an inland country with scarce resources, is its people.

Burkina Faso became independent from France in 1960, and from 1983 to 1987, radical socialist policies were implemented by then President Thomas Sankara, who seized power through a coup. The Sankara government took the initiative to reorganize the economic management system and adopted drastic policy measures aimed at reducing the functions of government agencies and allocating surplus to villages.¹⁶ However, dissatisfied groups became stronger as well, which finally led to the assassination of Sankara in 1987. Since then, the country has been governed under the stable leadership of the current President Blaise Compaoré, who came into power after the assassination of the former president. In 1991, Burkina Faso accepted the structural adjustment policy of the World Bank and the International Monetary Fund (IMF) and changed its direction from socialism to liberalization. Against this backdrop, QCC were introduced to the country as a pilot project by the World Bank, so as to mitigate the impact of economic liberalization on local firms.

4-3-2. Transfer of QCC

4-3-2-1. Overview of the support program of the World Bank in the 1990s

Having adopted the structural adjustment policy, the Burkinabé government had to undertake drastic economic reorganization by streamlining and privatizing state-run companies whose inefficient

¹³ Burkina Faso is a member of the West African Economic and Monetary Union (Union Economique et Monetaire Ouest Africaine: UEMOA) and its monetary and industrial policies are decided at the UEMOA level. The local currency of Burkina Faso is the CFA franc (FCFA) and its exchange rate is fixed at: 1 euro = 655.957 FCFA.

¹⁴ Of 506 private companies, 155 are manufacturers (World Bank, 2006, Table 19).

¹⁵ World Bank (2006)

¹⁶ For this reason, Burkina Faso had a very low foreign debt ratio compared with other countries and continued to object to the adoption of the structural adjustment policy.

management imposed a heavy burden on its fiscal base. The local private firms were also being exposed to a competitive environment, and they needed to strengthen their capacities.

QCC was thus introduced into the country to improve the productivity of local companies and to provide them with a means of surviving difficult economic times. The project also aimed to establish a special organization (initially named ABCERQ, currently ABMAQ; see 4-3-2-2 for details) to promote QCC, thereby developing local human resources. It started as a pilot project in 1989,¹⁷ and in response to the great enthusiasm of the Burkinabé government and pilot firms, scaled up to technical cooperation attached to the first Structural Adjustment Loan by the World Bank in 1991. The Policy and Human Resources Development (PHRD) Fund, contributed by the Japanese government, was used to support the project. Table 4-4 provides a summary of the support programs.

It was a long-term technical transfer from 1989 to 2000, during which two Japanese experts of JUSE (Mr. Ichiro Miyauchi from 1989 to 2000 and Mr. Noriharu Kaneko from 1995 to 2000) regularly visited Burkina Faso (four visits for a total of eight weeks per year) to provide skills training and seminars for managers and workers. The unique characteristic of the skills training of Mr. Miyauchi, an experienced expert in introducing QCC overseas, was “not to teach answers, but to give workers tools and methods to sort out the problems by themselves.” Although it was a very time-consuming approach, his method brought a change in the way of thinking, and convinced workers and managers that solving problems by themselves was the best way to improve productivity and product quality. It was a real eye-opener for many of the Burkinabé people who had been used to calling for outside experts and supplies (often expensive foreign technicians and imported goods) to solve problems. This explains why some companies are still actively engaged in QCC even after the completion of the project in 2000.

¹⁷ QCC practices are not common at the World Bank and its introduction to Burkina Faso was more or less accidental. It was initiated by Mr. Hiroaki Suzuki, Japanese World Bank staff, who visited Burkina Faso in 1987 on a mission to reform state-run companies (Mr. Suzuki was in charge of the African region at the time). Mr. Suzuki was invited by a staff member of the counterpart organization, the Ministry of Industry, to a volleyball game, which was held as a recreational event attended by all members of the ministry. Watching members, both management and staff, enjoy the game regardless of rank, Mr. Suzuki thought of introducing QCCs to develop a participatory management approach in Burkina Faso.

Table 4-4. Overview of Support by the World Bank, Japanese PHRD Fund and JUSE

Period	Support program	Major events
Pilot phase (1989 to 1991)	<p>1989–1990: USD50,000 funded by the Special Project Preparation Facility (SPPF) of IDA/World Bank (1) Seminars on QCC; and (2) Introduction of QCC into five pilot companies</p> <p>1990–1991: USD250,000 funded by the SPPF (1) A QCC promotion unit created within the Ministry of Export Promotion; (2) Training (in Japan and Burkina Faso); (3) On-site skills training in pilot companies; (4) QCC newly introduced into five companies; and (5) Preparations for introduction into public organization, including creating manuals</p>	<p>1990: • QCC Promotion Unit established</p> <p>1991: • Adoption of the structural adjustment policy by the Burkinabé government (transition to liberalization policy) • First QC convention held in Burkina Faso</p>
Phase 1 (June 1991 to 1998) Technological transfer to local companies and organizational reinforcement	<p>USD1 million funded from the Japanese PHRD Fund as technical cooperation to complement the first Structural Adjustment Loan of the World Bank</p> <p>June 1991 to February 1993: (1) Support for the QCC Promotion Unit within the Ministry of Industry, and establishment of the ABCERQ; (2) Training (in Japan and Burkina Faso); (3) On-site skills training in nine companies; (4) QCC newly introduced into companies and a pilot project for public organizations; (5) Analysis of socio-cultural and organizational aspects related to the introduction of QCC into Burkina Faso; (6) Creation of manuals designed for introduction into other African countries in the future; and (7) Seminars</p>	<p>1992: • ABCERQ established</p> <p>1994: • Currency devaluation (50%)</p> <p>Mid-1990s to mid-2000s: • Privatization of major state-run companies</p>
Phase 2 (November 1998 to June 2000)	<p>USD700,000 funded from the Japanese PHRD Fund as technical cooperation to complement the second Structural Adjustment Loan</p> <p>(1) On-site skills training for private companies; (2) Introduction into public organizations; and (3) Enhancement of the capacity of the ABCERQ</p>	<p>2000: • Introduction of UEMOA extra-territorial customs • Formulation of the PRSP</p>

Source: Compiled by author, based on Suzuki (1993).

4-3-2-2. Impact at the firm level

Table 4-5 lists companies that adopted QCCs. Most of the supported companies were state-run enterprises to be privatized or private large manufacturing companies. Except for SOFITEX, a (then) state-run company engaged in the production and processing of cotton, the production volume of targeted companies accounted for a very small percentage of GDP. However, they had important effects on the formal economy; four pilot companies accounted for more than 50% of the production in the industrial sector.¹⁸

¹⁸ These formal sectors provide employment for only 4% of the labor force and private companies employ only 1.5% (World Bank, 2006).

Table 4-5. List of Companies that Have Adopted QCC

Organization	Project	Pilot phase 1989 to 1991	Phase 1 1991 to 1998	Phase 2 1998 to 2000	2001 to present (2009)	Current status of QCC
World Bank/JUSE	Financial and technical support	Skills training for 5 companies, QC conventions, overseas training	Skills training for companies, establishment and ToT of secretariat (ABCERQ), QC conventions, overseas training	Technology transfer to ABCERQ and skills training for companies	-	-
Government	Implementation	Pilot CP	Support for the establishment of the ABCERQ	-	-	-
ABCERQ/ABMAQ	Project period (1992 to present)	-	Functions transferred gradually to holding QC conventions, etc., after the establishment of the ABCERQ in 1992	Training for member companies, holding QC conventions, etc.	Reorganized and renamed as ABMAQ in 2002, training, holding QC conventions, ISO training started in 2006	-
Manufacturing industry	Sector	QCC ISO				
SAP Olympique (private)	Manufacturing of tires				2004 -	⊙
SIFA (govt→private)	Manufacturing of motorcycles		1993 -		QCC suspended in 2007 Went out of business in 2009	-
SN-CITEC (govt→private)	Manufacturing of soap, etc.		Not activated; changed to FasoPlast		Currently ISO	-
SAVANA	Beverage manufacturing			Shutdown in 1999?		-
Faso Fani (govt→private)	Textiles	1990			Went out of business in 2001	-
Faso Plast (govt→private)	Plastics			??	2001 - TQM; QCC suspended in 2007	-
INB (govt → private)	Printing	1990: training	not activated			-
SN-SOSUCO (govt→private)	Sugar refinement		1994 -			⊙
Winner Industrie (private)	Chemicals					⊙
SOFITEX (govt→semi-govt)	Production and processing of cotton	1990			2003 -	⊙
SAPHYTO	Manufacturing of insecticide			1998 -	??	-
CIMAT (govt→private)	Cement manufacture			1998 -	??	-
MEDIFA	Medical products			??		-
Public organizations	Sector					
CNF-YO	Local hospital					-
CARFO	Pension for government officials	1992 -				-
CNSS	Social security		1992 - Introduced through a pilot project 1995 - company-wide development		2008 - QCC activated	⊙
ONATEL (2006 private)	Telecommunications corporation		1995 -	Activities suspended in 1997	Quality improvement policy formulated in 2009	△
OST	Medical service				QCC suspended in 2006	-
SONABEL	Electric power corporation	1992 -			QCC suspended in 2006; 2008 - ISO	⊙
SONAPOST	Postal corporation			Adopted but not established on a permanent basis	2008 - Quality improvement policy formulated	-

Source: Based on the interviews conducted in 2009 and 2011.
Note: Companies where interviews were conducted in November 2009 are underlined. There are other govt. organizations which have introduced QC Circle activities on a pilot basis. However, these organizations have practiced QC Circle activities only for a short period and are omitted from the table.

(1) Initial assessment in 1990s

Initially, there were many concerns and impediments at the shop floor level. At first, many thought that the introduction of Japanese-style quality control would not be feasible in a low-income country with such a different cultural and social setting. However, Burkina Faso (like its neighbors) has a socio-cultural background that facilitates participatory activities in small groups; for instance, Dia (1996) showed similarities between Naam activities (mouvement Naam) developed in rural areas and QCC. More recently, Illa et.al. (2009) argues that the fundamental principles of QCC have much in common with the African traditional belief, “Ubuntu,” which can be translated as “unity.”

The evaluation by the Burkinabé government and the ABCERQ also revealed that the expected concerns were not posing serious impediments to the introduction of the new practices (Sanou, 1995). At first, the relationship between labor and management was deteriorating and the ABCERQ had a difficult time reassuring workers who had been fears about QCC as a new means of exploitation by management. However, labor unions in Burkina Faso were too weak to boycott the activities. There were also concerns that workers’ education level might affect the daily QCC activities. However, their education level did not have any serious effects on the project as was initially expected; 80% of the workers at the pilot companies (SIFA, SAP, CITEC and SAVANA) were illiterate, but some companies (e.g., SIFA) provided reading lessons. Another concern was about ethnic conflicts, but ethnic differences did not constitute major impediments in Burkina Faso.

Meanwhile, learning the 5S, the fundamental principles of QCC and *kaizen*, required a considerable amount of time. For instance, although the Burkinabé people are orderly and have well-developed sanitation habits, it took three years for workers to understand and practice *seiketsu* (cleanliness). This is partly because of the poor access to water, but mainly because of the difference of standard of cleanliness with the Japanese people, who has passion for cleanliness. Under such circumstances, it was necessary to devise ways to bridge those gaps, which were removed gradually by creating awareness for the required quality standard.

Suzuki (1993) cites seven factors as keys to the success of the QCC project in 1993. One was strong ownership by and commitment from the government. Although QCC was introduced by the World Bank, its nationwide development was made possible by the strong ownership of the government at the time. The other important factors were coherence and complementarity of the support with the structural adjustment loan. In addition, gradual approach and continuous advice by experts were critical in promoting and sustaining the QCC among the local firms. Giving stimulus to the members were also important, such as the participation to the QCC conventions and trainings (including training in Japan). Finally, periodic monitoring by the World Bank was crucial in ensuring the project implementation and making the needed adjustment to the local context.

(2) Impact of QCC after twenty years

Now let us look at the impact of QCC on firm levels. As Table 4-5 shows, companies are grouped into three categories:

- Companies with successful QCC (marked with a double circle (⊙) or a circle (○) in the table): Companies with active and successful QCC are SAP Olympique, SN-SOSUCO, SOFITEX and Winner Industrie. Their common characteristics are the commitment at management level and an effective incentive system. For instance, SOFITEX awards a training trip to Mali to circles that have won prizes at national QCC conventions. Another example is the company CNSS; as a result of the replacement of quality control managers, QCC was recently activated and CNSS plans to start a more comprehensive quality program based on QCC experience. It also intends to rename its QCCs as “process teams (*équipe de processus*).”
- Companies and organizations where QCC are stagnant (marked with a triangle ‘Δ’ or a bar ‘-’ in the table): The majority of the companies and organizations belong to this category. Many of them do not have policies on quality management and often adopt various approaches, causing confusion within their organizations. Common to these companies are a lack of commitment on the part of management and a lack of incentive (aversion to unpaid overtime work and lack of recognition by other people).
- Companies that had successful QCC but have gone out of business due to external factors (Faso Fani, SIFA)

After twenty years, QCC are still active in five out of about twenty companies. This number suggests that interest in QCC seems to have faded over time. It is partly because of the scope of the World Bank project; while the Japanese experts aimed at introducing TQM, training at the shop floor level took longer than expected and the project ended without scaling up to the managerial level. United Nations Industrial Development Organization (UNIDO) (2005) assessed that despite some important achievements and the important played by the ABMAQ, the results of QCC varied between companies and were judged “mixed.”

Yet some of the companies have scaled up QCC to TQM, a more comprehensive approach, or moved to International Organization for Standardization (ISO) certification. Another example is the now defunct SIFA,¹⁹ which has performed knockdown production for Yamaha and other motorcycle

¹⁹ Experts from Yamaha were providing skills training at factories apart from the Japanese experts of JUSE.

companies and has won prizes at several QCC conventions, some workers and engineers have started their own businesses based on their QCC experiences. Now a number of firms and government agencies have realized the importance of quality and increased productivity to improve competitiveness (Sawadogo, publication year unknown),²⁰ yet many of them lack a clear guidance on its implementation.

Table 4-6 shows the current situation of companies and organizations belonging to category (1). Although small and medium-sized companies rarely become members of the ABMAQ due to the financial constraints, they are able to participate in training provided by the ABMAQ and other organizations. For comparison, we included small and medium-sized non-member companies (SODEPAL and UCOBAM) that are receiving support for quality improvement from other donors (European Commission (EC) and UNIDO). (see Table 4-7)

Given the very difficult economic conditions aggravated by the political turmoil in Ivory Coast and the low cotton price, all the managers highlighted the importance of quality and saw QCC as a means of survival. Currently many of them have undertaken the process for ISO certification along with QCC, making it easier than for other companies that have to start from scratch.²¹ Meanwhile, they also raised the concern that insufficient commitment and support from top management is the biggest challenge, which could possibly undermine the future of QCC. In addition, the relationship between the QCC and ISO was difficult to sort out by themselves (there were no more Japanese experts to guide this complex issue) and has led to some confusion.

²⁰ Case studies on companies such as Air Burkina and Burkina Bail.

²¹ Based on an interview conducted at SAP.

Table 4-6. Key Features of Companies with Active QCC or Kaizen

	Business overview	QCC	Other quality control approaches; support by other donors
SAP Olympique	<p>Manufacture and sale of motorcycle tires (1974 to present) Capital: 980 million FCFA No. of employees: 150 regular employees plus about 200 seasonal workers</p> <p>Features quality of its products; has the largest domestic market share and exports products to neighboring countries</p>	<p>One of the pilot project companies (1989 to present); 13 QCCs active at present</p>	<p>A quality control division created in 1984</p> <p>Company selected for the quality improvement program (for ISO 9001:2000) of the UEMOA since 2004</p>
SN-SOSUCO	<p>Sugar refinement (1972 to present) Capital: 6 billion FCFA No. of employees: about 4,500 (regular employees plus seasonal workers)</p> <p>Privatized in 1998; acquired by IPS (WA), a company group of the Aga Khan Foundation</p>	<p>Introduced QCC activities in 1994; 32 QCCs active at present (2009)</p> <p>Only company that has a special budget for QCC activities (ordinary budget for 2009: 12 million FCFA; investment: 4 million FCFA)</p>	<p>Company selected for the quality improvement program (for ISO 9000:2000) of EU, UNIDO and UEMOA (economic effects by obtaining ISO 9000:2000 estimated to be 2.8 billion FCFA)</p>
SOFITEX	<p>Production and processing of cotton (1979 to present) Capital: 4.4 billion FCFA No. of employees: 1,184 regular employees plus 2,522 seasonal workers</p> <p>Partially privatized in 1999 (government's stock share: to 35% from 65%); the cotton sector liberalized in 2004</p>	<p>Introduced QCC in May 1993; more than 1,000 staff members have received training (2003); 57 QCCs active (2005).</p> <p>The current ABMAQ president is the quality control manager of SOFITEX</p>	<p>Started an initiative aimed at obtaining ISO 9001/2000 in 2004</p>
Winner Industrie	<p>Production of battery and other chemical products (1973 to present)</p>	<p>Introduced QCC in 1999; 5 QCCs active at present (2009); 104 employees have received training in the past.</p>	<p>5S</p>
SONABEL	<p>Electric power corporation (1954 to present) No. of employees: 1,452</p>	<p>QCC introduced in stages since 1992; three-fourths of the staff members have received training; 7 to 8 QCCs active as of 2009</p>	<p>Activities aimed at obtaining ISO certification started in 2008/09</p>
CNSS	<p>Social security corporation (1955 to present) No. of employees: 849 regular employees plus 64 contract workers</p>	<p>Introduced QCC in 1992; stagnant for a while, but circles became active again in 2008 after replacement of the quality control manager; 39 QCCs active at present</p>	<p>Transition to a comprehensive approach (TQM) based on QCC activities with the aim of obtaining ISO 9001:2000; formulated quality improvement policies in 2009</p>

Source: Compiled based on Sanou (1995), Lim (1999), ABMAQ Annual Activity Reports (2004-2008) and company interviews conducted in 2009 and 2011.

Table 4-7. Key Features of SMEs Implementing Kaizen

SODEPAL	Food processing industry (1978 to present) No. of employees: about 30 Non-member of the ABMAQ A company established by a woman entrepreneur, which manufactures bread, biscuits and dietary supplements; also develops CSR activities	Has not introduced QCC (received training provided by the ABMAQ through a support program of UNIDO)	5S, TQM, HACCP, etc.; quality competition held annually within the company; all employees receive quality management training Support by UNIDO (since 1997) and EC
UCOBAM	Production and export of agricultural products (1968 to present), agro-processing (fruit jam etc) Non-member of the ABMAQ Collects products (kidney beans, etc.) from rural areas and exports to EU markets	QCC partially introduced	Technological support based on the EC-ACP agreement (achievement of standards for products exported mainly to the EU market); Italy (fair trade)

Source: Based on interviews conducted in 2009 and 2011.

4-3-2-3. Steps towards institutionalization (role of the ABCERQ/ABMAQ)

Numerous trainings and seminars in Japan and other East Asian countries (Singapore and Malaysia) inspired and convinced Burkinabé participants from public and private sectors to create their own national organization for promoting QCC. The creation of ABCERQ (Association Burkinabé pour les Cercles de Qualité et le Management Participatif, current ABMAQ) in 1992 (certified as a public corporation in 1995), was a first attempt in Sub-Saharan Africa and it played a key role in promoting quality improvement in Burkina Faso and neighboring countries. The upper portion of Table 4-5 shows the process of transferring knowledge and technology.

(1) Initial stage of institutional building

Initially the process started with a three-person QCC Promotion Unit in the Ministry of Export Promotion, established during the pilot phase. This unit served as the focal point, taking an active part in the transfer of QCC with the support of the Ministry of Export Promotion, which later became the Ministry of Industry. During the subsequent phase 1, intensive efforts were made to train local personnel and to strengthen the firms. The ABCERQ eventually took over the task of the promotion unit. It was also inspired by the Japanese experience in 1950s, referred in section 4-2-1.

The ABCERQ was established as a non-government, non-profit association in order to provide trainings to private companies. Mr. Justin Bayili,²² one of the first members in the Promotion Unit in the Ministry and the first (former) Secretary General of the ABCERQ/ABMAQ, or simply “Mr.

²² He is currently the director at the National Export Promotion Office of the Ministry of Industry and the president of the national pilot committee for quality improvement.

Quality” of Burkina Faso, recalls that Asian experiences offered a different and pragmatic perspective on institutional setting-up and insisted that running the association as a neutral, public-private body was crucial. This is why the president of the ABCERQ has been selected from among the quality control managers of member companies so as to reflect the needs of the private sector.

The principal task of the ABCERQ is to provide training. It has seven training instructors who received training in QCC in Japan and Asia in 1990s, and they provide training and undertake regular monitoring and follow-up among member companies. It also organizes a series of seminars and an annual QCC convention (*Journées de Qualité*) since 1991. The annual convention is the biggest event and invites the Ministry of Industry and other key stakeholders from public and private sectors to show off the achievements of member companies. A number of presentations are made by QCC members, and some outstanding QCCs are given awards as an incentive to workers who had been given no opportunity to show their work and achievements outside their factories and workplaces. During the 1990s, when companies and organizations were strongly committed to QCC, there were over six or seven hundred participants at the conventions, gathering a large part of the workers from the formal sector.

(2) Challenges and steps towards institutionalization

The roles and functions of the ABCERQ and the government in promoting QCC have changed over the years. The ABCERQ reorganized itself in 2002 after the completion of the World Bank assistance and changed its name from ABCERQ, under which it had been focused on promoting QCC, to the current ABMAQ, to put more focus on management issues. Since 2006 the ABMAQ has been working to expand the scope of training such as ISO certification and quality management in collaboration with the national office for the Union Economique et Monetaire Ouest Africaine (UEMOA) regional quality program. At the same time, the organization expanded its outreach to small and medium enterprises (SMEs) and strengthened its collaboration with other donors and organizations. Table 4-8 shows the training program of ABMAQ.

Table 4-8 Training Program of ABMAQ

1. Quality management	Top management and quality issues QC circle organization training (for facilitators at firms) ISO 9001:2000 certification training Project management training (PDCA) Quality management for service industries 5S training
2. Business management	Vision formulation training Strategy and plan formulation training

The Secretariat has one permanent secretary general and a small administration team. Several instructors and around twenty registered private consultants are undertaking the trainings and

assessment. Some experienced companies are able to do the basic training using in-house expertise (QCC facilitator/manager), yet many of them regularly send workers (especially new members) to the trainings and seminars at ABMAQ. Currently the ABMAQ has about fifteen company members (it had over sixty members in mid-90s), including companies and organizations shown on Table 4-5. Member companies are concentrated in Ouagadougou, the capital, and Bobo Dioulasso, an industrial city 500 km away from the capital. Sometimes its distance makes outreach difficult for the secretariat, yet QCCs are very active in Bobo Dioulasso. since the long-time quality manager of SOFITEX holds the presidency of the ABMAQ, thus ensuring effective exchange of information and experience among members.

At the same time, the ABMAQ faces numerous challenges. First of all, ABMAQ has financial difficulties; the main sources of revenue for ABMAQ are membership fees and profits from training, yet the training business for private companies has been stagnant due to economic difficulties over the past couple of years, thereby seriously restricting the activities of the ABMAQ. For instance, the annual number of workers who received training was about 450 until 2005, but it decreased to between 250 and 300 in 2006 and to 154 in 2008, far below the target (350) for the year.

Another challenge is related to human resource management. For instance, Mr. Bayili, the former Secretary-General, was promoted to an executive position in the National Export Promotion Bureau (Office National du Commerce Extérieur: ONAC) of the Ministry of Industry in 2006. Although Mr. Bayili continues his commitment to and involvement with ABMAQ, the ABMAQ staff members and quality control managers of companies are being replaced by second-generation members who have not received skills training from Japanese experts.

The most serious impediment has been a lack of support from the government. Quality has been one of the key issues in terms of competitiveness and export promotion, yet the government did not pay much attention to quality and productivity, leaving the ABMAQ and other institutions fragmented and uncoordinated. As a result, there were overlaps between the ABMAQ and FASONORM, one of the divisions of ONAC created in 1998 for the acquisition and authorization of international standards, and the Maison d'Entreprises du Burkina Faso (MEBF), a semi-governmental one-stop business service provider established in 2002 with support from the World Bank. There are some public laboratories under the tutelage of the different ministries (i.e., agriculture, health, etc.), in addition to the private laboratories such as SOFITEX and others.

Against this backdrop, the ABMAQ together with the Ministry of Industry have been proposing a national quality policy and a national institutional body for implementation. Their long-term effort since 2000 has led to the drafting of a policy in the Ministry of Industry from 2008 and the hiring of an international consultant funded by the African Development Bank. The policy was adopted at the

ministerial level in 2010. Its overall goals are “(i) to establish a national coordinating body to promote quality, which is a key to increasing international competitiveness and (ii) to protect the lives and environment of Burkinabé citizens.” Its action plans are centered on (i) setting up a National Committee for Quality (Comité Supérieur de Qualité) to coordinate the various institutions and activities and establishing a special fund for promoting quality, (ii) providing a wide range of capacity building to meet national and international quality standards (i.e., needs assessments, trainings, providing incentives for firms, etc.), and (iii) creating a national movement for quality (seminars and national quality awards, etc.). The National Committee for Quality will report directly to the Prime Minister’s Office and be charged with leading the national movement, but its organization is still under discussion. In this process, the role and function of the ABMAQ as an institution that specializes in quality will be revised and strengthened.

4-3-2-4. Overall assessment and lessons learned for developing countries

(1) Overall assessment

Table 4-9 summarizes achievements and challenges at individual, organizational and societal levels over the past twenty years.

While some of the problems at the individual and company levels are common to both advanced and developing countries, problems at the organizational and societal levels are more or less specific to developing countries. Despite the quality improvement measures implemented to meet the European Union (EU) export standards, agricultural products from Burkina Faso have caused health problems and were banned in EU markets and neighboring Mali. It will take considerable time to strengthen Burkina Faso’s capacity to produce better-quality products. In this context, recalling Japanese history might be useful; when a new quality control approach was first introduced from the US in the 1950s, Japan was regarded as a supplier of cheap, low-quality products and it took several decades before Japanese products earned international recognition for their quality. This is a reminder that quality and productivity improvement require long-term efforts at the national level. In this context, the implementation of the new policy in Burkina Faso is a right move and should be continuously supported by the government, private sector and donors as well.

Table 4-9. Achievements and Challenges of QCC in Burkina Faso

	Achievements	Challenges
Individual level	<ul style="list-style-type: none"> • 96.8% of respondents were satisfied with QCC (Sanou, 1995). Our field surveys confirmed the previous results in the 1990s. 	<ul style="list-style-type: none"> • Unpaid overtime work • Lack of rewarding systems • Confusion with new initiatives (ISO, etc.) in the field
Organizational level	<ul style="list-style-type: none"> • Changes in the labor-management relationship; improvement in the communication between supervisors and workers • Assignment of personnel to the position of quality control division manager by the introduction of QCC and spread of quality management training (initially, SAP was the only company that had a quality control division) • Improvement in productivity and financial conditions Example: Decrease in the percentage of defective air chambers for motorcycle tires to 3.56% from 6.55% in half a year and reduction in annual costs by 22 million FCFA (SAP) Example: Amount of time between application and the provision of benefits reduced to one month from six months (CNSS) Example: Preventive measures implemented to reduce casualties to zero, based on the analysis of the causes of annual casualties on the pilgrimage to Mecca; the Burkinabé government was awarded a testimonial from the Saudi Arabian government (OSG) 	<ul style="list-style-type: none"> • Lack of commitment on the part of management • Lack of incentive, including rewards • Improvement in financial conditions due to increase in productivity partially offset by increase in costs, including power costs (need to adopt measures to improve competitiveness, including infrastructure development) • Clarifications of the relationship between QCC and new standards (ISO 9001:2000) • Inability of companies (especially SMEs) to cover costs required to improve quality and productivity
Government and societal level	<ul style="list-style-type: none"> • Development of local human resources and knowledge through the promotion organization (ABCERQ/ABMAQ) • Foundation provided for improvement in quality and productivity in major industries and government organizations • Effects on neighboring countries (especially Mali) and scaling up to UEMOA local quality programs 	<ul style="list-style-type: none"> • Review of government organizations related to quality management, including the ABMAQ • Lack of government support (quality management is not a high priority, excluding export) • Training of personnel and improvement in the level of knowledge and skills • No recognition of the importance of quality among consumers and a general lack of interest in product quality as a result of the low consumption level

Source: Compiled based on Sanou (1995), Lim (1999) and company interviews.

The experience with QCC in Burkina Faso has also brought a new perspective to business management in Africa. Professor Honorine Illa at Ouagadougou University made comparisons between the Western business management approach adopted by many African countries and the Japanese management approach in a couple of West African countries. She concluded that the latter is more suitable to the organizational culture in African countries, emphasizing the need to develop an

African model by combining the two approaches.²³ Focusing on the process of introducing and localizing QCC in Burkina Faso and Senegal, Professor Illa argues that while the internalization was promoted in Burkina Faso through skills training by Japanese experts, the development of a local model was hindered in Senegal due to the uniform application of parent (French) companies' policies (Illa and Karsten, 2009). Although the African model (Ubuntu) is as yet an abstract notion and needs further clarification in the future,²⁴ it is worth noting as an attempt to develop an African model that reflects local values and knowledge.

(2) Lessons learned for developing countries

The example of Burkina Faso shows that the Japanese *kaizen* approach can be introduced into a developing country with a difficult economic environment. Critical situations often push people to unite amongst themselves and to work together to overcome difficulties.

The Burkinabé experience also shows that QCC are transferable to both private and public organizations. Since private firms are more likely to gain visible financial benefits from QCC, they have greater incentive to adopt it than government organizations. At the same time, they are often unable to afford it because of financial difficulties due to poor economic conditions and institutional environments. In addition, when the economic perspective is uncertain due to layoffs, workers are not motivated to participate in QCC. In contrast, while the government organizations in general lack financial or non-financial incentives and have greater difficulty in motivating their members, their stable economic conditions often allow them to undertake QCC. In fact, QCC has increasingly been adopted in government organizations in recent years.

Role of the government

In Japan and many Asian countries, as well as Burkina Faso to some extent, governments were committed to quality and productivity improvement and created special organizations to accumulate skills and diffuse knowledge. This aspect is particularly important when the country lacks the basic understanding and infrastructure for quality and productivity. In Burkina Faso, the ABCERQ/ABMAQ has been playing a key role in creating and leading the national movement for quality, and it has greatly contributed to developing human resources and accumulating knowledge and experience in the country. It owes much to the leadership of Mr. Bayili, who has been engaged in the promotion of QCC for over twenty years with an extensive network of contacts in both the public and private sectors. The fact that the project was staffed by a competent leader over a long time was one of the keys to its success.

²³ Similar views were expressed by quality control managers of SONABEL (electric power corporation). ("The participatory approach, which was different from the traditional Western approach, was particularly suited to African companies.")

²⁴ See Luts (2009), and Karsten and Illa (2005) for details of Ubuntu and African-type management.

Furthermore, the special organization should be small and flexible so that close collaboration between public and private sectors can emerge. Governments should give various incentives to encourage the private sector to engage in improving quality and productivity. For instance, the organization of national events such as “Quality Day” has been playing a crucial part in motivating companies. This type of event not only provides opportunities for companies to make their efforts known to a wider public but also has a long-term educational effect on the citizens.

Pragmatism is also needed; for some countries with scarce human and financial resources, launching an ambitious program for quality and productivity improvement is just unrealistic. While it is tempting to include micro and small enterprises in the scope of the project, most of them do not have the necessary resources to invest in these costly activities.

QCC and *kaizen* methods are basically acquired through on-the-job training. However, in many developing countries, workers do not have the basic education to apply the *kaizen* method at their workplaces. This is why the governments should raise the level of secondary education and improve the Technical and Vocational Education and Training (TVET) program (such as adding introductory courses on statistics and analysis methods to the curriculum).

Involving and motivating the top management is key

The cases of Burkina Faso and other countries confirm that improving quality and productivity requires a deep and sincere commitment from management. Comprehensive improvement requires not only bottom-up QCC, but also top-down initiatives on quality management. Because of this deep commitment in some companies, QCC has somehow survived in Burkina Faso without government support. Yet, where small-group participatory activities are not common, it would be better to initiate pilot QCC at the factory level where tangible results can be obtained, while developing longer-term initiatives at the same time.

Even if a country has opted for a new approach, resistance within organizations (especially at management level) may provide a serious impediment to a *kaizen* project; this is not unique to developing countries. In Burkina Faso, as the majority of executives and managers are educated in French systems, they feel more familiar with French-style administration and business management. In this context, they tend to see QCC, a bottom-up approach, as a threat; one of the guiding principles of QCC is to allow workers to state their opinions and make proposals for management to consider, thereby developing a different work style from the conventional process. This can cause managers to fear that their authority may be undermined. To overcome this resistance, it is crucial to place QCC within the company-wide programs, such as TQM, and have all members understand that these activities bring benefits to both workers and management.

In addition, frequent personnel changes are often cited as one of the reasons for failure of QCC in Burkina Faso.

Adjustment to the local context

There are still skeptical views that because of cultural differences, transferring the Japanese business management approach to other countries would be impossible. However, as far as QCC is concerned, the socio-cultural factors do not play a decisive role in determining the success or failure of projects. Rather, success depends on the degree of the adjustment made to the local context, or the localization. For instance, QCC is undertaken most often as unpaid overtime in Japan. However, in developing countries, it is generally difficult to ask workers to do voluntary overtime work, despite the importance of voluntarism highlighted in the original QCC concept. Companies that were unable to promote QCC cited “unpaid voluntary work” as one of the reasons for their failure, while successful organizations have made small adjustments to reflect the local context. Whatever their origin, the imported systems should be tailored in accordance with the circumstances and the capacity of the country, by examining its difference and complementarity with existing values and approaches.

Long-term capacity building and institutional building

Tailoring to each country’s context requires long-term, continuous assistance. First, it requires long-term assignment of competent personnel to the promotion organization. Since it takes a considerable amount of time before quality and productivity improvement practices take root in a country and trained personnel become available, governments and donors should plan to work together to provide continuous support over a long period of time. Asian experiences suggest that it takes a decade to establish a functioning institution and establish a pool of resources.

Annex: Activities of Other Donors Supporting Quality and Productivity Improvement

The experience of QCC also served to create a basis for the support of other donors, especially the EC and UNIDO, for quality and productivity improvement. In 1990s, UNIDO made an attempt to introduce the Japanese management approach into developing countries and regards continuous improvement (*amélioration continue* in French), which is a translation of the word *kaizen*, as the basic component of the comprehensive programs for quality and productivity improvement (industrial capacity development program).

UNIDO's quality improvement programs in Burkina Faso are implemented to support UEMOA regional programs for West African countries. Major quality improvement programs include the following: (i) a program (1999 to 2003) aimed at improving quality and safety standards of SMEs engaged in food processing in Burkina Faso and Mali; and (ii) support (2007 to 2010) for a program funded by the EC and implemented by UNIDO which is aimed at improving the quality of local products in West Africa.

The program in the above (i) consists mainly of training for 11 food-manufacturing companies including SN-CITEC, which was one of the pilot companies for the QC circle program, in addition to SODEPAL and UCOBAM. There were 36 training sessions, including sessions on sanitary standards, ISO certification and TQM, attended by a total of 776 workers. The ABCERQ is commissioned to provide training in TQM. Training in TQM consisted of 18 sessions held over a period of 75 days and attended by 385 participants. The ABCERQ is in charge of (a) executive training in strategy formulation and quality management; (b) personnel policy and motivation training for middle management; and (c) quality improvement training for workers. These sessions were attended by a total of 275 participants (UNIDO, 2005). The Burkina Association for the of Promotion Quality Assurance in Food Industries (*Association Burkinabé pour la Promotion de l'Assurance Qualité dans les Entreprises Alimentaires*: ABPAQ-EA) is reported to have been established by a group of quality control managers of the relevant companies based on the results of UNIDO's support programs. This association was formed following the example of the ABMAQ. (We were unable to obtain the information on the state of the ABPAQ-EA as of 2011).

The predecessor of the program in the above (ii) was a program for the improvement of local products in the UEMOA region (2001 to 2005), which was developed for UEMOA countries based on the experience of the ABMAQ. A total of fourteen million euros was provided for the eight UEMOA countries to provide support mainly for the food processing industry to help obtain ISO certification. SAP and SN-SOSUCO, which adopted QCC, are also included as companies eligible to receive support. The scope of the program has been expanded to include fifteen West African countries (ECOWAS countries), including Anglophone countries, along with Mauritania in order to provide

support mainly for producing products that meet export standards. The ABMAQ is commissioned to provide training as part of these programs, as was mentioned above. According to a review of support programs performed at the end of 2009, only a few of the companies succeeded in obtaining ISO certification. Therefore, results have not always been successful. At the same time, however, there are companies that have obtained ISO certification among those that are not receiving support from the EC or UNIDO, which makes it difficult to attribute the cause of failure merely to the lack of capacity of companies in Burkina Faso.²⁵

²⁵ Based on a field interview with the person in charge of the UEMOA Burkina Faso program.

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Chapter 5 **Botswana's Productivity Movement**

Daniel Kitaw¹

5-1. Introduction

Botswana is one of a very few countries in the contemporary era that has sustained rapid economic growth over an extended period. It is also a relatively small country (an area of 581,730km²), with its current population standing at 1.99 million people (2009 estimate), and is virtually the only African country, and one of the few small countries, to be listed among the rapid growers. Other indicators, such as primary school enrolment and accumulation of foreign exchange reserves, also point to a development success story.

The main objective of this chapter² is to review Botswana's experiences in productivity improvement and skills upgrading, in light of the following aspects.

- Setting up the Botswana National Productivity Center (BNPC).
- Lessons learned from Singapore's productivity movement (including the content and the methodology for Singapore's technical cooperation to Botswana in the area of productivity development).
- Initiating, scaling up and sustaining a productivity movement in Botswana (e.g., the role of government—the BNPC and related organizations, leadership, the role of educational institutions, private sectors, etc.).
- Nurturing private consulting business with productivity.

5-2. Botswana's Productivity Movement

5-2-1. History of the Productivity Movement idea and Singapore's cooperation

In the four decades that followed independence in 1966, diamond-led growth coupled with sound macroeconomic policies and good governance helped Botswana move from being one of the poorest countries at independence to upper middle-income status. In the thirty years following independence,

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² This chapter is based on the findings of the mission to Gaborone from February 13–20, 2011, which was funded by the GRIPS Development Forum, Japan. The researcher visited the BNPC and related organizations (such as the National Strategy Office, Botswana Confederation Commerce, Industry, and Manpower, and others) and had fruitful discussions with many people including professionals at the BNPC, government officials, entrepreneurs, academics, employers, and labor union leaders.

Botswana was the fastest growing economy in the world, outperforming the Southeast Asian Tiger economies (Singapore, Hong Kong, South Korea and Taiwan) with an average annual growth rate of over 10%. More recently however, real GDP growth has averaged around 5% over the past six years due to uneven growth in the diamond mining sector. Botswana's growth remains heavily dependent on the mining sector.

Due to this fact, the intention of the government, despite constraints, is that more growth will in the future have to come from the non-mining private sector, which is also more employment intensive and can therefore contribute towards the country fulfilling its objective of having decent work. Therefore, the government had decided to promote and increase productivity in all sectors of the economy.

The productivity movement in Botswana started in the early 1990's. The leadership of the country at that time had realized that the work culture in Botswana was not good and people needed to change their attitudes. The then President of the country, Sir Ketumile Masire, complained about "the culture of laxity" that prevailed in the civil service. Furthermore, murmurs by the public about non-delivery of services by ministries and departments of the government; perceived general waste of resources and inefficiency in managing these resources in ministries and departments; lack of proper planning and management of funds that have repeatedly resulted in non completion of key projects; and the fact that citizens are generally not involved in the decision making processes, particularly with regard to their demands and aspirations gave high priority to the agenda for productivity improvement.

Venson (1986) has observed, among other factors, that the Botswana civil service appears to have been unproductive for six reasons: (i) failure to meet public demand on time, (ii) top management and unit supervisors do not often seem to interpret or understand policies in the same way, (iii) policies and objectives are not clear to everyone, (iv) management does not seem to provide guidance, leadership, control or support required by their subordinates, (v) performance appraisal methods neither give adequate feedback to the subordinates nor are they used in management decisions, and (vi) there is very little participation by subordinates in decision making.

Hope (1999) referred to what he calls the productivity dilemma in Botswana's public sector. According to him, "[u]nreliable and observed work habits in the Botswana public sector strongly suggest a low and rapidly declining labor productivity" (Hope, 1999). This is due to the fact that most public goods and services are generally non-divisible and therefore no discrimination is possible in their distribution. Secondly, public sector outputs are consumed at the time they are produced. The other problem that affects productivity in Botswana identified by Siphambe and Bakwena-Thokweng (2001) is that when firms hire employees they do not know in advance the precise productivity and commitment of a particular worker.

It was against these backdrops that the government of Botswana launched a productivity movement to improve civil service performance in 1993. The movement had two features: (i) the introduction of Singapore-inspired Work Improvement Teams (WITs),³ and (ii) the establishment of the National Productivity Center. The government of Botswana asked the government of Singapore to support it, which led to long-term bilateral cooperation from 1991 to 2000.

The Singapore government and the Commonwealth Fund for Technical Cooperation have provided numerous trainings for facilitators and team leaders of WITs. It was envisaged that there would be 1,150 teams encompassing about 15,000 civil servants by the end of 2001 (Modisi, 1997).

5-2-2. Setting up the BNPC

According to Thapisa (2000),⁴ the President, Sir Ketumile Masire, in his address to the first meeting of the third session of the sixth Parliament in 1993, announced the setting up of a National Productivity Centre to advise on measures aimed at increasing productivity in all sectors of the economy.

The BNPC was established as a parastatal with a tripartite board comprised of representatives from government, employers' and workers' organizations together with a few stakeholders. It was supported by the twinning arrangement between Singapore's National Productivity Board (NPB), the current Standards, Productivity and Innovation Board (SPRING), and the BNPC.

The BNPC Board reports to the Minister for Presidential Affairs and Public Administration. The Board presents the annual report of the BNPC to the Minister for consideration and for discussion before parliament. According to the 2009/2010 BNPC annual report, the board of directors is chaired by Mrs. F. S. Bakwena. The board also has a deputy chairperson, an executive director, and six members. On the other hand, the executive committee comprises nine managers (Corporate Service, Finance, Enterprise Support Program (ESP), Human Resource, Marketing, Productivity and Quality (P&Q), Information and Research Services (IRS), Public Service Program (PSP), and Francistown Regional Office Managers).

The major objectives of the BNPC (BNPC Act, 1993) are to:

- Stimulate and generate productivity consciousness in Botswana;
- Promote increased productivity in all sectors of the economy;
- Improve and develop standards of business management in all aspects and at all levels;
- Promote and foster good labor-management relations generally and in the implementation of productivity schemes and programs;

³ WITs are an adaptation of the Japanese Quality Control Circles, redesigned for the public sector and service industries.

⁴ This reference has been taken from a report studied by Botswana Quality Workforce (BQW) in 2010.

- Promote and develop the concept of employer responsibility towards the welfare of employees;
- Promote and develop labor-management joint consultation schemes and worker participation, and labor-management cooperation;
- Establish links between the Centre and other productivity institutions, both in Africa and elsewhere;
- Introduce suitable management practices and techniques;
- Assist organizations in identifying areas where there is a deficiency in skills or where performance can be improved, and thereafter give advice on how to deal with these;
- Foster equitable sharing of productivity gains among management, workers and consumers; and
- Do such other things or acts as may appear necessary for or incidental to the discharge of its functions under this Act.

The Act further states that to help attain the above stated objectives, the Centre should:

- Develop and organize productivity improvement and management programs, conferences, workshops and seminars for personnel from all sectors of the economy;
- Provide advisory and consultancy services for all sectors of the economy with a view to raising levels of efficiency and productivity;
- Carry out productivity measurement exercises for the purpose of establishing and developing national performance standards;
- Carry out studies, enquiries and research in the fields of management, development and productivity in cooperation with industry, commerce and organizations with related interests;
- Serve as a base for collecting and disseminating information on productivity improvement and related techniques, and the publication of information in the form of books, periodicals, bulletins and bibliographies;
- Train workers' representatives and workers in measures designed to improve labor productivity, and to relate wages and productivity to competitiveness in world markets and to good industrial relations; and
- Take steps to promote good industrial relations by the formation of consultative councils.

5-2-3. The BNPC–awareness process

The BNPC has been instrumental in stimulating and enhancing the level of productivity awareness as an advocate in Botswana, and has carried out the awareness campaign by dividing it into three sub processes of making people aware, enrolling stakeholders, and enabling individuals and institutions.

This, in short, is (i) making people aware of the benefits and challenges of productivity, Botswana's strategic imperatives, and global competitiveness; (ii) enrolling stakeholders in understanding, buy-in,

commitment, and proactive participation; and (iii) enabling individuals and institutions by empowering and supporting them with knowledge, skills, and competencies, and by creating working environments conducive (like incentive schemes, ergonomically designed workplace) to productivity.

One way the BNPC has been driving productivity in the districts has been through the creation of the District Productivity Improvement Forums (DPIFs). These are networks of change agents from government, private sector organizations, community and non-government organizations. In the year 2009/2010, four mini-district conventions were held in Mahalapye, Muchudi, Maun and Hukuntsi. The idea was to share productivity information with the tripartite productivity movement, namely the government, labor movement, and the business sector.

The major challenge faced by DPIFs has been their sustainability. The main reason for their dormancy is frequent staff movements and transfers, which take away active and passionate members of the structure. Furthermore, the other BNPC challenges have included the limited private sector involvement in productivity activities, non-availability of funding for some programs, and the inability to attract and retain qualified and experienced consultants.

The BNPC has dwelt too much on awareness and has achieved high levels of awareness (85%) at a national level, but without having many practical implementations. Furthermore, it has been involved in training the tools and techniques of productivity and International Organization for Standardization (ISO) certification among other activities.

The staffs of ESP and PSP mainly provide consultancy services. Many of these are people trained in Singapore and Japan. Recently, five BNPC consultants went on a study mission to Japan to improve their consulting skills in *kaizen* and 5S (5S stands for *Seiri* (Sort), *Seiton* (Straighten), *Seiso* (Shine), *Seiketsu* (Systematize) and *Shitsuke* (Standardize/Self-discipline)) productivity improvement techniques. In addition, ten consultants attended basic and advanced courses for productivity practitioners sponsored by the Asian Productivity Organization (APO) in South Africa. These BNPC consultants are engaged and involved in job training under Japan Productivity Center (JPC) mentors to roll out and support *kaizen* and 5S to the Gaborone City Council, Plascon, Babirwa Bricks and Lobatse Clay Works.

The BNPC was established to address the mindset issue, but it seemed it has played more and more the role of a consultant (with fees that are not affordable to small, micro and medium enterprises (SMMEs)) rather than the role of a national productivity promoter and a leader, as it had been envisaged. Thus, the BNPC found itself competing with the very people and consultancy firms it had established.

5-3. Institutional framework for the Productivity Movement

The BNPC has a tripartite structure: government (champion of reform and improved performance in public service), employers (driver of competitiveness in industry and services) and workers (key player in quality workforce agenda).

The BNPC board of directors is composed of members from government, employers, and workers. The executive committee is the next higher body of the BNPC and is led by an executive director.

The basic programs of the BNPC are stated briefly as follows.

(1) Productivity and Quality (P&Q): This is a frontline advocacy and mobilization arm of the BNPC that is responsible for inculcating productive behavior at all levels of Botswana's society by promoting public awareness, knowledge and utilization of P&Q tools and concepts.

The purpose of the P&Q program is to create awareness in Botswana's workforce on best practices in labor management relations with a view to creating a competitive workforce that can drive high productivity in all sectors of the economy. The program is used to develop and strengthen capacities of enterprises/organizations as well as to promote a conducive and transparent business environment for decent work for enterprise competitiveness and productivity.

(2) Enterprise Support Program (ESP): This program aims at facilitating the empowerment of Botswana's manufacturing and services enterprises to achieve sustainable world class performance through the application of P&Q best practices.

The major task of the ESP is to bring about a culture of excellence in the private sector. The strategy for delivering on the mandate was training and consulting in a number of focal areas including but not limited to the following.

- **Quality management systems (QMS):** The BNPC continues to play a pivotal role in providing research and advisory services for establishing quality management systems and standards for Botswana at the national level. Botswana continues to adopt new standards and update those previously adopted.
- **Project management:** Project delivery continues to be an area of concern in Botswana. The center offers a comprehensive program that is aimed at imparting project management skills to project officers. A significant percentage of the participants come from government departments even though parastatals and private organizations also participate.
- **Service quality:** There are two service quality institute training programs.

- SMME productivity: In the areas of SMME development, two new programs have been developed and are being implemented in various sectors. These programs are the productive enterprise program targeting SMMEs, and the employee financial wellness program targeting employee financial management. The productive enterprise program has been deployed for clusters of SMMEs working with a government ministry and for young people working in construction. The program has also been deployed on a trial basis for SMMEs working with a development financial institution with the objective of making it mandatory for SMMEs wishing to access funding at this institution to participate in this program.
- Supervisory development, personal mastery, and assessment for development and coaching are some of the consulting and training interventions.

(3) Public Service Program (PSP): This program aims to facilitate the creation of a culture of high performance through programs, which are aimed at improving the quality and performance in the public service.

The PSP is established by the BNPC to assist the public service sector with productivity and performance management tools to improve organizational performance. It facilitates the creation of a culture of high performance in the public service sector. In order to achieve this, the PSP uses various tools like the balanced scorecard / strategic management, team building, facilitation skills, 5S, change management, WITs, and performance-based reward system (PBRs).

(4) Information and Research Services (IRS): The program's core purpose is to avail P&Q information to enable the BNPC stakeholders to manage by fact in the delivery of individual and national prosperity. The IRS conducts research on productivity and related areas.

The IRS mandate is to provide up-to-date productivity information to facilitate informed decision making. This is done through three departments: research and measurement, information resource center, and editorial and publications.

As a commitment to continuous improvement and a fulfillment of the QMS requirement, the center continues to collect and analyze customer feedback. Following the introduction of a holistic feedback system, it is now possible to obtain data on the various services offered by the center.

(5) Directorate: The directorate is the overseer of corporate and strategic matters. The BNPC has developed a strategic plan covering the period 2009/2010 to 2016. Unlike previous strategies, which had five-year lifespans, this one spans a seven-year period as it has been aligned to a national development program, which is also aligned to the government's national vision 2016.

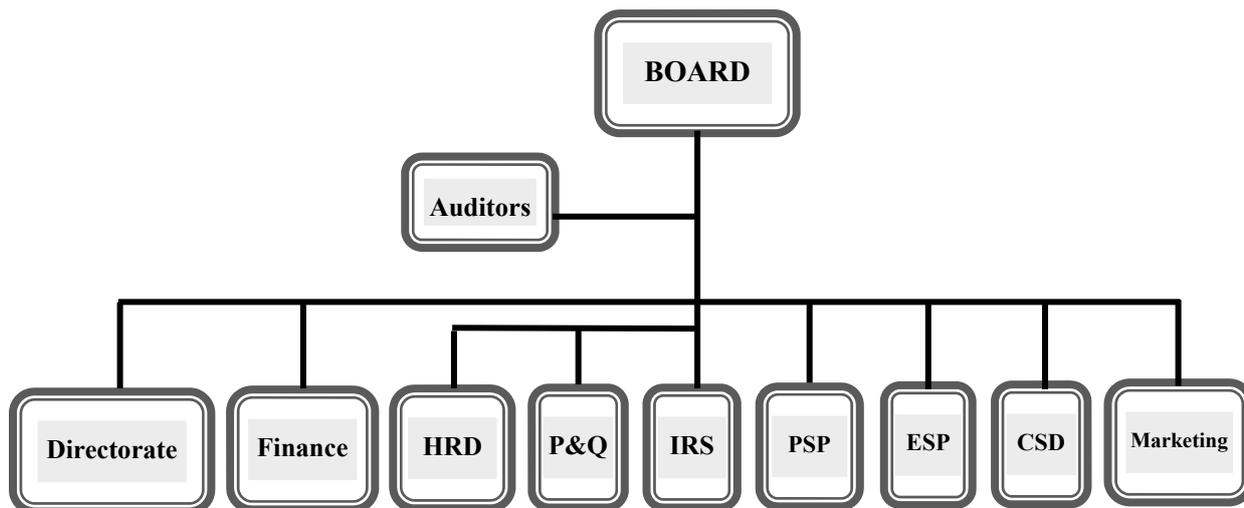


Figure 5-1. BNPC Organizational Structure

(6) Finance: The core functions of the finance department are to provide relevant, accurate, and timely financial information to the respective stakeholders for facilitating effective and timely decision making; to promote greater cost effectiveness and productivity in the use of the center's resources; to optimize return on its investments and deposits; and to ensure the safety of the BNPC assets. In general, it deals with all financial matters of the BNPC.

(7) Corporate Services: This department provides general support services to other departments. The records management unit is a new section in corporate services and is used to develop and manage a reputable record management system for the BNPC.

(8) Human Resources Department: The human resources function, which previously existed as a section under the corporate services department, was created as a stand-alone human resources department during 2009/2010. The department deals with the sourcing and provision of human capital to enable these departments and programs to deliver on their mandates. It deals with all human resources issues.

(9) Marketing Department: To meet the new challenges of the ever-changing work landscape, the BNPC transferred marketing from the directorate to be a standalone department. The marketing department is embarking on selling the benefits of P&Q in the transformation of the economy. The marketing department deals with all marketing-related issues about the BNPC and its products.

5-4. Lessons from Singapore's Productivity Movement

Average annual GDP growth in Singapore (1981–2001) was about 7.2%, and the average annual

productivity growth (1981–2001) was about 3.8%. The per capita income has grown from USD11, 000 to 37,100; home ownership has increased from about 20% to 93%; and life expectancy has gone from 73 years to 78 years of age. Recently, productivity improvement has been resurrected as a high-priority national agenda item in Singapore. As the Singaporean economy came out of the global recession, the government sees an opportunity to restructure the economy and maximize growth capability in the post-crisis era characterized by rising China and India. Singapore has achieved higher economic growth in 2001 as compared to 1981. According to the Global Competitiveness Index (GCI) 2010/2011 Report, Singapore ranked third and in 2011/2012 it ranked 2nd among 139 countries. This is mainly due to the effectiveness of productivity improvement programs at the national level.

Botswana's economy, on the other hand, is heavily dependent on the diamond mining sector. There has been uneven GDP growth over the past six years due to irregular growth in the diamond mining sector. According to the GCI 2009/2010 Report, Botswana ranked 66th, in the 2010/2011 GCI Report, it ranked 76th, and in 2011/2012 GCI Report, it has gone down to 80th among 139 countries worldwide. The productivity improvement program started some twenty years ago, but its impact has not been as high as expected.

5-4-1. Phases of the Productivity Movement

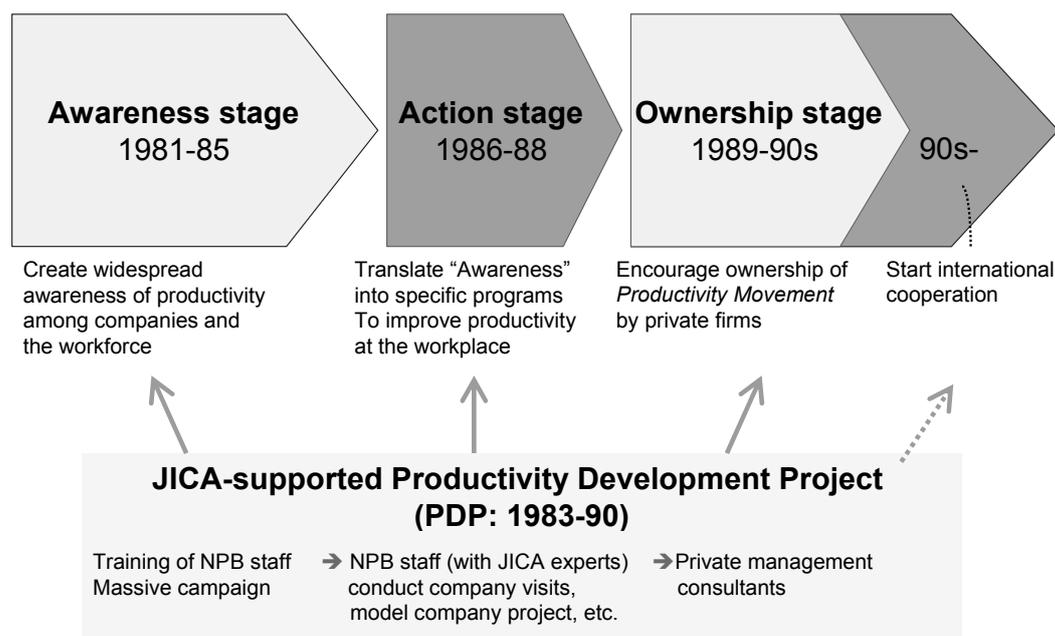
The Productivity Movement in Singapore went through three stages: awareness (1981–85), action (1986–88), and ownership (1989–90s). (For details, see Chapter 3)

(1) Awareness stage

The awareness stage focused on positive work attitude, teamwork, and recognition for companies and individuals. The measures taken in the awareness stage included but were not limited to education of the public; information dissemination and training; strengthening company identification; promotion of labor-management joint consultation; promotion of productivity in the public sector; and formation of the National Productivity Council (NPC).

(2) Action stage

The objective of the action stage was to translate “awareness” into specific programs to improve productivity at the workplace and the focuses were on skills upgrading of management and workers, upgrading of companies' operational efficiency, management consultancy referral schemes, associate consultants' schemes, the model company project, industry-based consultancy assistance scheme, training of the workforce (like the skills development fund), collaboration on national training programs (such as Singapore airline: SQ Center, Philips Singapore: industrial engineering training center, Seiko instruments: on-the-job training project).



Source: Elaborated by the author, based on the information provided by Mr. Lo Hock Meng, Executive Director of Singapore Productivity Association (SPA) to the GRIPS mission on Sept. 2, 2010.

Note: Reprinted from Figure 1-2.

Figure 5-2. Evolution of the Productivity Movement in Singapore

(3) Ownership stage

The objective of the ownership stage is to encourage ownership of the productivity movement and focus on making the productivity movement self-sustaining. At the ownership stage, productivity activity schemes like development of a core of productivity "champions" in companies are launched. The private sector leads the annual productivity campaign and employer groups chair the campaign steering committee.

5-4-2. Phases of the Productivity Movement in Botswana

The productivity movement in Singapore evolved in three stages, as explained above. Singapore had achieved the three stages of the productivity movement in about ten years (1981–1990s). However, after about twenty years (1991–2011), Botswana is still in the awareness stage, an early stage of implementing its productivity improvement program.

The BNPC is trying to enable organizations to enroll in three interrelated interventions: (i) empowering selected sectors by raising the level of productivity awareness; (ii) ensuring that the sectors are guided to adopt 'best practices'; and (iii) encouraging enterprises to adopt an excellence framework as a guide to continuous improvement.

Sectoral performance and productivity levels are higher in the government and allied sectors than the private sector, with electricity and water, community and personal services as well as general government (before the global financial crisis) recording slightly higher levels of productivity than finance and business services, which accounted for the highest labor productivity levels in the private sector. Although this should be interpreted with caution, this pattern seems to suggest that the performance improvement schemes that have been adopted by the government and allied sectors in recent years have had a slightly positive effect on productivity levels. This may partly be explained by the fact that the government and allied sectors seem to use the BNPC services more than the private sector. However, the BNPC still faces the following challenges.

- Awareness and enrolment gap
- Tripartite partnership too weak
- Limited impact on the private sector
- Limited research/measurement capability
- Low skills attraction and retention

5-4-3. Current industrial policy measures and organizations

After independence the focus of attention of the government was on education, as the skill base was very low. Botswana was in the bottom twenty five poor countries of the world. In the four decades that followed independence in 1966, diamond-led growth coupled with sound macroeconomic policies and good governance helped Botswana move from being one of the poorest at independence to one of upper middle income status. In the thirty years following independence, Botswana was the fastest growing economy in the world, outperforming the Southeast Asian Tiger economies (Singapore, Hong Kong, South Korea and Taiwan) with an average annual growth rate of over 10%. More recently however, real GDP growth has averaged around 5% over the past six years due to uneven growth in the diamond mining sector. Botswana's growth remains heavily dependent on the mining sector.

Due to this fact, the intention of the government despite the constraints is that more growth in the future will have to come from the non-mining private sector, which is also more employment-intensive and can therefore contribute towards the country fulfilling its objective of having decent work. Therefore, the government decided to promote and increase productivity in all sectors of the economy through the BNPC.

The policy process in Botswana is characterized by (i) tripartite cooperation among government, labor unions, and industry, and (ii) a multi-sectoral and multi-functional approach involving all relevant government ministries and agencies in good collaboration. The government of Botswana has a motto of 5D, i.e., democracy, development, dignity, discipline, and delivery. The current president of the

country complained about the culture of laxity in delivery and the dissatisfaction of the public about non-delivery of services by ministries and departments of government. The fifth D (delivery) is very close to the heart of the Office of the President.

To this effect, the government of Botswana has formed a national council, chaired by the Ministry of Trade and Industry (MOTI) in order to support the activities and evaluate their deliverables of the following seven programs.

- Sectoral development
- Export development
- Finance and investment
- Quality and production
- Entrepreneurship development
- Research and development
- Technology development and transfer

5-5. Initiating and scaling up the Productivity Movement in Botswana

5-5-1. Role of the government

The government, business, and labor share the common interest of increasing productivity in order to promote and generate economic growth in Botswana, but the government has more emphasis on employment creation driven by private sector development, liberalization, and foreign direct investment. The labor movement agrees that productivity must increase in order to grow the overall economy, but this should not be at the expense of undermining decent work (labor rights, social dialogue, and safe and secure employment). For the business sector, though acknowledging workers' rights, productivity is focused on higher profitability based on efficient and effective use of resources (including human resources) in a competitive local, regional and global market place.

5-5-2. The BNPC and related organizations

According to the 2009/2010 to 2015/2016 Strategic Plan, a synopsis of the organizational performance and the environmental scan observed that since the BNPC started operating, productivity awareness in Botswana has increased manifolds (questionnaire survey result), from 17% in 1997 to 42% in 2001, reaching 88% in 2010. It was also highlighted that training has been conducted in management supervision, QMS, PMS and strategic planning in the private sector, parastatals, labor organizations, non-governmental organizations (NGOs) and central as well as local government. With such a high level of awareness, the question is: Why are there still resounding concerns of low productivity and

poor work ethics in this country? Awareness alone is not a sufficient condition for productivity improvement. To this effect, the BNPC has employed Boitshepo Bolele, a consultant specializing in SMME training and consultancy. She focuses on training and mentoring of youth enterprises. However, the limitations of finance and the scarcity of SMME consultants hamper the BNPC from effectively implementing productivity improvements.

What is necessary is a translation of this awareness into behaviors that promote productivity. It is argued that poor parenting contributes to poor performance by school kids and poor work ethics by workers in all sectors of the economy.

Furthermore, the report also notes that despite this reported high level of productivity awareness, uptake of productivity improvement tools by enterprises remained low during the past strategic plan period. This was attributed to the fact that most SMMEs are not able to afford the consultancy fees charged by the BNPC for P&Q improvement tools facilitation while on the other hand, the BNPC needs to financially sustain itself.

The synopsis also notes that although the awareness levels generally gave indications of the extent of delivery on the statutory mandate, an evaluation of the achievements of the goals set over the past five years showed that the delivery generally fell short of the desired targets. The report summarizes the performance against each of the five goals:

(1) Public Service Reform: A nominated project to drive this objective was the installation of a performance management system within local authorities. Although the installation was successful, the centre was not able to strike any deal with the Government of Botswana for further reform interventions. Therefore, this project alone was not adequate to reform the public service in Botswana to where it is rated the best in Southern African Development Community (SADC).

(2) Quality Workforce: This goal was driven by the Botswana Quality Workforce (BQW) project, which could not take off due to both human and financial capacity challenges. However, by the end of the plan period, preparations were underway for a current reality study, which in turn will inform future directions of the project. Therefore the goal of improving the quality of Botswana's workforce to rank the best in the SADC region has not been realized.

(3) Informed Decision-Making Enablement: This goal is pursued through productivity- and quality-awareness programs, as well as production and dissemination of productivity statistics and information. The goal has largely been attained. What remains to be done in this area is targeted or segmented advocacy, as well as addressing paucity in the source data for productivity indicators.

(4) Culture of Excellence: A number of interventions involving SMMEs were made over the plan period. However, to the extent that many SMMEs are unable to meet consultancy fees for the suite of productivity-enhancing products, it was not possible to enable many local businesses to achieve a regionally (SADC) competitive rating on the business excellence model.

(5) BNPC Excellence Rating: Without a baseline study, the target rating of 400 on the Botswana Excellence Model by end of the plan period was simply far-fetched. Measurement conducted in 2008 using a relatively close business excellence model, the Common Assessment Framework (CAF), revealed that the BNPC is very far from the 400-point mark.

The BNPC has signed a memorandum of understanding (MOU) with the National Strategy Office (NSO), a directorate in the Office of the President. Through the MOU, the two institutions aim to work together and complement each other on matters relating to quality and productivity improvement in all sectors of the economy.

The MOU is premised on the BNPC and the NSO commitment to the achievement of the Botswana Excellence Strategy, which is aimed at diversifying the economy. Thus the collaboration provides an opportunity for improved efficiency and effectiveness for the BNPC and the NSO. Some of the areas of collaboration are:

- Economic diversification and sustainability: the BNPC and the NSO will work together to sensitize and promote a positive mindset on productivity, quality, economic diversification, and sustainability;
- Knowledge and information sharing: the two parties will second their personnel to each other's departments to work jointly on specific assignments for mutual learning and skills transfer; and
- Research: the participants will conduct joint research, publication and resource sharing to facilitate research in quality management, standardization, and policy evaluation.

5-5-3. District Productivity Improvement Forums (DPIFs)

The DPIFs are networks of change agents from government as well as private sector, community, and NGOs. The forums serve as a network of people passionate about productivity issues in Botswana; provide opportunities to institutions and people willing to share information and knowledge about productivity with others; and provide the BNPC with organized networks, which can be used for the BNPC productivity advocacy program.

Francis town (regional office of the BNPC) has conducted advocacy campaigns at the rate of one per month. The aim for the advocacy campaign was three pronged: (i) promoting productivity consciousness at organizational and individual levels, (ii) marketing the BNPC interventions, (iii) for

enrolment as well as utilization of the P&Q solutions by both organizations and individuals.

The office has undertaken at least two advocacies of *kaizen* and 5S per quarter at different organizations. *Kaizen* focuses on improving positive attitudes and cultivating continuous improvement within organizations. 5S, on the other hand, aims at raising the level of alertness in organizations and the need to properly sort out equipment in readiness for production.

Poloko Leburu Thobega is employed by the BNPC as a consultant. His current focus is on continuous improvement of productivity systems. He is also a technical focal person among the BNPC, the JPC and the APO. Since the introduction of *kaizen*, the BNPC has worked with the Gaborone city council, Freeworld Plascon, Babirwa concrete products and Dimawe Textile among others. While the interventions are, unfortunately, still at the awareness level, organizations will now require intensive skills development interventions.

5-5-4. Education and training of the labor force

The survey (BQW Project, 2010) results of a sample of employees, employers and stakeholders indicate a number of issues with regard to the quality of labor in Botswana. Generally the labor force in Botswana has attained high levels of education with more than 76% of the sample having attained at least secondary education. This is a result of the big investments in education since independence; education has taken the largest share of both development and recurrent expenditures. For most of the financial years, education was allocated more than 25% of the budget, which has resulted in enrolments increasing over the years. Botswana has since 1989 had free access to ten years of basic education. Looking at the unemployment rate, which has been higher for secondary school graduates, it is quite indicative that the quality of education is becoming an issue, especially the relevance of the skills for the private sector. The results from the survey, however, indicate that the majority of the employees had received training that was relevant to their current job indicating some level of job match between education/training and job done. Therefore, there is a need to look at the quality of education/training to make it relevant for the world of work and reduce the mismatch.

5-5-5. Private sector

An ESP is one of the components in the BNPC, and its task is to develop a culture of excellence in the private sector. The BNPC continues to offer consulting and training interventions in the areas of quality management systems, project management, supervisory development, productivity improvement, etc. Participation of the private sector in consulting and training interventions increased from 20% in 2009 to 38.7% in 2010.

The survey (BQW project, 2010) reveals that most employers understand productivity in terms of its meaning, its benefits, and ways to improve it. Employers generally perceive the productivity of workers to be generally satisfactory for all categories of employees. Most organizations use a performance management system and production with targets to monitor productivity, and most of them monitor performance. Most organizations' view is that the majority of workers are motivated by salaries and bonuses. There is a general agreement among employers that financial incentives are the most important determinant of productivity. Other major motivating factors are employee promotion, skill enhancement, education, and recognition.

5-6. Botswana's international cooperation in the industry sector

5-6-1. Collaboration of the BNPC and the JPC

The BNPC, whose responsibility is to improve productivity in Botswana by, among others, improving standards of management and labor-management relations has been collaborating with the JPC in the areas of capacity building for almost five years.

The collaboration has seen the two productivity centers assist each in various areas of productivity improvement tools. The BNPC consultants have been to Japan to learn how the Japanese conduct productivity improvement in various institutions. The Japanese have been to Botswana to assist the BNPC in improving the productivity of organizations in Botswana and have recommended a number of tools that the BNPC could use to assist companies.

One of the simplest tools introduced by the JPC is a *kaizen*, a system of continuous improvement. *Kaizen* refers to a philosophy or practice that focuses on continuous improvement of processes in manufacturing, engineering, supporting business processes, and management. *Kaizen* involves providing the training, materials, and supervision needed for employees to achieve the higher standards and maintain their ability to meet those standards on an on-going basis.

Since the introduction of *kaizen*, the BNPC has worked with the Gaborone city council, free world Plascon, Babirwa Concrete Products, and Dimawe textiles among others. The benefits of *kaizen* include among others small continual improvements resulting in improved productivity, improved quality, better safety, faster delivery, lower costs, and greater customer satisfaction. Employees find work to be easier and much more enjoyable, resulting in higher employee morale and job satisfaction and lower turn-over.

5-6-2. The BNPC and the SADC

The SADC is the regional productivity center, and its objective is to assist countries that do not have

national productivity organizations to establish them and also to capacitate existing national productivity organizations. The BNPC is considering expanding the marketing of its products into the SADC region in the next financial year (2010/2011). The marketing will also look at continental initiatives in concert with other governments, parastatal and private sector programs.

In addition to helping countries establish their own national productivity organizations, the BNPC was also mandated by the SADC Ministers responsible for employment and labor to host the Secretariat of the SADC Regional Productivity Organization (RPO). The BNPC in consultation with the SADC secretariat is working out the financial and legal framework or modalities of hosting the Secretariat.

5-6-3. The BNPC and the APO

Currently, the APO imparts skills to African practitioners. In a similar way, the BNPC used to train its members through this organization. Five BNPC consultants recently attended an Advanced Training Course for Productivity Practitioners (ACPP) held in Johannesburg, South Africa. This course was organized by the APO for participants from African countries. The objective of this APO initiative was to develop productivity practitioners from national productivity organizations of Pan-African Productivity Association (PAPA) member countries. The PAPA member countries represented were Botswana, Kenya, Mauritius, and Nigeria.

In South Africa and Zambia, the APO formulated basic and advanced courses and provided in-depth knowledge on P&Q tools for promoting and conducting productivity improvement activities to strengthen the technical competencies of practitioners and the institutional capacity of their organizations.

5-7. Conclusion and recommendations

According to the BQW 2010 survey report, productivity in Botswana is generally still lower than the required level, which is a reflection of inadequate leadership and management. Although the BNPC is mandated to promote increased productivity in all sectors of the economy, including both individuals and organizations, through training and consulting, its impact is not strong. Currently, a significant proportion of employers did not understand the BNPC's mandate and had not benefited from the BNPC activities. The BNPC is found to be generally good in terms of visibility of programs, promotion of good industrial relations productivity improvement, advisory and consultancy services and research and development. However, they are rated as low in productivity measurement efforts and training of workers. There is also a general perception among employers that the BNPC's contribution to productivity levels has not increased. For these groups, the major limitations are the BNPC's inability to cover all sectors and the BNPC not being available countrywide. Some

stakeholders felt that the minimum wage leads to low productivity as workers are guaranteed payment irrespective of productivity.

Singapore's experience in initiating a productivity movement and its success with economic development can be taken as a benchmark for Botswana's productivity development. Accordingly, the following are some of the lessons that the BNPC learned from Singapore's Productivity Movement.

(1) Productivity is a question of paradigm

Productivity is a question of paradigm shift, and it is a movement, not an event. Productivity is a mental attitude that leads to practical action resulting in real improvement for everyone. Hence, what is required is a new mindset of curiosity and concern with context, acceptance of complexity and its contradictions, diversity consciousness and sensitivity, seeking opportunity in surprises and uncertainties, faith in organizational processes, focus on continuous improvement, extended time perspective, and systems thinking.

(2) Productivity needs strong and sustained commitment

Productivity needs strong commitment from higher officials, organizations, and individuals. Key players in the movement have to be mature and concerned citizens and the BNPC has to be given due attention by the Office of the President.

(3) Productivity supporters need to be conscious of three phases

The productivity mindset is an attitude of mind that strives for and acquires the habit of continuous improvement. The three phases of the productivity movement (awareness, action, and ownership) need to be consciously followed for an effective and efficient output. Awareness is achieved through the stages of understanding, conviction, and action. However, the BNPC seems to have dwelt quite a lot (twenty years) on only the understanding part of the awareness creation.

(4) Triple helix

A productivity movement refers to the commitment and active involvement of government, private sector, and universities (triple helix) in activities to increase productivity. The concept of the triple helix is a missing element in Botswana. The proper functioning of the linkage includes (i) preparing suitably trained graduates to meet the manpower needs of industry; (ii) practice- and application-oriented training; (iii) "industry attachment" (internship) for students; and (iv) collaboration with industry and development agencies.

(5) Productivity Promotion

The BNPC's promotional work needs to be further strengthened. An annual productivity campaign is required to promote a theme (quality and productivity). High-level ministers should launch the campaign to develop a nationwide program and to form Quality Circles at the workplace. Productivity promotion may be carried out through:

Education, seminars and publications

- Media support and involvement of artists
- Teaching quality and productivity at all levels of the education system of Botswana
- International adoption of Quality Circles
- Quality award conference
- National Quality Circles Conventions
- Publications and dissemination of Quality News

Encouraging and establishment of national awards

- Quality Award for Business Excellence in Botswana
- National Productivity Award
- National Training Award
- Excellent Service Award
- National Quality Circles Award

Adoption of best practices

- Japanese Productivity Movement (JPM)
- Asian Productivity Organization (APO)
- Japan Productivity Center for Socio-Economic Development (JPC-SED)
- Study missions to study other countries' productivity experiences

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APPENDICES: Mission Reports
(Industrial Policies in Selected East Asian Countries)

Appendix 1. Report on Singapore Mission

Appendix 2. Report on South Korea Mission

Appendix 3. Report on Taiwan Mission

Appendix 1

Report on Singapore Mission

September 13, 2010
GRIPS Development Forum, Tokyo

The GRIPS Development Forum, together with researchers and officials from Vietnam and Ethiopia, visited Singapore from Aug. 29 to Sep. 3, 2010 to study Singapore's experiences in productivity improvement and skills upgrading as well as organizational aspects of industrial policy formulation and implementation. Findings of this mission will be provided to concerned officials in developing countries including Ethiopia and Vietnam¹. We also gathered information on Singapore's international cooperation in the industrial sector of developing countries. The mission had meetings with government ministries and agencies, research institutes and universities, and Japanese organizations such as JCCI, JETRO, and JICA. It also visited a Japanese manufacturing company operated by Singaporeans.

The mission members consisted of Prof. Kenichi Ohno, Prof. Izumi Ohno, Ms. Sayoko Uesu (GRIPS Development Forum); Prof. Daniel Kitaw (Addis Ababa University); and Ms. Nguyen Thi Xuan Thuy, and Ms. Truong Thi Nam Thang (Vietnam Development Forum). In addition, Mr. Le Mang Hung and Mr. Nguyen Quang Vinh (Ministry of Planning and Investment, Vietnam), and Ms. Kumiko Kasai (JICA expert/SME policy advisor in Vietnam) joined the mission (see attachments for mission schedule, places visited, and information collected). We would like to express our deep appreciation to all organizations and individuals who kindly received us and shared valuable information with us.

The main findings of the mission are as follows.

1. The current situation surrounding productivity

In recent months, productivity improvement has been resurrected as a high-priority national agenda in Singapore. As the Singaporean economy came out of the global recession, the government sees an opportunity to restructure the economy and maximize growth capability in the post-crisis era which is characterized by rising China and India. The government formed the high-level Economic Strategies Committee (ESC) chaired by the Finance Minister in May 2009 with tripartite participation of government, labor unions, and industry².

¹ This mission was commissioned by the Japan International Cooperation Agency (JICA) to compile information on industrial policies in selected East Asian countries for the use of other developing countries. Visits to South Korea and Taiwan are also planned in the near future.

² The ESC was formed as one of the many *ad hoc* mechanisms for shaping economic future and long-term development visions of the country. Under the committee headed by the Finance Minister and comprising of 25 members, eight subcommittees and several working groups were formed. Each subcommittee was co-chaired by the representatives of the public and private sectors. For formulating key policies the

The ESC submitted a final report to Prime Minister Lee Hsien Loong at the end of January 2010, which was officially launched on February 1, 2010. Envisioning “high-skilled people, innovative economy, distinctive global city,” the ESC Report recommended a drastic shift from factor-driven to productivity-driven growth. It set an annual productivity growth target of 2-3% and an average GDP growth target of 3-5% in the next ten years, and presented seven key strategies to achieve these goals. The main thrust of the ESC Report was endorsed by the Prime Minister and reflected in the FY2010 budget (starting from April 1).

One of the seven key strategies is “growing through skills and innovation.” To oversee and drive the national effort to boost productivity and skills upgrading, the government established the National Productivity and Continuing Education Council (NPCEC) in April 2010 (see Section 3).

While the Singaporean economy grew by an average 5% per annum over the past decade, productivity gains have declined in recent years³. According to the ESC Report, the country’s productivity levels in manufacturing and services are only 55 to 65% of those in the US and Japan. In the construction sector, the productivity level is only one-third and one-half of Japan and the US, respectively. According to many whom we interviewed, this apparent low productivity in a country renowned for well-educated people and excellent policies was caused by the existence of low-skill foreign workers and the old generation of Singaporeans who received little education in the past, both of which bring down average productivity. In terms of sectors, low productivity is observed in construction, SMEs, and certain services such as retails, restaurants, and tourism.

Over the past decade, Singapore has become increasingly dependent on foreign workers, including both highly skilled professionals and low-skill workers, which now account for about one-third (or 1 million) of the entire workforce. Low-skill foreign workers compete with relatively less educated Singaporeans on the job market. The ESC Report points out the need to manage (i.e., gradually reduce) the country’s dependence on low-skill foreign labor and support continuous education and training of low-wage Singaporean workers. The Report also emphasizes the importance of productivity growth to sustain high wages and high living standards which Singaporeans have come to enjoy, and urges the government to encourage enterprise innovation, investment in technology, and training to create better and more high paying jobs.

Singaporean government does not produce five-year or any other regular plans.

³ In Singapore, productivity primarily means labor productivity or value-added per worker, reflecting the government’s deep concern with sustaining high wages and high living standards for its citizens. As such, it is affected by technology, capital accumulation, efficiency and waste reduction, systemic innovation, and training adopted by companies. Concerns about Singapore’s recent slowed down in productivity have been also pointed out in *Singapore Competitiveness Report: 2009* (foreword by Michael E. Porter) produced by the Asia Competitiveness Institute of the Lee Kuan Yew School of Public Policy. This report also supports the government’s ongoing effort to move towards an innovation-driven economy.

2. History of Productivity Movement⁴

Singapore was the first country where JICA provided comprehensive technical cooperation called Productivity Development Project (PDP) to transfer Japan's know-how in productivity improvement. At the request of then Prime Minister Lee Kuan Yew, JICA implemented PDP during 1983-1990. Subsequently, Singapore became quite successful in internalization, scaling up, and institutionalization of Productivity Movement. Its experiences should offer useful insight for developing countries which plan to introduce similar projects.

Singapore's interest in productivity dates back to the early days of independence, before the initiation of JICA cooperation. In 1967, the National Productivity Center was established under the Economic Development Board (EDB). In 1972, the Center was upgraded to a separate agency, the National Productivity Board (NPB), and in 1996 was merged with the Singapore Institute of Standards and Industrial Research to become the Productivity Standard Board (PSB). In 2002, PSB's productivity-related functions were transferred to the Standards, Productivity and Innovation Board (SPRING). Separately, the Singapore Productivity Association (SPA) was established in 1973 as an affiliated body of NPB with the purpose of promoting active involvement of organizations and individuals in Productivity Movement and spreading the idea of productivity and its techniques.

Table 1. History of Productivity-related Organizations

Period	Organization	Remarks
1964	Productivity Unit, EDB	1965: Charter for Industrial Progress, Productivity Code of Practice
1967-1972	National Productivity Center (NPC) - Autonomously-run division under EDB	1971: Tripartite Interim Management Committee (to prepare NPB)
1972-1995	National Productivity Board (NPB) - Statutory body, initially affiliated with Ministry of Labor and later with Ministry of Trade and Industry (MTI)	1973-present: Singapore Productivity Association (SPA)
1996-2001	Productivity Standard Board (PSB) - Statutory body, affiliated with MTI	1981-85: awareness stage 1986-88: action stage 1989-90s: ownership stage
2002-present	Standards, Productivity and Innovation Board (SPRING) - Statutory body, affiliated with MTI	

Productivity Movement in Singapore evolved in three stages: (i) awareness stage (1981-85); (ii) action stage (1986-88); and (iii) ownership stage (1989-90s). The awareness stage aimed to create widespread awareness of productivity among companies and workforce.

⁴ This section is based mainly on the information provided by Mr. Low Hock Meng, Executive Director of the Singaporean Productivity Association and the former counterpart of JICA-supported PDP.

The National Productivity Council (NPC) was established in 1981, chaired by the State Minister of Labor and with the participation of about 20 members from government, employer groups, unions and academia, which reviewed productivity efforts and outlined future strategy. Massive productivity campaigns were launched at both national and company levels. November was designated as “Productivity Month,” in which then Prime Minister Lee Kuan Yew delivered annual speeches on productivity from 1981 for seven consecutive years. In the action stage, “awareness” was translated into specific programs to improve productivity at the workplace, by introducing a management consultancy referral scheme, model company projects, training of workforce through the Skills Development Fund (see Section 3), and so on. The ownership stage assured sustainability of Productivity Movement by launching many initiatives to encourage company-level productivity movement. The Singapore Quality Award was introduced in 1994.

Throughout the three stages, NPB played a key role as the secretariat of NPC by providing training and management consultancy, spreading quality control (QC) circles, promoting the concept of productivity, and administering SDF. Key factors for successful scaling-up of Productivity Movement included establishment of institutional mechanisms (including NPC), strong support of key stakeholders (public sector, unions, and employers), and sharing productivity gains among these stakeholders. JICA-supported PDP made important contributions to this movement by sharing best practices, training NPB staff and company workers, and developing manuals.

After PDP was completed in Singapore, NPB and JICA conducted joint training programs in developing countries in Asia and Africa until around 2005. In parallel, under the Singapore Cooperation Program (see Section 5), SPA also provided cooperation to productivity improvement in Botswana from 1991 for about ten years at the request of the President of Botswana to then Singaporean Prime Minister Goh Chok Tong. Based on the experience of PDP, SPA supported promotion of tripartite cooperation among government, labor, and industry, staff training of the Botswana National Productivity Center, and implementation of pilot projects. In its first phase, cooperation produced mixed results as it caused brain drain of trained staff. In the second phase, however, cooperation successfully strengthened the Botswana National Productivity Center which has come to be regarded as a center of excellence in Sub-Saharan Africa. For countries interested in introducing Productivity Movement in Africa and elsewhere, a detailed study of SPA’s cooperation with Botswana should be a useful guide for understanding how technical cooperation should be designed for maximum impact and minimum brain drain.

3. Current industrial policy measures and organizations

The policy process in Singapore is characterized by: (i) tripartite cooperation among government, labor unions, and industry, and (ii) a multi-sectoral and multi-functional approach involving all relevant government ministries and agencies in good collaboration.

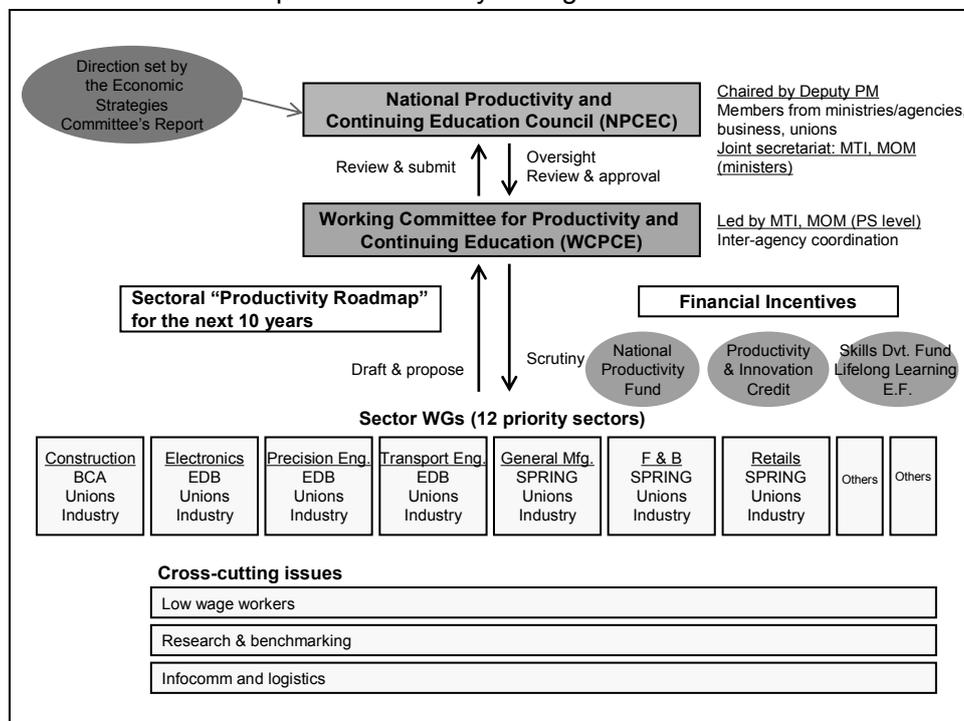
Regarding industrial policy measures, the Singaporean government takes both broad-based and targeted/sectoral approaches. The government offers various incentives to encourage enterprises to adjust and restructure by following (policy-adjusted) market price signals rather than through quantitative quotas or direct subsidies to individuals.

Recent initiatives related to productivity, SMEs, and FDI attraction include the following.

(1) Measures for productivity and continuing education and training

As explained before, the National Productivity and Continuing Education Council (NPCEC) was established in April 2010 to lead the national effort to transform Singapore into a productivity-led economy. NPCEC is chaired by Deputy Prime Minister Teo Chee Hean and its members come from government, business community, and labor unions. Chairpersonship of DPM signifies the high priority accorded to the productivity issue. The Ministry of Trade and Industry (MTI) and the Ministry of Manpower (MOM) jointly act as the secretariat. Under NPCEC two layers of organizations are created including (i) the Working Committee for Productivity and Continuing Education (WCPCE) led by the Permanent Secretaries of MTI and MOM; and (ii) 12 sector working groups and horizontal thematic working groups which are coordinated by responsible government agencies (see Figure 1).

Figure 1. Institutional Mechanism for Boosting Skills and Enterprise Productivity through National Effort



NPCEC has selected 12 priority sectors based on the criteria of the size of contribution to employment and GDP and high potential for productivity gain. Each sector group formulates

a productivity roadmap for the next ten years. These roadmaps are reviewed by WCPCE and submitted to NCPEC for final approval. A ministry or an agency is assigned to oversee each priority sector. For example, EDB is responsible for electronics, precision engineering, transport engineering, logistics and storage, while SPRING is responsible for general manufacturing, food and beverages, and retails. In addition, horizontal working groups are created to work on cross-cutting issues such as low-wage workers, research and benchmarking, and infocomm (ICT) and logistics. As usual, government, businesses, and unions participate in these sectoral and thematic working groups.

Table 2. Major Initiatives on Productivity and Continuing Education and Training (CET)

Policy area	Actions taken
Boosting skills and enterprise productivity through national effort	-Establishment of National Productivity and Continuing Education Council (NPCEC)
Investing in people	-Enhancement of Continuing Education and Training System -Introduction of Workfare Training Scheme -Enhancement of Workfare Income Supplement
Supporting enterprise investments in innovation and productivity	-Introduction of Productivity and Innovation Credit -Establishment of National Productivity Fund -Raising foreign worker levies
Supporting business restructuring	-Introduction of tax allowance to defray acquisition costs for qualifying mergers and acquisitions -Introduction of stamp duty relief for acquisition of unlisted shares
Enhancing land productivity	-Introduction of Land Intensification Allowance

Source: Sanchita Basu Das, *Road to Recovery*, ISEAS, 2010, Appendix IV, pp.190-200.

The government has committed to a total of S\$5.5 billion over the next ten years to support productivity initiatives. This includes S\$3 billion for the National Productivity Fund (NPF) and the Productivity and Innovation Credit (PIC) and S\$2.5 billion for CET. PIC, a new tax benefit scheme, is one of the broad-based supports. Under PIC, any enterprise in any sector is eligible for a fiscal incentive when they invest in productivity enhancement or innovation. Specifically, they are entitled to a deduction of 250 percent of eligible expenditures from their taxable income with a cap of S\$300,000 per activity. Meanwhile, NPF is a targeted support which provides funding for productivity initiatives in specific industries or enterprises only. Under the priorities and guidelines established by NPCEC, sector working groups propose productivity initiatives which are reviewed by WCPCE.

Regarding Continuing Education and Training (CET), the previous system has been expanded to upgrade workforce skills and competitiveness at all levels, by providing multiple skills-based progression paths to complement the academic path, and by reaching out to more professionals, managers, executives and technicians. Furthermore, the government now encourages companies to retain and train workers (especially low-wage workers and older workers) by introducing the Workfare Training Scheme and enhancing the Workfare

Income Supplement Scheme. Companies can also receive financial support for employee training from two sources: the Skills Development Fund (SDF) and the Lifelong Endowment Fund (LLEF)⁵. Until 2008, SDF targeted only low-wage workforce, but more recently the SDF Levy was broadened to cover the entire workforce. While all workers have access to the CET scheme in principle, subsidies from SDF and LLEF are currently limited to Singaporean workers only.

(2) SME development

There are over 116,000 local SMEs in Singapore. SMEs account for 50% of value-added, and 60% of the total employment⁶. Responsibility for SME development rests with MTI's Enterprise Division (policy) and SPRING (implementation). SPRING is an SME development agency and a national standards and accreditation body.

The Singaporean government takes both broad-based and targeted approaches to SME promotion. Broad-based approaches are implemented on a scheme base in collaboration with business chambers and associations. There are five Enterprise Development Centers located at business associations and chambers, where a team of business advisors give face-to-face advice to SMEs on government assistance schemes applicable to SMEs, finance, management, human resources, operations, etc. As part of this advisory service, the Financial Facilitator Program has financial facilitators (composed of ex-bankers, financial consultants, and advisors) who help SMEs to gain access to financing. Targeted approaches are tailored to individual enterprises (which are usually relatively large SMEs). SME managers can contact designated SPRING officers when necessary to seek advisory services and resolve problems.

Singapore does not have the equivalent of Japan's Shindan system (SME Management Consultants System), an institutionalized and state-backed system for training, testing, registering, and renewing certified SME consultants (shindanshi) who advise on management and facilitate SME finance (shindanshi's reports on SMEs' business plans are regularly used by Japanese banks to evaluate loan applications). In Singapore, banks and management consultants work independently, and it is the responsibility of banks' loan officers to assess and decide on loan applications. There is however the Practising

⁵ SDF was established in 1978 as an employer-based funding that provides financial incentives for staff training. Through SDF, employers can enjoy course fee subsidies of up to 90%, though the amount of subsidies depends on each course. All employers must pay Skills Development Levy for all workers up to the first S\$4,500 of gross monthly remuneration at a levy rate of 0.25%, or S\$2 per worker, whichever is higher. The Central Provident Fund collects the levy on behalf of WDA. The levy collected is channeled into SDF, which provides grants to companies that send their workers for training. LLEF was established in 2001 with an initial capital of S\$500 million and with the current total capital of S\$2 billion. Interest earned from this endowment fund can be used to support various lifelong learning initiatives.

⁶ In Singapore, an SME is defined as a company with: (i) less than S\$15 million fixed asset investment (for manufacturing), or (ii) less than 200 workers (for non-manufacturing and services). The government plans to revise this definition next year to align with international norms which use revenue-based definition.

Management Consultant (PMC) Certification Scheme, which gives formal endorsement on the quality of management consultants (authorized by SPRING, WDA, and International Enterprise Singapore). This system is modeled after the UK's Certified Management Consultant System. About 200 consultants have so far been qualified by the Certification Board. Although more information is needed, a quick look at the training and examination modules of the PMC Certification Scheme indicates that this scheme focuses primarily on project management, finance, laws, and applications for government incentives, and less on production management on the factory floor (which is covered by Japan's shindanshi).

(3) FDI attraction

MTI's Industry Division (policy) and EDB (implementation) are responsible for FDI attraction and industrial development. The two work closely to attract FDI, foster "industry verticals" (suppliers of intermediate inputs), and enhance business environment. Singapore generally ranks very high in the ease of doing business. It has consistently held the top position among nearly 200 countries in the World Bank's *Doing Business* Reports from 2007 to 2010.

EDB is a one-stop agency for FDI marketing as well as the hub of industrial development, especially in transport engineering, electronics, precision engineering, chemicals, biomedical sciences, logistics, healthcare services, education services, infocomm and media, professional services, and consumer businesses. It also promotes new areas of growth such as clean energy, environmental technologies, bio-technology, and digital media.

In attracting FDI, EDB also combines broad-based approaches with targeted approaches. In addition to improving business environment generally, it offers targeted, company-specific support and incentives based on individual negotiations. This is called the "Queen Bee" approach where inviting the queen bee (an anchor firm) automatically brings a large number of other bees into the country (similar to the "Canon effect" in Northern Vietnam). A good example in this regard is the attraction of world-class aerospace firms such as Rolls-Royce, Pratt & Whitney, ST Aerospace, to the Seletar Aerospace Park which was transformed from a secondary airport with an area of over 300 ha, which prompted arrival of related maintenance and repair services.

4. Nanyang Polytechnic

Nanyang Polytechnic (NYP) is one of the five national polytechnics in Singapore. It was established in 1992 and now has about 78,000 students. NYP provides both Pre-Employment Training (PET, for students) and Continuing Education and Training (CET, for current workers). Regarding PET, seven schools of NYP run 47 full-time courses for three-year diploma in engineering, information technology, business management, interactive and digital media, design, chemical and life sciences, and health sciences. CET at NYP offers formal diploma courses, customized courses, and degree programs with

overseas universities. The government provides full funding for administration and operations of NYP (minus tuition fees collected). Meanwhile, NYP is free to use its revenue from services provided to industry for any activities or investments.

NYP has a strong link with industry. This includes: (i) preparing suitably trained graduates to meet the manpower needs of industry; (ii) practice- and application-oriented training; (iii) “industry attachment” (internship) for students; and (iv) collaboration with industry and development agencies such as SPRING, Infocomm Development Authority, etc. NYP carries out many industrial projects on a commercial basis in R&D, product design and development, and innovative solutions for industry, as well as teaming up with EDB to support start-up technopreneurs. Such collaboration is “win-win” for both industry and NYP, because industry can benefit from reduced cost and risk for R&D and start-up investment and because NYP can have ample opportunities for staff capability development and student training in frontline technology in addition to earning money. Industry is represented in NYP’s Board and Advisory Committees and participates in course development and review. NYP’s reputation is firm and long standing among Singaporean manufacturers. It cannot accept all cooperation applications from industry because it receives too many.

NYP is also active in international cooperation. NYP International provides consultancy services including a World Bank Project in TVET reform (China) and cooperation with the Suzhou Industrial Park Institute of Vocational Technology (China). It also conducts training programs for management staff and specialists of TVET institutions around the world.

In Singapore, manpower policy is formulated through close collaboration between concerned official bodies and educational institutions. The National Manpower Council (NMC), a ministerial council headed by the Minister of Manpower, identifies the country’s human resource needs in the medium to long run and maps out strategies to meet these needs. Various government ministries and agencies, including MTI, the Ministry of Education (MOE), and EDB, participate in NMC. Based on demand projection and skills mapping, NMC sets numerical targets for specific skills required by the country and decides on the number and type of students to be graduated from universities and polytechnics over the next four to five years. MOE provides funding to educational institutions for establishing new courses if that is judged necessary. EDB may also provide additional funds to relevant industries (e.g., aerospace) for upgrading its workforce.

5. Singapore’s international cooperation in the industrial sector

In 1992, the government established the Singapore Technical Cooperation Program (SCP) to share the country’s development experience and public sector expertise with developing countries. SCP is administered by the Technical Cooperation Directorate (TCD) of the Ministry of Foreign Affairs (MFA), which is responsible for planning and executing various training courses, seminars, workshops, and study visits in collaboration with domestic

agencies and foreign partners. In FY2009, about 300 such activities were organized, and the number of SCP participants reached a record 6,729.

SCP is implemented in various channels including: (i) bilateral training programs, (ii) joint training programs or third-country training programs, (iii) Initiatives for ASEAN Integration (IAI) Centers; and (iv) small island developing states technical cooperation programs. Bilateral training programs are offered directly by Singapore to developing countries on a government-to-government basis, in the areas where Singapore has strength. Examples of FY2010 training courses include private sector growth and FDI attraction (executing agency: Civil Service College) and technical and vocational education and training (TVET) programs for principals and instructors (executing agency: ITE Education Services). Since 1997, JICA has managed the Japan-Singapore Partnership Program for the 21st Century (JSPP21) with TCD/MFA. This included the joint training program on productivity management in the Southern African Development Community (SADC) countries which was implemented during 1997-2004.

Apart from SCP, the Singapore Cooperation Enterprise (SCE) provides fee-based technical cooperation which does not fall within SPC's responsibility. SCE was formed by MTI and MFA in 2006 to respond to growing foreign requests to tap on Singapore's development experiences. It mobilizes expertise accumulated in the country's public agencies and retired civil servants and politicians on a project basis. SCE does not receive financial support from the government and charges fees for technical cooperation on a cost-recovery (non-profit) basis.

The Singaporean government sees complementarity between ODA-based SCP and fee-based SCE, and uses them strategically. On a government-to-government basis, SCP is used as an entry point to share Singapore's development experiences with developing countries in general, which can lead to more specific country-tailored cooperation projects conducted by SCE. Meanwhile, SCE can work with both government and non-government clients in developing countries.

A good example is the ongoing cooperation with Rwanda. President Kagame has a strong desire to learn from Singapore, a small and resource-poor country which, despite these handicaps, achieved impressive economic growth by building human capability. Cooperation started with SPC-managed bilateral training programs, which subsequently developed into various projects supported by SCE (e.g., workforce development and public sector capacity building, and social security fund reform). Currently, SCE implements cooperation projects in China as well as other countries in Asia, Middle East, and Africa.

6. Other visits

The mission visited the Center for Strategic Futures in the Strategic Policy Office, under the

Prime Minister's Office. Detached from daily administrative works, this center conducts long-term scenario planning from national and global perspectives and analyses chances and risks that may affect Singapore's future. Their exercises are inputs to setting broad policy directions and determining Singapore's future positioning. Similar divisions also exist in different ministries to conduct scenario planning exercises in respective areas. These "future divisions" work closely with research institutes, universities, and other stakeholders to collect information and facilitate vision-sharing. Singapore does not produce regular national development plans (there was only one Five-Year Development Plan in the 1960s). Instead, it does long-term vision formation and strategic planning through *ad hoc* and task-based committees and councils (such as the Economic Strategies Committee and the National Productivity and Continuing Education Council mentioned above) and scenario planning by "future divisions." Being a small and open economy, the government considers it vital to retain flexibility and ability to quickly respond to changing global environment. Flexible strategic planning is possible thanks to high institutional capacity of civil servants who are clean, purposeful, and able to translate policies into actions. The small size of Singapore and its unique politics may also facilitate information sharing among all stakeholders without political capture and serious conflicts of interest.

We exchanged views with the management team and faculty members of the Lee Kuan Yew School of Public Policy at the National University of Singapore. At their invitation, Kenichi Ohno gave a public seminar on "Industrial Policy in Africa: What and How East Asia Can Teach." The mission also visited the Institute of Southeast Asian Studies and exchanged views with its researchers.

The mission also visited Yokogawa Electric Asia Pte. Ltd, a Japanese company producing made-to-order equipment for factory automation such as distribution control systems, transmitters, measurement instruments, and power supply units. The mission met with the management team as well as toured the factory. Yokogawa started its Singapore operation in 1974. Since the late 1990s, Yokogawa Singapore has been run by Singaporeans only. The company introduced QC circles in the early 1980s, and there are currently 14 active QC circles with the participation of about 90% of the workforce. We were impressed with the strong commitment of both management and workers to quality, cost reduction, and continuous improvement. Yokogawa Singapore won the 2010 Manufacturing Excellency Award (EDB Award), and became the first among Japanese companies operating in Singapore to receive this honor.

Attachments

1. Mission schedule
2. Organizations/persons visited
3. List of information collected

Mission Schedule (29 Aug.- 3 Sep. 2010)

1. Mission Members

Kenicni Ohno	Professor, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Izumi Ohno	Professor, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Sayoko Uesu	Research Associate, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Daniel Kitaw	Associate Professor, Dept. of Mechanical Engineering, Addis Ababa University, Ethiopia
Nguyen Thi Xuan Thuy	Researcher, Vietnam Development Forum (VDF) / GRIPS-NEU Joint Research Project, Hanoi, Vietnam
Truong Thi Nam Thang	Researcher, Vietnam Development Forum (VDF) / GRIPS-NEU Joint Research Project, Hanoi, Vietnam
Le Manh Hung	Director, The Assistance Center for SME - North Vietnam (TAC Hanoi), Enterprise Development Agency (EDA), Ministry of Planning and Investment (MPI), Vietnam
Nguyen Quang Vinh	Senior Official, SME Development Division, Enterprise Development Agency (EDA), Ministry of Planning and Investment (MPI), Vietnam
Kumiko Kasai	SME Policy Implementation Advisor / JICA Expert, SME Development Division, Enterprise Development Agency (EDA), Ministry of Planning and Investment (MPI), Vietnam

2. Mission Schedule

DATE				TIME	ACTIVITY
1	Aug	29	Sun	PM	Arrival
				PM	Short introductory meeting
2	Aug	30	Mon	AM	Institute of Southeast Asian Studies (ISEAS)
				PM	Lunch meeting with mgt. team and professors at Lee Kuan Yew School (LKYS) / NUS
				PM	Prof. Hui Weng Tat, LKYS
				PM	JICA Representative Office at LKYS
				PM	Public lecture at LKYS
3	Aug	31	Tue	AM	Manpower Planning and Policy Div., Ministry of Manpower (MOM)
				AM	Industry Division, Ministry of Trade & Industry (MTI)
				PM	Japanese Chamber of Commerce and Industry (JCCI)
				PM	Industry Skills & Planning Office, Workforce Development Agency (WDA)
				PM	Dinner with Prof. Khuong Minh Vu (LKYS)
4	Sep	1	Wed	AM	Human Capital, Planning, Strategic Planning, Energy & Chemical / Japan Desk, Economic Development Board (EDB)
				AM	Technical Cooperation Directorate, Ministry of Foreign Affairs (MFA)
				PM	Nanyang Polytechnic (NYP)
				PM	Prof. Pang Eng Fong, Singapore Management University (SMU)
5	Sep	2	Thu	AM	Enterprise Development, Research & Enterprise Div., Ministry of Trade and Industry (MTI)
				AM	Center for Strategic Futures, Public Service Div., Prime Minister's Office (PMO)
				AM	JETRO Singapore Representative Office
				PM	Combined Session with Productivity Programme Office, SPRING and Singapore Productivity Association (SPA)
6	Sep	3	Fri	AM	Plant Visit to Yokogawa Electric Asia Pte Ltd
				PM	
7	Sep	4	Sat	AM	Departure

Note:

Among eight members, Kenichi Ohno, Izumi Ohno, Sayoko Uesu (GRIPS Development Forum) and Nguyen Thi Xuan Thuy and Truong Thi Nam Thang (Vietnam Development Forum) are the members of the JICA-commissioned study mission.

Organizations/Persons Visited

The Government of Singapore

Organization	Name	Position
Ministry of Trade & Industry (MTI)	Gaurav Keerthi	Senior Assistant Director, Industry Division
	Tan Hual Tze	Senior Assistant Director, Resource Division
	Cheong Wei Yang	Deputy Director, Industry Division
	Benjamin KW Koh	Deputy Director, Research & Enterprise Division
Ministry of Foreign Affairs (MFA)	Koh Tim Fook	Director, Technical Cooperation Directorate
	Denise Cheng	Assistant Director, Technical Cooperation Directorate
	Mindy Low	Technical Cooperation Officer, Technical Cooperation Directorate
Ministry of Manpower (MOM)	Jane Lim Hui Chen	Deputy Director, Manpower Planning & Policy Division
	Jo Law Jiu Rong	Assistant Manager, Manpower Planning & Policy Division
Economic Development Board (EDB)	Kimberly Quek	Director, Human Capital Division
	Matthew Lee	Head, Planning
	Vincent Kwek	Assistant Head, Planning
	Andre Heng	Senior Officer, Energy & Chemical/Japan Desk
Workforce Development Agency (WDA)	Anil Das	Senior Director, Industry Skills & Planning Office
	Chai Yee Yuen Lionel	Assistant Director, Industry Skills & Planning Office
	Hee Gin Siang Kelvin	Senior Manager, Industry Skills & Planning Office
	Aaron Maniam	Head, Center for Strategic Futures / Deputy Director, Strategic Policy Office
Public Service Division, Prime Minister's Office (PMO) Standards, Productivity, and Innovation Board (SPRING)	Bernard Toh	Economist
	Woon Kin Chung	Executive Director
	Desmond Choo	Manager, Productivity Programme Office
	Loo Ya Lee	Manager, Productivity Programme Office
Singapore Productivity Association (SPA)	Low Hock Meng	Executive Director
	Chew Poh Hong	Senior Manager, Marketing & Public Relations

Universities / Research Institutes

Organization	Name	Position
Lee Kuan Yew School (LKYS), National University of Singapore (NUS)	Stavros N. Yiannouka	Executive Vice-Dean
	Eduardo Araral	Assistant Dean (Academic Affairs) & Assistant Professor
	Charles Adams	Visiting Professor
	Darryl S. L. Jarvis	Associate Professor
	Hui Weng Tat	Associate Professor
	Khuong Minh Vu	Assistant Professor
	Wong Kang Jet	Director of Strategic Planning
	Toby Carroll	Research Fellow
	Institute of Southeast Asian Studies (ISEAS)	Omkar Shrestha
Sanchita Basu Das		Research Fellow, Researcher for Economic Affairs, ASEAN Studies Centre
Aekapol Chongvilaivan		Fellow, Regional Economic Studies
Nanyang Polytechnic (NYP)	Edward Ho	Deputy Principal/Development
	John Tan	Deputy Principal/Technology
	Cher Thon Jiang	Director/Office for International Students
Singapore Management University (SMU)	Pang Eng Fong	Professor

Japanese Organizations in Singapore

Organization	Name	Position
Japan International Cooperation Agency (JICA)	Takaaki Oiwa	JICA Senior Fellow/JICA Representative in Singapore
	Michiyo Morohashi	Project Coordinator
Japanese Chamber of Commerce and Industry, Singapore (JCCI)	Junichi Azuma	Secretary General
	Masamitsu Okada	Management Consultant for Japanese Enterprises
JETRO Singapore Representative Office	Wendy Hwee	Coordinator
	Shigeki Maeda	Managing Director
	Eiji Hisatomi	Deputy Managing Director
	Masamichi Yamaguchi	Senior EPA Advisor

Japanese Company in Singapore

Organization	Name	Position
Yokogawa Electric Asia Pte Ltd	Lai Ah Keow	President
	Chua Seng Kian	General Manager, Head, Manufacturing Center
	Clement Yeo	General Manager, Production Control Centre
	Yvonne Tong	Assistant Manager, Managing Director Office

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Economic Development Board	Annual Report 09/10 Revolutionising Electronics Nanotechnology in Singapore Singapore - The Biopolis of Asia Precision Engineering PPT: Singapore Story	
Ministry of Manpower	<i>Heard Work: Stories of How EDB Steered the Singapore Economy from 1961 into the 21st Century</i> , 2002 PPT: Singapore's Labour Market and Manpower Strategies Annual Report 2009	Lead Author: Chan Chin Bock / EDB Singapore
SPRING / Singapore Productivity Association	Government Assistance Programmes for SMEs Spring News August 2010 PPT: The Singapore Productivity Movement Productivity @ Work Achieve more with less through SME-PRO	
Workforce Development Agency	DVD: Annual Report 2008 Success. A Career Kit for PMETs The Key to Building Capabilities, an Employer's Handbook Workforce Skills Qualifications System	
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Japanese Chambers of Commerce and Industry	"FDI, Financial Constraints, and Productivity: Firm Level Study in Vietnam" Salary Survey Report 2010 (Japanese) Personal data on Mr. Okada Construction Productivity and Capability Fund (CPCF) Construction Engineering Capability Development (CED) Programme	
Others	<i>Pioneers Once More - The Singapore Public Services 1959-2009</i> , 2010	Chua Mui Hoong / Straits Times Press

Appendix 2

Report on South Korea Mission

December 3, 2010
GRIPS Development Forum

An international team visited Seoul during November 22-26, 2010 to study South Korea's experiences in industrial development and draw lessons for other developing countries including Ethiopia and Vietnam¹. The mission members were Prof. Kenichi Ohno, Prof. Izumi Ohno (GRIPS Development Forum); Mr. Berihu Assefa Gebrehiwot (GRIPS and Ethiopia Development Research Institute); Ms. Nguyen Thi Xuan Thuy (Vietnam Development Forum); and Ms. Truong Thi Chi Binh (Ministry of Industry and Trade, Vietnam).

Specifically, the mission studied: (i) Korea's economic and industrial policy making processes in the past and at present; (ii) industrial policy tools and approaches, especially for promoting small and medium enterprises (SMEs); and (iii) Korea's ODA policy with a focus on its recent initiative for compiling Korean development experiences and sharing knowledge with developing countries. We had meetings with the government ministries and agencies as well as research institutes and universities (see attachments 1-3 for the mission details, organizations/persons visited, and information collected). We would like to express our deep appreciation to all organizations and individuals who kindly received us and shared valuable information with us.

Below are main findings of the mission.

1. The policy making process in South Korea

1-1. Five-Year Economic Development Plans (from the 1960s to the early 90s)

Starting from the First Five-Year Economic Development Plan in 1962, the Korean government formulated seven Five-Year Economic Development Plans between the 1960s and 90s (until 1996, just before the Asian Financial Crisis or the so-called "IMF" Crisis of 1997-98). These Plans made critical contributions to the realization of rapid growth through building a national consensus on the necessity of economic development effort and setting its major directions.

The Economic Planning Board (EPB)², created in 1961, was a super-ministry equipped with

¹ This mission has been commissioned by JICA to compile information on industrial policies in selected East Asian countries for the policy learning of other developing countries. We visited Singapore in August/September 2010 and plan to visit Taiwan in early 2011.

² In 1994, EPB and the Ministry of Finance were merged into the Ministry of Finance and Economy, which was later separated into the Ministry of Planning and Budget and the Ministry of Finance in 1999. In 2008,

strategic functions such as development planning, national budget management, and management of aid, foreign capital (borrowing), and technology. Headed by Deputy Prime Minister who chaired the Economic Ministers' Council and directly reported to the President, EPB had authority above other ministries and agencies. Policy research institutes, especially the Korea Development Institute (KDI), established in 1971, supported EPB's development planning. Within EPB, the Bureau of Planning was charged with drafting policies in collaboration with KDI, which provided assessment of international environment and domestic capabilities, resource availability, growth and other macroeconomic scenarios. Sectoral plans were prepared by relevant ministries and included in the Five-Year Economic Development Plan. Preparation of each Five-Year Economic Development Plan took two to three years.

Notable features of Korea's development planning were sharp strategic focus based on the selectivity and concentration principle, as well as adaptive implementation accompanied by annual action planning and performance monitoring. Being a resource-poor country, Korea in the 1960s and 70s focused on three priorities: (i) export promotion to ameliorate chronic trade deficits; (ii) industrialization by mobilizing human resources; and (iii) wise use of foreign capital and technology. Five-Year Economic Development Plans set targets for economic growth and mobilized national resources and capabilities toward achieving them. In implementation, action plans were formulated and then constantly adjusted in response to shifting domestic and foreign environments. Korea thus had a mechanism for flexible and adaptive implementation of the Plan rather than rigidly following pre-defined targets and policy tools.

In addition to annual action plans, there were two important monitoring devices: the Monthly Council for Export Promotion and the Monthly Council for Monitoring Economic Trend, both of which were chaired by President Park Chung-hee and attended by key government officials, business leaders, and representatives of financial institutions. The Ministry of Commerce and Industry provided secretariat functions for the former council which carried out measures to eliminate impediments to export growth in specific sectors while EPB provided similar functions for the latter council which analyzed and monitored macroeconomic performance indicators such as growth, export, and investments.

The role of the Korean government in development planning changed over time. In the 1970s, which was the period of Heavy and Chemical Industry (HCI) drive, the government intervened directly in the market for the execution of the Plan although the degree of official involvement varied among industries³. From the 1980s onward, as private businesses grew

the Ministry of Strategy and Finance was formed by combining both functions.

³ The promotional law targeted six strategic industries including industrial machinery, shipbuilding, electronics, automobiles, steel, and petrochemicals. Among these, the government took full responsibility for initial investment in the steel industry. Meanwhile, the private sector took the initiative to develop other industries such as electronics, automobiles, and shipbuilding, with the government playing a facilitating role by, for example, assisting with finance and technology acquisition.

and economic liberalization proceeded, the government began to play a less direct role. Korea's development planning ended with the seventh Five-Year Economic Development Plan in 1996.

1-2. Presidential Committees (at present)

In present Korea, Presidential Committees serve as a key instrument for economic policy making. Under the presidential system, every President establishes a small number of Presidential Committees (up to 4 or 5) to concretize, implement, and monitor the priority agenda during his five-year term. Each Presidential Committee is headed by a person who has expertise in the chosen subject and enjoys strong confidence of the President as well as secretarial support by staff seconded from various ministries.

President Lee Myung-bak, who assumed office in February 2008, established four Presidential Committees: (i) Future and Vision; (ii) Green Growth; (iii) National Competitiveness; and (iv) Nation Branding. These committees operate only during his presidential term. The most important among them is the Presidential Council for Future and Vision (PCFV), established in May 2008, which is an advisory body to the President for establishing national strategies and setting policy priorities (i.e., national strategies and unity, diplomatic and security issues, the environment, energy and science, industry and economy, and "soft power" leadership). It is chaired by Prof. Seung Jun-kwak, Dean of Korea University, and has 26 members drawn from academia, NGOs, legal experts, and business leaders. Vice Ministers also attend the Council. The Council meets on a need basis without any fixed schedule. PCFV is supported by the Executive Office of the Council, a secretariat of about 30 staff comprised of seconded officials from various government ministries and agencies. The secretariat is charged with drafting of policy documents, inter-ministerial coordination, and related administrative works.

The Presidential Committee on Green Growth (PCGG) was established in February 2009 at the recommendation of the Presidential Council for Future and Vision. PCGG is co-chaired by the Prime Minister and Dr. Kim Hyung-kook, an eminent scholar representing the non-government sector⁴. By November 2009, the Committee met six times which were presided by the President except in one occasion. PCGG adopted the National Strategy for Green Growth as the highest-level government plan on Green Growth, and set policy objectives for 2050 and performance indicators for 2020 in 10 key policy agenda points. It also adopted the Five-Year Green Growth Plan by reviving the past practice of five-year planning cycles. This is because Green Growth⁵ (environmental agenda) is an area where

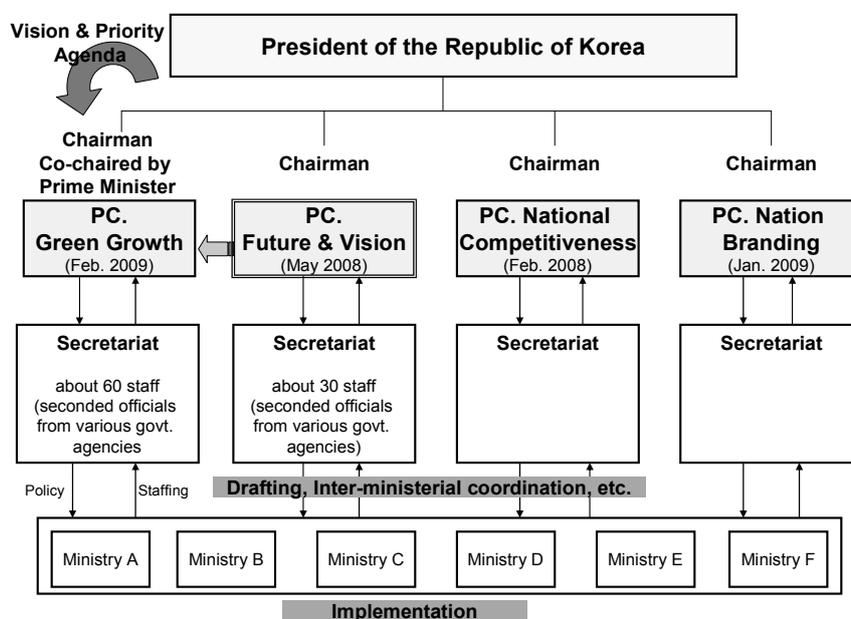
⁴ The operation of PCGG is similar to that of PCFV. PCGG consists of 47 members including ministers and representatives from private stakeholders. It is supported by a secretariat of 60 staff comprised of seconded officials from over 14 government agencies and public and private institutions (see Presidential Committee on Green Growth, *Green Growth Korea's Choice: Progress Report 2008-09*, p.10).

⁵ The objective of the national vision on "Green Growth" is to tackle the issue of climate change, environmental degradation and the depletion of energy resources. Unlike past approaches, however, green

government must play a proactive role even though the present Korean economy is driven by the private sector. A large number of government ministries and agencies and public research institutions participated in developing the Green Growth strategy and its five-year implementation plan. All central and local government institutions are required to develop their own Green Growth Action Plans which must be approved by PCGG.

One of the ten key policy agenda of the national strategy for Green Growth is ODA-related, namely, “becoming a role-model of green growth for the international community.” To this end, performance indicators are set to increase the proportion of Green ODA from 11% in 2009 to 20% by 2013 and to 30% by 2020. The Korean government has also proposed to the OECD/DAC to introduce new ODA classification to measure and encourage donor support to the sectors related to “Green ODA.”

Presidential Committees (Lee Myung-bak Administration)



Apart from regular Presidential Committees lasting for the five-year term, the Korean government set up the Presidential Committee for the G20 Summit in November 2009, a special committee for preparing the Seoul G20 Summit which took place in November 11-12, 2010. It was chaired by Dr. Sakong II, who served in the Office of the President as Special Economic Advisor to the President from March 2008 to February 2009 and then led the G20 Korea Coordinating Committee in the Office of the President, formed earlier in 2009 and the precursor to the current committee⁶. This Presidential Committee was temporary but its activities were intense and received much attention. A separate building was reserved for

growth puts more emphasis on sustainable growth while reducing greenhouse gas emissions (*Green Growth Korea's Choice: Progress Report 2008-09*).

⁶ Dr. Sakong held a number of key positions in the government, including Minister of Finance (1987-88), Senior Secretary to the President for Economic Affairs (1983-87), and Senior Counselor to the Minister of EPB (1982).

this Presidential Committee, a large number of officials were mobilized as its secretariat, and various consultation meetings and working groups were organized involving academia, NGOs, donor agencies.

2. Small and medium enterprise policy (also see attachment 4)

The mission asked many SME experts and officials about the effectiveness of SME policy in Korea. Their opinions were divided, with some seeing positive developments while at least one expert bluntly put it as a “failure.” The majority seem to agree that the results have been mixed, policy consistency was not maintained, and the performance of Korean SMEs was not as good as their counterparts in Japan or Taiwan. However, there are some bright spots such as the emergence of creative IT companies after the “IMF Crisis” and recent exports of Korean parts and components to Japan assisted by the Korea Trade-Investment Promotion Agency (KOTRA). Korea also provides intellectual aid to UAE, Kazakhstan, and other countries in setting up SME policy and institutions, industrial promotion agencies, and so on.

At end 2007, manufacturing SMEs (employment size from 5 to 299) were 118,506 in number and occupied 99.5% (establishments), 76.9% (employment), 48.7% (production), and 50.6% (value added), respectively, in the total manufacturing sector of Korea.

Korean SME policy has gone through various stages. Its goals have also been varied, combining job and income generation for the poor, protecting and strengthening suppliers of parts and components to large corporations, and creation of innovative and independent venture businesses, even to this date. It is our impression that Korean programs to support SMEs are more numerous and more complex than Japanese.

In the 1960s the basic policy framework was created which included the Korea Federation of Small and Medium Business (1962), KOTRA (1962), the Kookmin Bank (1963), the Basic Law on SMEs (1966), the SME Policy Deliberation Committee (1967), the SME Department of the Ministry of Commerce, and many others. Many of these tools were modeled after Japanese policies and institutions.

In the 1970s and 80s the main policy objective was protecting weak SME suppliers from the exploitation of big chaebols and boosting their competitiveness and productivity. The 1970s was the period of state-led HCI drive, and it was thought that Korea needed SME producers of competitive parts and components to import substitute industrial inputs. Policies to “systematize” SMEs (have stable business contracts with big buyers) and ensure fairness in their relations were introduced. Financial supports were enhanced with credit guarantee (1976), technology credit fund (1989), and so on. Highly interventionist measures were also used to narrow the gap between strong chaebols and weak SMEs. Mandatory loan ratios to SMEs (30-40%, later 35-55%) were imposed on commercial banks and regional banks, and 23 industrial sectors were first prioritized (1979), then exclusively reserved (1982), for SMEs in which no big companies could enter.

After the IMF Crisis of 1997-98, policy weight shifted toward creation of autonomous venture businesses with creativity. As a result, a cluster of IT ventures appeared in Seoul's Kangnam area and SMEs began to engage in export and outward FDI. In the 1990s annual outward FDI averaged only a few thousand in number (registration basis) and \$1-5 billion in disbursed investment but these increased to over ten thousand and \$23 billion by 2008, of which SMEs accounted for \$5.9 billion (before declining in 2009 due to the global financial crisis). Outward FDI includes both suppliers moving outside Korea and independent businesses unrelated to big corporations.

Currently, SME policy is designed at the Small and Medium Business Administration (SMBA, located in Daejeon City) and implemented mainly by the Small and Medium Business Corporation (SBC). SMBA covers all SMEs, small businesses, and micro enterprises. There are different promotion policies and measures for manufacturing SMEs and others. SBC targets manufacturing SMEs only. SBC was established in 1979 and has 23 regional offices, four training institutes, and the Korea Business Development Centers. SBC's supports are divided into financial programs and non-financial programs. The former includes venture business start-up, loan for commercializing R&D results, new growth industry promotion, industrial structural adjustment, management stabilization, Asset-Backed Securities (ABS) issuance, and assistance for small merchants and industrialists. The latter includes consulting, training, marketing assistance, global cooperation, and information services. SBC and KOTRA cooperate to assist SMEs to export or invest abroad in their respective fields (SBC supporting them inside Korea and KOTRA outside).

Notably, in Korea, financial and non-financial support are integrated in one agency (SBC). This policy configuration is different from Japan or Malaysia, where SMEs of all sectors, not just manufacturing, are supported while various promotion measures are implemented by different agencies and organizations.

More than one SME experts remarked that one cause of inconsistency and ineffectiveness of Korea's SME policy was politicization. Politicians and interest groups use SME support programs to rally support and win votes in elections, leading to multiplication and overlapping of similar measures with no strict selection criteria or economic reasoning. Korean SMEs may have good potential but policy has not been able to realize it fully. In this sense, Korean SME policy may have some resemblance to Japan's agricultural policy.

Standard productivity tools (5S, six sigma, etc.) are used in supporting SMEs in Korea. However, terms such as "kaizen" and "shindan" are not known even among the SME experts and officials whom we met. While many Japanese ideas were imported into Korea, these Japanese terms were not used as drivers of productivity movement.

3. ODA policy making and institutional framework

Korean ODA, through both bilateral and multilateral channels, is currently about US\$0.8

billion (2008 data; net disbursement basis), or 0.09% of Gross National Income (GNI). Although this is still small in absolute volume, there is a growing sense of global responsibility among the Koreans. In an effort to increase its global contribution as an emerging donor, the government plans to triple ODA by 2015 and raise the ODA/GNI ratio to 0.25%. President Lee Myung-bak himself declared that Korea through international cooperation would become a guiding light for developing countries in the 21st century. A symbolic example in this regard is an intensive advance effort to mainstream the development agenda in the latest G20 Summit in Korea.

Korea's ODA: 2004-2008						ODA Scale-up Plan	
Classification	2004	2005	2006	2007	2008	2012	2015
Total ODA	423.3	752.3	455.3	699.1	803.8		
Bilateral Aid	330.8	463.3	376.1	493.5	540.7		
Grants	212.1	318.0	259.0	361.3	370.2		
Loans	118.7	145.3	117.1	132.2	170.6		
Multilateral Aid	92.6	289.0	79.2	205.6	263.1		
ODA/GNI (%)	0.06	0.10	0.05	0.07	0.09	0.15	0.25

(Unit: million USD, net disbursement basis)

Source: Ministry of Foreign Affairs and Trade, "Korea's Development Cooperation."

Similar to (past) Japan, Korea has a dual structure of ODA policy formulation and implementation. Two key ministries charged with ODA are: (i) the Ministry of Strategy and Finance (MOSF), which oversees concessional loans administered by the Economic Development Cooperation Fund (EDCF, located in the Export-Import Bank of Korea) and contributions to international financial institutions such as the World Bank, ADB, AfDB, EBRD; and (ii) the Ministry of Foreign Affairs and Trade (MOFAT), which has authority over grant aid and technical cooperation implemented by the Korea International Cooperation Agency (KOICA) and other government ministries and agencies as well as contributions to the UN and other multilateral agencies. EDCF and KOICA are the main implementing agencies of bilateral aid⁷.

Korea is widely known for its economic "miracle" and its successful transformation from an aid recipient to an emerging donor in a relatively short period. In November 2009, Korea joined the OECD Development Assistance Committee (DAC). On November 11-12, 2010, it organized the G20 Summit in Seoul and will host the OECD's Fourth High-Level Forum for Aid Effectiveness in Busan a year later. The Lee Myung-bak administration regards ODA as a key instrument to raise Korea's soft power and brand-image, and took a strong initiative to incorporate the development agenda in the G20 Summit which led to the "Seoul

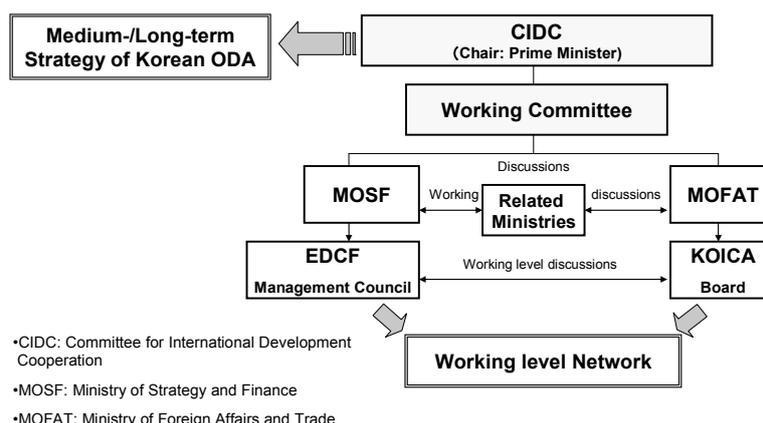
⁷ In 1965, Korea began to provide ODA in the spirit of South-South cooperation by inviting trainees from other developing countries. In 1982, it initiated the International Development Exchange Program (IDEP). In 1987, EDCF was established under MOSF to implement concessional loan programs, and in 1991, KOICA was created under the supervision of MOFAT by consolidating diverse technical cooperation and grant aid programs.

Development Consensus for Shared Growth” and the “Multi-Year Action Plan on Development”.

Domestically, the Korean government has also started to enhance its institutional framework for providing ODA. This includes the introduction of the International Development Cooperation Basic Law (enacted in January 2010, effective from June 2010) which stipulates the fundamental ideals, objectives, and principles of Korea’s ODA. Prior to this, the Committee on International Development Cooperation (CIDC) was established in 2006 to improve policy coordination⁸. CIDC is the highest-level ODA policy council chaired by the Prime Minister with the participation of about 25 members (6-7 private-sector members, plus ministers of concerned ministries). It meets about twice a year and deliberates key ODA policy directions such as priority countries and sectors and the ratios of loans and grants. In 2010, 26 countries have been designated as strategic partner (recipient) countries for Korea’s ODA (the list of countries is not published).

Below CIDC, there are a Working Committee and a number of sub-committees consisting of MOSF and MOFAT officials, academia, NGOs, etc. These committees and subcommittees are charged with formulation of country assistance strategies, ODA evaluation, and other operational matters requiring holistic approach (see the figure below). Moreover, every five years, MOSF and MOFAT are expected to draft the “Basic Plan” for ODA and submit it to CIDC via the Working Committee. To improve efficiency and transparency of ODA, CIDC has been given the mandate for ex-post evaluation of ODA policy and projects, and must submit an ODA evaluation report to the National Assembly by June 30 every year.

Korea’s ODA Policy-Making Structure



Source: Ahn Eungho, “Korea’s Development Cooperation Experience,” paper presented at the fifth JPI-FNF workshop, October 2010

⁸ For the details of CIDC, see “Korea’s Development Cooperation Experience” by Dr. Ahn Eungho, Country Research Office, Korea EXIM-Bank. This paper was presented at the Jeju Peace Institute-Friedrich Nauman Foundation for Liberty Joint Workshop, held on Oct. 18-20, 2010.

4. The Knowledge Sharing Program (KSP)

The Korean miracle in economic and political development has drawn admiration and strong interest from developing countries. Recognizing its global responsibility and comparative advantage of having a relatively recent memory of development⁹, the Korean government is working hard to become a bridge between traditional and emerging donors as well as donor and partner countries. As a new and still small ODA provider, Korea has clearly highlighted and institutionalized its intellectual aid as the “Knowledge Sharing Program (KSP).”

KSP activities are carried out through two channels: (i) MOSF and KDI; and (ii) MOFAT and KOICA. Regarding the former, KDI receives the program fund from MOSF and then hires Korean and local consultants for their work and supports their visits to and from partner countries. The latter is conducted by KOICA as part of bilateral ODA. Both emphasize the knowledge sharing of Korean development experiences tailored to each developing country.

KSP by MOSF/KDI started in 2004 and contains two main activities: (i) systematization of Korean development experiences; and (ii) policy consultation with developing partner countries. KSP initially tended to focus on “knowledge transfer” of what Korea did in the past, but more recently, its emphasis has shifted to “knowledge sharing” which means demand-driven and tailor-made consultation and joint problem-solving with individual partner countries. Currently, these are carried out by the Center for International Development (CID) of KDI¹⁰.

Regarding the systematization of Korean development experiences, over the next three years, MOSF plans to create about 100 modules (case studies) of specific policy measures and tools (e.g., Export Promotion Fund, Export Promotion Committee). Each module will have about 40-50 pages in English and contain background, options, decision making process, policy content, assessment, conclusion, etc. In 2010, compilation of 25 modules is underway with KDI assuming overall responsibility for supervision, coordination, and quality assurance. Some of these modules are produced by KDI itself (primarily in the areas of economic development planning, macroeconomic management, export promotion, and development financing) while other modules are assigned to other research institutes and consultants (increasingly through a bidding process). Discussion will be general and examples will be drawn not just from Korea but also from other countries, since Korean policies cannot be copied directly to other countries with different contexts (however, this intention by KDI does not seem to be completely shared by all concerned officials and

⁹ Many of our interviewees stressed that, unlike Japanese or Westerners, Korean officials and experts have gone through initial poverty and subsequent rapid growth so they can understand what poverty is and share their lessons with other countries from their own experiences.

¹⁰ During 2004-09, KSP was carried out by various units within KDI—with the Center of Economic Cooperation (CEC) of the KDI School of Public Policy and Management providing education and training, and the Office of Development Cooperation (ODECO) conducting policy research and consultation. In 2010, CID was established to integrate these activities (as well as North Korea Research Division).

experts yet).

Policy consultation began in 1982 when Korea offered seminars and tours for developing countries (under IDEP). These activities were consolidated and institutionalized as KSP in 2004. Policy consultations are normally conducted in a one-year project cycle consisting of demand identification, policy research, policy consultation, and monitoring and evaluation¹¹. In the first stage, MOSF conducts demand survey through Korean embassies in about 20 partner countries. Based on its results, Korea short-lists countries with high demand for intellectual support, political will, etc. and visits are organized to hear details from these countries. If a decision is made to initiate policy consultation, a joint team is organized (usually consisting of 4-5 experts from the Korean side and relevant officials from the other side). The Korean team visits the partner country a few times and conducts policy research and consultation, and the counterparts are invited to Korea for workshops and visiting relevant institutions, factories, industrial zones, etc. In this process, (retired) senior officials who have hands-on experiences in Korean development are mobilized to head policy dialogues. After monitoring and evaluation, the project may continue into the second or even the third year with additional topics selected by the partner country.

The other channel for KSP is provided by MOSF/KOICA which started more recently. An example is policy consultation for industrial development of Algeria implemented by the Korea Institute for Industrial Economics and Trade (KIET) during 2007-09. This KOICA/KIET support was initiated at the request of Algerian President to former Korean President Roh Moo-hyun on the occasion of his visit to Algeria. 13 KIET experts were mobilized to conduct analyses on six industries (petrochemical, iron and steel, IT, automotive, textile and apparel, and pharmaceutical) and six policy issues (export promotion, FDI attraction, technology, regional development, human resource, and SMEs). The project included eight (or more) visits and five workshops. Main counterparts were senior and middle-managers of the Ministry of Industry and Investment Promotion of the Algerian government.

To link KSP more effectively with KOICA's technical cooperation on the ground, the KOICA Research Office in 2010 proposed the "Korean Development Cooperation Model (KDCM)"¹² which selected 10 primary sub-sectors and 13 general sub-sectors as priority areas for KOICA's KSP. Prioritization was based on supply-side factors (Korea's experience, technical competency, complementarity with other donors, etc.) and demand-side factors (needs of partner countries, applicability, alignment with MDGs, etc.) Among sub-sectors, TVET, e-government, economic development strategy, integrated rural development, and supply of stable electricity scored high as Korea's priority areas. Beginning in 2011, KOICA plans to

¹¹ Examples of policy consultations include Vietnam (support to Socio-Economic Development Strategy 2011-2020); Uzbekistan (development of Free Economic Zones); Indonesia (development of policy solutions for four high-priority areas); Cambodia (microfinance and public-private partnership development); and Kazakhstan (industrial-innovative development plan).

¹² "The Korean Development Cooperation Model," by Woojin Jung (Research Office), published by KOICA, 2010.

integrate KDCM into its operations gradually in the 26 strategic partner countries using country assistance strategies and sector strategies as key vehicles. To this end, KOICA hopes to strengthen the program-based approach and conduct a wide spectrum of consultations with various stakeholders (governments, NGOs, research institutes, etc.)

In our meetings, several experts noted that the two channels of KSP (MOSF/KDI and MOTFA/KOICA) are implemented separately without coordination. Since KSP hires Korean and local consultants under the MOSF-supported program fund, the traditional division of labor between grant aid/technical cooperation (MOFAT) and loan aid (MOSF) is becoming less clear in KSP, as the turf of MOFAT/KOICA is increasingly shared by MOSF/KDI.

Despite this problem, KSP is clearly a focal point for Korean development cooperation and expanded vigorously for projecting the Korean voice to the rest of the world. Together with Green Growth initiative mentioned above, knowledge sharing is regarded as Korea's strategic attempt to lead global agenda and design global rules. While Japan has also conducted intellectual cooperation with many developing countries in various forms and in large quantity—policy dialogues, drafting sectoral or regional development plans, joint research, industry surveys, seminars and lectures, study tours and training in Japan, etc.—Japanese effort in this area is less documented and institutionalized, less linked to global development architecture, and therefore less well known to the rest of the world.

5. Other

During this mission, we did not have time to visit SMBA (located in Daejeon City) which is responsible for overall SME policy and support. Nor did we have sufficient time to visit *Saemaul Undong* Center (HQ located in Seoul) and *Saemaul Undong* Central Training Institute (located in Sungnam City). Many experts emphasized the contribution of *Saemaul* Movement (or New Village Movement), launched in 1970, to the modernization of Korea's rural economy—not only through community-based infrastructure and rural-livelihood improvement projects, but also through mindset and attitudinal changes of the people. “Can-Do spirit,” a collective confidence-building effort, was encouraged, and three main values—diligence, self-help, and cooperation—were promoted across the country. Although *Saemaul* Movement took place primarily in the rural context, such national movement may parallel to Singapore's Productivity Movement in the urban context. These aspects deserve further investigation.

Attachment 1: Mission details

Attachment 2: Organizations/persons visited

Attachment 3: List of information collected

Attachment 4: Note on Korean SMEs

Mission Details (21- 27 Nov. 2010)

1. Mission Members

Kenicni Ohno	Professor, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Izumi Ohno	Professor, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Berihu Assefa Gebrehiwot	Researcher, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan and Ethiopian Development Research Institute (EDRI), Addis Ababa, Ethiopia
Nguyen Thi Xuan Thuy	Researcher, Vietnam Development Forum (VDF) / GRIPS-NEU Joint Research Project, Hanoi, Vietnam
Truong Thi Chi BINH	Director, Supporting Industry Enterprise Development Center, Institute for Industry Strategy and Policy, Ministry of Industry and Trade, Hanoi Vietnam

2. Mission Schedule

DATE				TIME	ACTIVITY
1	Nov	21	Sun	AM	
				PM	Arrival
2	Nov	22	Mon	AM	Korea International Cooperation Agency (KOICA)
				PM	Korea Institute for International Economic Policy (KIEP)
				PM	Dr. Thomas Kalinowski, Assistant Professor, Ewha Womans University
3	Nov	23	Tue	AM	Korea Development Institute (KDI)
				PM	Korea Institute for Industrial Economics and Trade (KIET)
4	Nov	24	Wed	AM	Korea Institute for Development Strategy (KDS)
				PM	Ministry of Knowledge Economy (MKE)
				PM	Prof. Eun Mee Kim, Ewha Womans University
5	Nov	25	Thu	AM	Korea Small Business Institute (KOSBI)
				PM	Korea Institute for Industrial Economics and Trade (KIET)
				PM	Small Business Corporation (SBC)
6	Nov	26	Fri	AM	Korea Trade-Investment Promotion Agency (KOTRA)
				PM	Prof. Kang Sun Jin, Korea University
7	Nov	27	Sat	PM	Departure

Note:

Among five mission members, Kenichi Ohno, Izumi Ohno (GRIPS Development Forum), Nguyen Thi Xuan Thuy (Vietnam Development Forum) and Truong Thi Chi Binh are the members of the JICA-commissioned study mission.

Organizations/Persons Visited

The Government /Governmental Organization of Korea

Organization	Name	Position
Ministry of Knowledge Economy (MKE)	Ahn, Chang-yong	Senior Deputy Director, Industrial Economic Policy Div., Office of Industrial Economic Policy
	Son, Hoyoung	Director, Planning & Management Team, Planning Office of Free Economic Zone
	Kim, Beom Soo	Deputy Director, Policy Planning Team, Planning Office of Free Economic Zone
Korea International Cooperation Agency (KOICA)	Kim In	Managing Director, Research Office
	Woojin Jung	Policy Analyst, Policy Research Office
	Moon, Sangwon	Manager, Policy Planning Team, Regional Strategy Department
	Kang Kongnae	Policy Research Office
Small & Medium Business Corporation (SBC)	Kim, Yi-Won	Senior Manager, Global Cooperation Dept.
	Junghee Baek	Manager, Global Cooperation Dept.
	Chung, Ha Rim	Global Cooperation Dept.
Korea Trade-Investment Promotion Agency (KOTRA)	Mi-Ho Jon	Director, Business Development Team
	Seung-Woo Lee	Manager, Business Development Team

Research Institutes / Universities

Organization	Name	Position
Korea Development Institute (KDI)	Kim, Joo Hoon	Vice President
	Kwang Eon Sul	Managing Director, Center for International Development
	Wonhyuk Lim	Director of Policy Research, Center for International Development
	Kim, Ji Hwan	Specialist, Policy Consultation Division, Center for International Development
Korea Institute for International Economic Policy (KIEP)	Bokyeong Park	Director, Dept. of International Macroeconomics and Finance
	Yul Kwon	Head of Development Cooperation Team, Center for International Development Cooperation
Korea Institute for Industrial Economics & Trade (KIET)	Kim, Dohoon	Senior Research Fellow
	Joo, Dong-Joo	Research Fellow, Industrial Cooperation and Globalization Division
	Yang, Hyun Bong	Research Fellow, Small and Venture Business Research Division
Research Institute for Small & Medium Industries (KOSBI)	Soon Yeong Hong	Senior Research Fellow
Korea Institute for Development Strategy (KDS)	Seung-Hun Chun	President
	Yeon Seung Chung	Visiting Research Fellow
Korea University	Sung Jin Kang	Professor, Department of Economics
Ewha Womans University	Eun Mee Kim	Professor, Graduate School of International Studies
	Thomas Kalinowski	Assistant Professor, Graduate School of International Studies

List of Information Collected

Source	Title	Authors / Publishers
Ministry of Knowledge Economy (MKE)	Ministry of Knowledge Economy	
	Where Business Blossoms, Korean Free Economic Zones	
Korea International Cooperation Agency (KOICA)	<i>Journal of International Development Cooperation, 2010 No.3</i>	KOICA
	PPT: Korean Development Cooperation Model (KDCM)	Woojin Jung/ KOICA Research Office
Small & Medium Businesses Corporation (SBA)	Supporting your Success (English and Japanese)	SBA
Korea Trade-Investment Promotion Agency (KOTRA)	Korea Trade-Investment Promotion Agency	KOTRA
Korea Development Institute (KDI)	<i>Toward the Consolidation of the G20, From Crisis Committee to Global Steering Committee</i>	Editors: Colin I .Bradford and Wonhyuk Lim/ KDI, The Brookings Institution
	<i>Postcrisis Growth and Development, A Development Agenda for the G-20</i>	Editors: Shahrokh Fardoust, Yongbeom Kim, Claudia Sepulveda/ The World Bank
	<i>Economic Growth in Low Income Countries: How the G20 Can Help to Raise and Sustain it (Working Paper 2010-01)</i>	L Alan Winters, Wonhyuk Lim, Lucia Hanmer, and Sidney Augustin/ KDI
	Center for International Development	CID/KDI
	Knowledge Sharing Program	KSP/KDI
Korea Institute for Industrial Economics & Trade (KIET)	<i>Proceedings for The Fourth Workshop for the Industrial Development Plan of Algeria, October 20-22, 2007, In Algiers, Algeria</i>	KOICA-KIET
	<i>Report on ODA (Korean)</i>	EDCF, EXIM, KIET
Korea Small Business Institute (KOSBI)	Paper submitted to APO Study (selected pages)	Soon-Yong Hong/KOSBI
Korea Institute for Internatioal Economic Policy (KIEP)	PPT: Changing Landscape of the ASEAN and Korea ASEAN Cooperation	Yul Kwon/ KIEP
	<i>Reinterpretation of Korea's Economic Development and Lessons for Developing Countries (Policy Analysis 07-13) (Korean)</i>	Bokyeong Park/KIEP
	<i>Nordic Aid Untying Policy: Implications on Korea's Aid Strategy (Korean)</i>	Yul Kwon, Jisun Jeong/KIEP
	<i>Overall Strategy for Korean ODA Reform (Policy Analysis 06-03) (Korean)</i>	Yul Kwon, Han Sung Kim, Bokyeong Park, Jooseong Hwang, Sooyeon Hong/KIEP
	<i>Korea's Systematic Approach of ODA Policy toward Africa (Policy Analysis 08-19) (Korean)</i>	Yong Ho Park/KIEP
Prof. Kang Sun Jing, Korea University	Presidential Council for Future & Vision (Organization)	
	Green Growth Korea's Choice, Progress Report 2008-2009	Presidential Committee on Green Growth
Prof. Eun Mee Kim, Ewha Womans University	Graduate School of International Studies	
	Cross-National Comparative Analysis of the Effectiveness of Development Assistance	

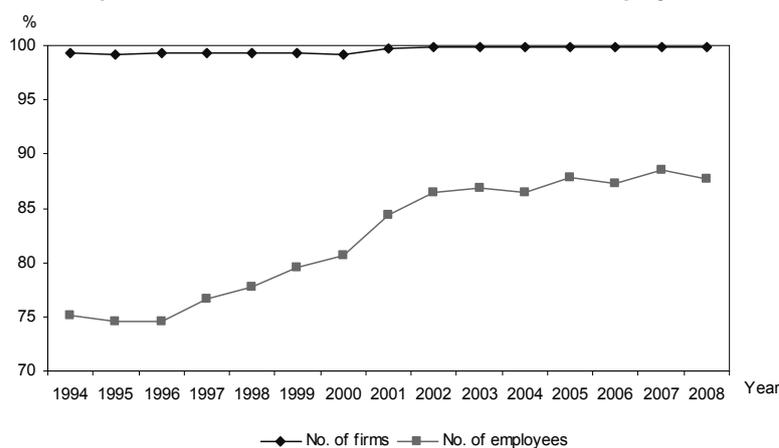
Korean SMEs

Table 1. Definitions of SMEs, Small Businesses and Micro Enterprises

Sector	SMEs		Small business	Micro enterprises	
	No. of employees	Capital/Sales	No. of employees	No. of employees	
Manufacturing	Less than 300	Capital worth \$8M or less	Less than 50	Less than 10	
Mining, construction and transportation	Less than 300	Capital worth \$3M or less	Less than 50	Less than 10	
Services	Large general retail stores, hotel, hospital...	Less than 300	Sales worth \$30M or less	Less than 10	Less than 5
	Seed and seedling production, fishing, business support services, etc.	Less than 200	Sales worth \$20M or less	Less than 10	Less than 5
	Wholesale and product intermediation, machinery equipment rent for industrial use, etc.	Less than 100	Sales worth \$10M or less	Less than 10	Less than 5
Others	Less than 50	Sales worth \$5M or less	Less than 10	Less than 5	

Source: Small and Medium Business Administration.

Graph 1. Shares of SMEs in Establishments and Employment



Source: Small and Medium Business Administration.

Table 2. Korean SMEs' Overseas Investment by Region

Region Distribution	Total	2006		2007		2008	
		Number of Cases	Amount (mil USD)	Number of Cases	Amount (mil USD)	Number of Cases	Amount (mil USD)
		9,148	3,383	11,192	5,882	10,408	5,707
Asia		85.0%	73.7%	81.3%	67.1%	77.9%	65.7%
Middle East		0.6%	1.3%	1.3%	1.1%	1.5%	1.3%
North America		8.7%	14.1%	9.5%	12.0%	11.7%	10.3%
Latin America		1.0%	3.9%	1.7%	6.4%	1.8%	12.1%
Europe		3.1%	5.6%	3.9%	9.8%	4.8%	6.6%
Others		1.5%	1.4%	2.2%	3.7%	2.4%	3.9%

Source: The Export-Import Bank of Korea

Appendix 3 Report on Taiwan Mission

May 9, 2011
GRIPS Development Forum

A policy research team visited Taipei, Hsinchu and Kaohsiung in the Republic of China during March 21-25, 2011 to study Taiwan's industrial policy and its formation mechanism¹. The mission consisted of Prof. Kenichi Ohno, Ms. Sayoko Uesu (GRIPS Development Forum); Mr. Berihu Assefa Gebrehiwot (GRIPS and Ethiopia Development Research Institute); Ms. Nguyen Thi Xuan Thuy and Ms. Pham Thi Huyen (Vietnam Development Forum). Ms. Uesu participated in Taipei meetings only.

The issues we investigated in Taiwan were (i) past and current industrial policy and its formulation; (ii) technology and R&D policy; (iii) industrial park creation and operation; and (iv) small and medium enterprises (SMEs). We visited government ministries and agencies, policy and technology research institutes, industrial parks and their management organizations, and one private firm operating in an export processing zone (EPZ). The mission schedule, interviewees and information gathered are listed in the attachments. We would like to thank all the people we met in Taiwan for their kindness and hospitality.

Main findings of the mission are reported below.

1. Past policies and new direction

In 2010, Taiwan's per capita GDP was \$19,046 and its real income was equivalent to Japan's level.² Taiwan has successfully transformed itself from an agro-based economy exporting rice and bananas to a highly industrialized silicon island with large global shares in mask ROM (93.8%), IC foundry (66.4%), blank optical disk (63%), IC package (44.4%), electronic glass fabric (39%), IC design (27%), DRAM (21.8%), etc. Moreover, if overseas production (including Mainland China) by Taiwanese firms is also included, Taiwan is by far the top exporter of such ICT hardware as motherboard (95.5%), notebook PC (95%), server (88.9%), WLAN CPE (81%), cable modem (78.6%), portable navigation device (76.9%), LCD monitor (71.8%), and so on.³

¹ This mission was commissioned by the Japan International Cooperation Agency to compile information on industrial policies in selected East Asian advanced countries for the policy learning of developing countries including Ethiopia and Vietnam. For this purpose we previously also visited Singapore in August/September 2010 and South Korea in November 2010.

² Japan's per capita income in 2010 was \$42,325 but Japanese prices are much higher than Taiwan's. As a result, living standards in the two economies are similar. Using Angus Maddison, *The World Economy: Historical Statistics*, OECD Development Centre (2003) and updating with IMF data, Japan's price-adjusted per capita income in 2010 was estimated at \$21,900 while Taiwan's was \$22,227.

³ These global market shares for 2009 are provided by the Ministry of Economic Affairs of Taiwan.

Taiwan's industrial policy thrust and its key industry shifted over time as follows.

- 1950s – import substitution – food industry
- 1960s – export expansion – textile industry
- 1970s – infrastructure enhancement – petro-chemical industry
- 1980s – economic liberalization – IT industry
- 1990s – industrial upgrading – IC industry
- 2000s – global deployment – LCD industry

Up to the mid 1980s, this remarkable transformation was driven by a powerful bureaucracy (Industrial Development Bureau of the Ministry of Economic Affairs (IDB/MoEA)—see below) and a handful of key elite figures that constituted a developmental state model described as “Governing the Market” by Robert Wade. At that time, principal policy instruments included SME finance, market entry regulation (to protect SMEs), trade promotion agency, credit facilities and insurance, and technical assistance by government-created research institutions. SMEs in Taiwan were dynamic and responded strongly to these policy initiatives. In those “old days,” SMEs were Taiwan’s main exporters while a few large corporations such as Formosa Plastic (private) and China Steel (state-owned) supplied to the domestic market.

After the mid 1980s, a number of structural shifts occurred. First, the private sector became more powerful relative to the government. Second, large domestic firms emerged while the relative share of SMEs in output, export and employment all declined. Third, liberalization, economic interaction with Mainland China and WTO entry (2002) exerted global competitive pressure. Currently Taiwan’s largest firms include TSMC (semi-conductor), UMC (semi-conductor), AUO (LCD), Foxconn (EMS), Acer (PC), Asus (PC), Yulon Motor (automotive), San Yang Motors (SYM, motorcycle) and Kwang Yang Motor (Kymco, motorcycle). Previous giants are also moving into new fields including Formosa Plastic (artificial fiber) and China Steel (high quality steel for auto, E&E and machinery).

With the growth of vibrant domestic firms, Taiwan’s industrialization is no longer mainly dependent on FDI or expatriates. Even today, Taiwanese SMEs remain more autonomous (not under keiretsu or chaebols) and have higher start-up ratios (turnover of 7.1% per year) than Japanese or Korean. However, as globalization deepens and size becomes increasingly important, large firms are becoming dominant and the role of SMEs in industrialization is shrinking. Nevertheless, even large firms feel that they are too small compared with Korean chaebols and want to grow more with brand-name products. Contracted hardware manufacturing for foreign brand-name electronic products—original equipment manufacturing (OEM), original design manufacturing (ODM) and electronics manufacturing service (EMS)—has already reached a plateau and Taiwan needs a new business model to grow into the future.

Given these trends, industrial policy of the Ministry of Economic Affairs (MoEA) is also

changing. In Taiwan, the industrial policy statute is the most important legal document for industrialization. The first such law, the Statute for Encouragement of Investment (1960-1990) and its revision, the Statute for Upgrading Industries (1991-2010), guided past policies. The most recent one, the Statute for Industrial Innovation, approved by the National Assembly in May 2010, sets future directions for Taiwan's industries⁴. Three features of the new statute are noteworthy. First, it expands policy scope from the previous manufacturing focus to include agro and biotech industries, industrial services and high-value services (which requires involvement of ministries other than MoEA). Second, it replaces the previous system of multiple incentives for various specified activities by a simpler, more uniform system of 17% corporate income tax (previously 25%)⁵ and eliminates all tax incentives except for R&D⁶. Third, it aims to shift Taiwan from hardware manufacturing to an economy of "soft power" with national brands and regional logistic and transport hubs. Like many other high-income economies, Taiwan wants to become an innovation-driven economy as it graduates from factor- and efficiency-driven ones of the past.

Taiwan's current industrial policy, as explained by MoEA, has two pillars: creation of soft power and improving cross-strait relations. The soft power drive has three sub-components: (i) supply of industrial professionals; (ii) promoting emerging industries;⁷ and (iii) upgrading conventional industries including ICT, garment and footwear. Even without tax incentives, MoEA can promote targeted sectors and activities through technology projects commissioned by the Department of Industrial Technology (DOIT) and other agencies, as explained below.

Regarding cross-strait relations, restrictions on China-bound investment were relaxed in August 2008 with higher permissible ratios or value ceilings for corporate and individual investors. Meetings, seminars and industrial collaboration with Mainland China were also activated. Taiwan's market is also opening, gradually and based on observation of actual performance, to Chinese investors since June 2009. The recent cross-strait Economic Cooperation Framework Agreement (ECFA), effective from January 2011, is expected to have further impacts on cross-strait relations. ECFA is modeled after the ASEAN-China FTA which features "early harvest" trade items in goods and services.

With the exception of Mainland China, Taiwan does not care about the nationality of

⁴ The statute gives only guidelines. For implementation, detailed laws must be prepared for all relevant sectors. Concerned ministries are currently working on them.

⁵ Corporate income tax rates of neighboring countries are as follows: Japan (30%), Korea (22%), Singapore (17%), Hong Kong (16.7%), and China (25%).

⁶ Previous tax incentives amounted to about NT\$70 billion per year, of which tax holidays, mainly benefiting large firms, were about NT\$20 billion, automation tax credits were about NT\$30 billion (both of which are now abolished), and IT tax credits were about NT\$20 billion (now halved). As a result of the new industrial statute, only NT\$10 billion remains. As of end March 2011, US\$1 is worth about NT\$29.

⁷ Six "major emerging industries" are biotechnology, precision agriculture, green energy, medical and healthcare, tourism and cultural innovation industries. Four "emerging intelligent industries" are invention and patent commercialization, cloud computing, electric intelligent cars and intelligent green construction industries. Besides these, 10 service industries are also targeted which are however outside the mandate of MoEA.

investors whether they are domestic, foreign or joint venture. Taiwan accepts FDI in any sector except in national defense. Taiwan provides a universal low corporate income tax and transparent incentives for R&D only and, unlike Singapore, does not engage in customized negotiation to attract individual foreign investors.

2. Policy making process

As noted above, the most important policy making body for Taiwan’s industrialization is the Industrial Development Bureau of the Ministry of Economic Affairs (IDB/MoEA). Although its influence has waned over the decades, it still yields substantial power in guiding the private sector. IDB currently has 240 permanent staff mainly from engineering backgrounds (recruitment of economists into IDB is only a recent phenomenon). Temporary staff are also hired to cope with its heavy work load. Unlike Japanese METI, many processes in policy drafting and stakeholder consultations are outsourced to government-created semi-official policy “think tanks,” especially the Taiwan Institute of Economic Research (TIER) and the Chung-Hua Institution for Economic Research (CIER), as discussed below. “Committees” are used for consensus building among ministries and experts, and “seminars” are extensively organized for interacting with the private sector. In Taiwan, think tanks, committees and seminars are not just means of information exchange and dissemination but integral parts of action-oriented policy making. They will not be assessed highly or receive much funding unless they directly contribute to the policy process.

Figure 1. Organizational Structure of the Ministry of Economic Affairs

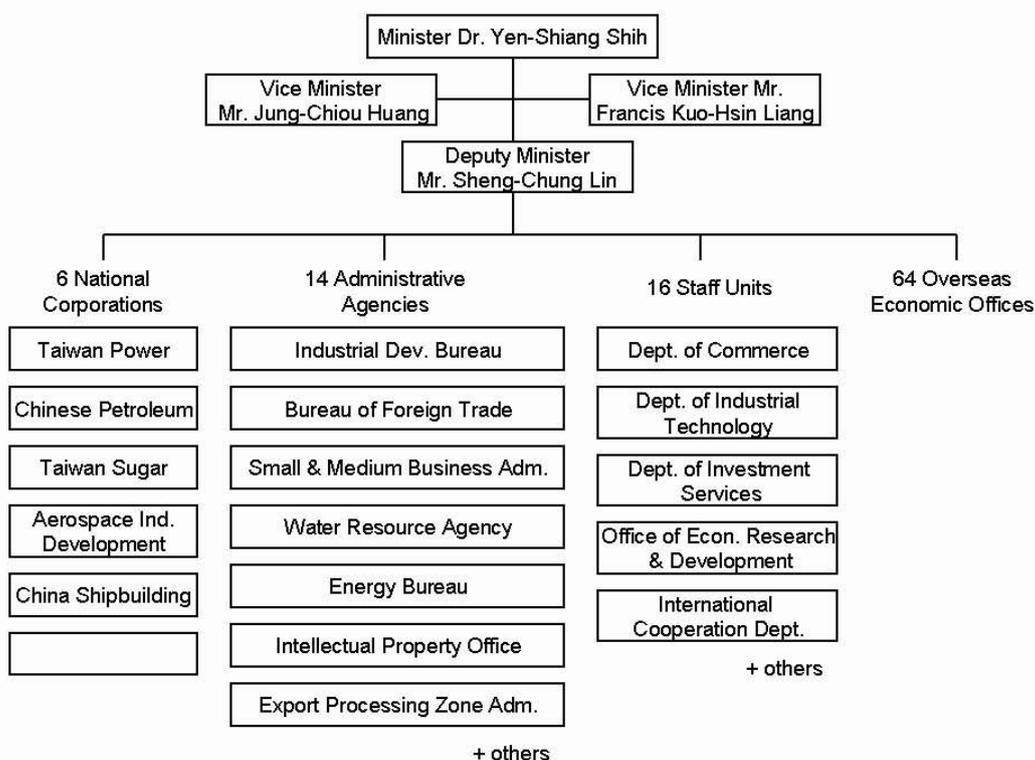
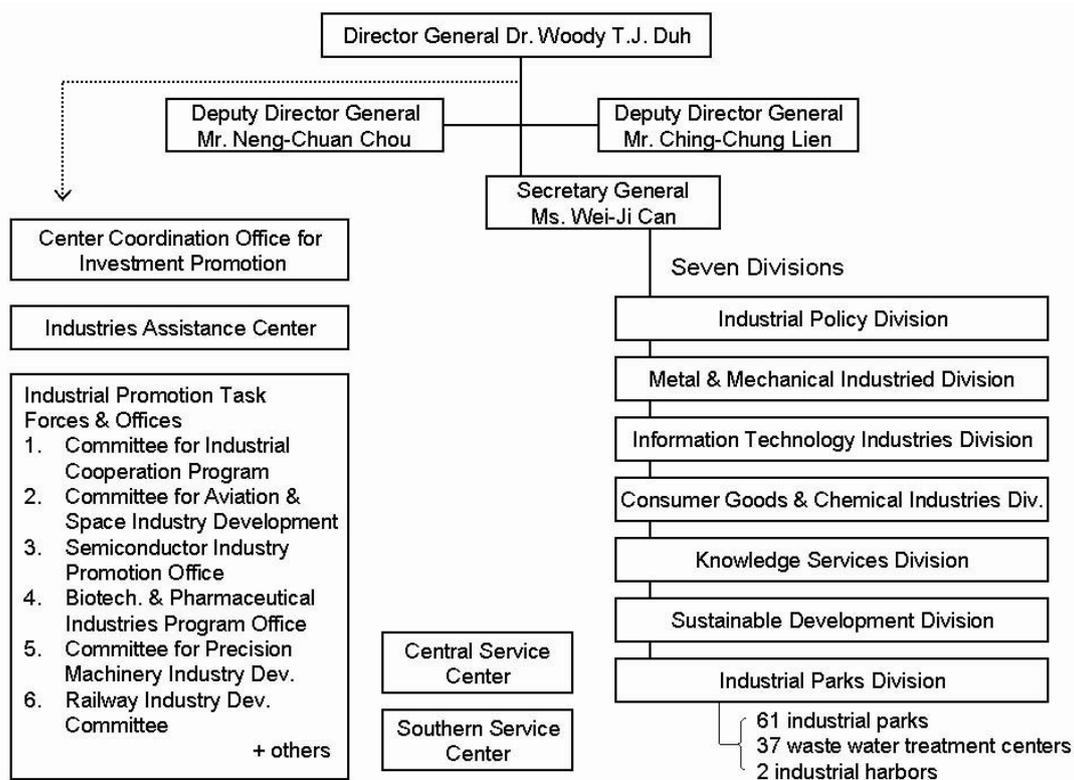


Figure 2. Organizational Structure of the Industrial Development Bureau, MoEA



IDB has seven divisions which include three “industry-oriented” (i.e., sectoral) divisions (metal and mechanical, IT, and consumer goods & chemicals) and four “industrial support” (i.e., functional) divisions (industrial policy, knowledge services, sustainable development, and industrial parks). Besides these, task forces and offices for sectoral promotion are also placed under IDB. Restructuring of MoEA is expected for the implementation of the new industrial statute which has a wider sectoral scope than the previous one.

Another important body under MoEA is the Department of Industrial Technology (DOIT). Its main task is to identify, screen and finance projects that will directly enhance technology of the private sector. In 2010, the national budget for science and technology was allocated among the National Science Council (43.0%), MoEA (30.8%) and Academia Sinica (11.0%). DOIT received US\$618.1 million, which was the lion’s share of this fund allocated to MoEA. DOIT uses this to finance projects conducted by research institutes, private organizations or universities that support national industrial policy. Funding is allocated competitively, based on proposals submitted by applicant organizations (DOIT sometimes works closely with them to improve proposals) and outcome is reviewed strictly by DOIT advisory groups for alignment with national policy and key performance indicators such as number of patents and awards, levels of R&D relative to GDP or corporate revenue, and so on. DOIT’s technology projects have been a very important policy tool for Taiwan’s innovation drive⁸.

⁸ DOIT is the main department for technology project funding although IDB and SMEA, also under MoEA, have

The process of industrial policy making, in the case of the Statute for Industrial Innovation of 2010, was as follows.

In anticipation of expiration of the previous industrial law (Statute for Upgrading Industries, 1991-2010), a taskforce was created by IDB/MoEA three years in advance to draft a new law. MoEA Minister Dr. Yen-Shiang Shih, an MIT graduate, led brainstorming sessions which were organized by CIER, a think tank in support of MoEA policy. According to one IDB official, “Dr. Shih dominated this law and vision.” The proposed ideas were then conveyed to the private sector through a large number of public hearing meetings with six business associations (steel, IT, etc). These meetings were mainly used for the Ministry to “persuade them” for easy passage of legislature rather than receiving substantive comments from the private sector. Sometimes private firms had divided opinions.

In addition, “one or two inter-ministerial meetings” were also held with Dr. Shih presiding and ministers of other related ministries attending. Interventions by other ministries were few and no objections were raised against MoEA’s ideas. While MoEA has historically dominated industrial promotion, other ministries in charge of services, agriculture, health care, education, culture, etc., which are now included as targeted sectors, are only “regulators” unfamiliar with positive promotion measures (issuing certificates for R&D, for example) and remained passive on the listening side. After these consultations, the Industrial Policy Division of IDB/MoEA drafted the law with support of law firms for wording.

However, the draft law prepared by IDB was substantially revised in the legislative process. Taiwan’s National Assembly is strong and attracts lobbying by interest groups. The law drafted by technocrats originally proposed lowering of the corporate income tax from 25% to 20% and kept four incentives for R&D, branding, human resource training and attracting headquarters of MNCs to Taiwan. The National Assembly, backed by industrial and SME lobby, slashed the corporate income tax rate further to 17% and eliminated all incentive measures except for R&D (though the Ministry of Finance was concerned about revenue loss). According to one industrial expert, this was too aggressive an act by legislature but results must be accepted as a compromise in democracy. Finally, an “island tour” was conducted in the North, Middle and South of Taiwan to disseminate the new law.

The policy making procedure as described above was established around the late 1980s when the previous industrial statute was formulated. Before that, a few elite leaders and technocrats created policies while research institutes produced internal studies only.

In sum, consensus building over the contents of the new law was strongly guided by MoEA, especially Minister Shih, with CIER serving as secretariat. However, consultation with other

budgets for industrial purposes. MoEA has bureaus, departments and administrations under it as shown in Figure 1. It seems that bureaus are larger than departments, and administrations are tasked with implementing functions.

ministries and the private sector was somewhat unilateral in the case of the 2010 Statute. Another unique aspect of Taiwan is strong legislative intervention which upsets the picture painted by technocrats.

Regarding this policy making process, we heard many non-government voices. According to one expert, private firms often complain that government does too much R&D which competes with and crowds out private R&D. However, another expert argued that government must be more proactive in pushing innovation in the 21st century. One expert said that private firms (especially SMEs) are still willing to listen to government because government-backed R&D and technology transfer are useful to them. Another scholar stated that “embedded autonomy” (government with close interaction with businesses without being hijacked by vested interests) was possible in Taiwan because of such historical factors as social mobility, fair competition without class discrimination, and leadership paranoia over external threats previously from Communism and now from integration pressure. A number of experts expressed mild doubts about the prospects of the current innovation drive (biotech is slow to emerge, for example).

3. Policy and technology research institutes

In Taiwan, there are 19 government-related research institutes created by MoEA which play vital roles in designing and implementing national industrial and technology policy. Some of them received seed money at establishment but they now operate as NPOs competing for funds for industrial projects commissioned by both government and private firms. These research institutes can be classified into policy think tanks (TIER and CIER, for example) and technology support institutes (ITRI, III (triple eye), and sectoral institutes for metal, auto, bicycle, precision machinery, etc.) The mission visited four of them.

Among policy research institutes, the Taiwan Institute of Economic Research (TIER) and the Chung-Hua Institution for Economic Research (CIER) are two think tanks created by and supporting the policy making of MoEA.

TIER, founded in 1976, maintains a databank of Taiwanese industries, conducts domestic and global economic forecasts, and acts as secretariat to the Industrial Development Advisory Council as well as several cross-strait economic cooperation projects, among other things. It also conducted the impact study of ECFA (increased trade with Mainland China). TIER has seven research divisions, several service providing centers, Tokyo Office, and other departments and committees. Its revenue comes from undertaking government projects (about 70%) and private sector projects (about 30%). The Industrial Development Advisory Council, to which TIER serves as secretariat, is a platform for interaction among government, businesses and academics established in 1984 following the Japanese model of MITI's Industrial Structure Council. MoEA uses the Council to fathom the impact of its policies and hear the requests and problems of the business community. The Council holds 15 meetings per year, two of which are organized by IDB/MoEA and others by other bureaus

of MoEA.

CIER, established in 1982 with the official endowment of NT\$1 billion, is located on the premises of the National Taiwan University. Like TIER, it conducts commissioned projects for the President, the Executive Yuan (Taiwan's executive branch), and government ministries and agencies. It has three research divisions that conduct applied research respectively on Mainland China, international issues and domestic issues. CIER also produces economic forecasting and operates the WTO Center as well as other *ad hoc* centers. CIER was the secretariat to the formulation of the 2010 industrial statute, ECFA and WTO entry. For ECFA, for example, CIER conducted 2-3 years of research and produced a report on ECFA's costs and benefits which was circulated to the public and academia for critical review. The report was then discussed among concerned ministries and agencies, businesses (through "seminars"), and finally with legislators before it was sent to the National Assembly. CIER feels that about 70-80% of what it proposes in its report makes to the final stage.

Among 11 technology support institutes, the mission visited the Industrial Technology Research Institute and ITRI College in Hsinchu and MIRDC in Kaohsiung.

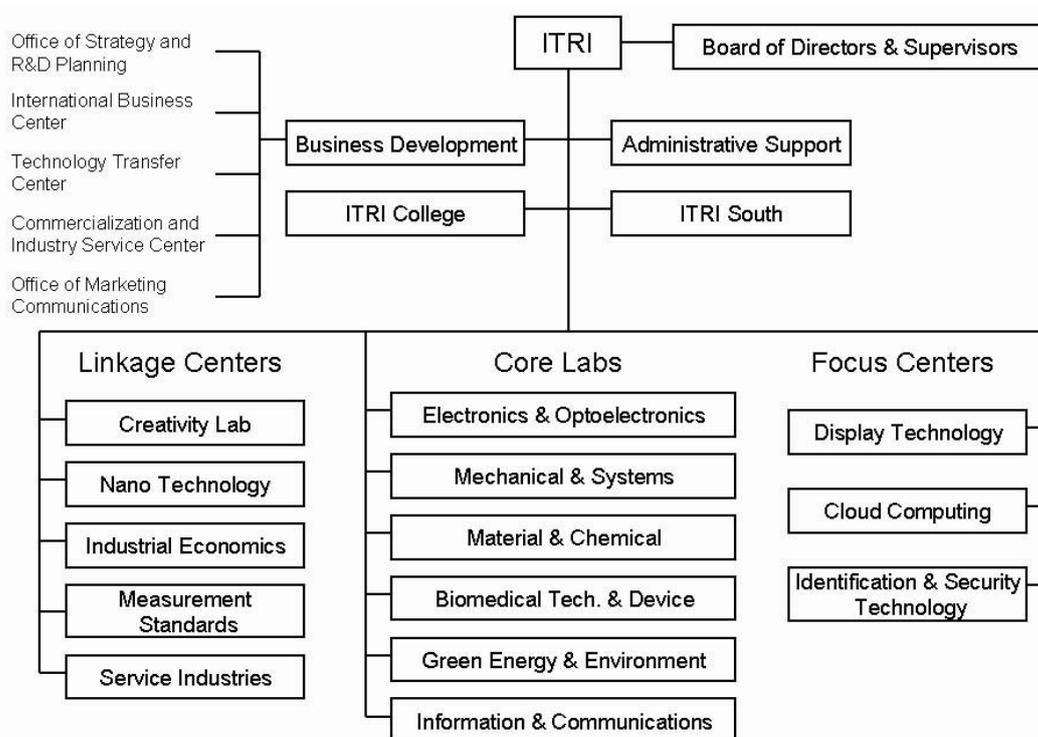
The Industrial Technology Research Institute (ITRI), founded in 1973, is Taiwan's largest R&D organization in support of technology transfer and commercialization. Its supervising agency is MoEA. ITRI has 5,800 employees in its huge complex, of which 80% are engaged in R&D and 1,200 hold doctorate degrees. There are three ways to disseminate R&D: (i) technology licensing; (ii) spinning off a research team to form a start-up company⁹; and (iii) forming a joint venture to become a new section in an existing company ("spin-in"). ITRI also offers open labs where domestic and foreign companies can send staff to do joint research with ITRI researchers using ITRI facilities. Half of ITRI's revenue comes from industrial service fees and the other half from state-funded research projects on a competitive bidding basis. ITRI is commissioned to plan, train and formulate policies mainly for MoEA but also for other ministries. Its location in Hsinchu, in proximity to science parks and two technology universities, allows active cooperation with private firms and academia although ITRI also works with partners all over Taiwan. Many graduates from the two universities join ITRI for several years to learn industrial application and accumulate practical experiences, then start migrating back and forth between industry and ITRI. Thus, ITRI is the largest focal point for industry-government-academia cooperation to carry out MoEA's technology development programs.

ITRI College, a new addition to ITRI, is a training provider for ITRI employees at all levels as well as for industry. It offers courses lasting from one day to three months on five innovation

⁹ Taiwan Semiconductor Manufacturing Company (TSMC) and United Microelectronics Corporation (UMC), the two world largest IC foundries, are ITRI's most famous spin-offs. ITRI has produced 65 ventures and 19,589 ITRI alumni.

competencies and six technological domains¹⁰. It also offers customized training programs for enterprises. It issues certificates but no degrees because its courses are for the actual use by industry to create value and not for academic merits. Of particular interest are its need-based programs for government officials and researchers from developing countries in such topics as national innovation system, human resource development system, SME promotion, science park development and intellectual property management. In 2010 ITRI College received four official delegations from Vietnam and Philippines (about 25 persons each) as well as India and Poland (2 persons each). However, Taiwan is not conducting knowledge sharing as a national project, and the size of its intellectual assistance to the developing world remains small compared with Japan or Korea. Political concern vis-à-vis Mainland China is another reason for Taiwan to remain low-key in its assistance activities.

Figure 3. Organizational Structure of the Industrial Technology Research Institute



The Metal Industries Research and Development Center (MIRDC), established in 1963, is one of the sectoral technology institutes under MoEA. It is headquartered in Kaohsiung with eight branches and centers across Taiwan. It supports metal and related technologies, including automation, with 612 employees (51 with doctorate and 325 with master degrees) with main specialization in mechanical (38%), material and chemical (11%) and electrical, opto-electronic and info-tech (8%) areas. Its annual staff turnover is 10% and the average

¹⁰ The five innovation competencies are creative thinking, industrial analysis, R&D management, business development, and intellectual property management. The six technology domains are information and communication, materials and chemical engineering, electronics and optoelectronic, biomedical technology and device research, mechanical and system research, and energy and environment management.

working period is 10 years (at ITRI, they are 20% and 6 years respectively). MIRDC also hires staff on a contract base. It has five focused industries of metal material and fabricated metal products, mold and die and micro parts, automotive, opto-electronics and energy equipment, and medical devices and care. Its revenue of NT\$2 billion per year comes from industrial services (25% directly from private sector, 35% commissioned by government) and government's technology projects (40%). A team is formed for each project which may last for 4-5 years for big projects and 3-6 months for small ones. For a large DOIT-funded project, for example, about two years are spent for sounding local industry needs and working out a proposal jointly with DOIT. If approved, implementation and monitoring will usually take 3 to 4 years. As with other institutes, MIRDC must bid competitively for projects and their performance is reviewed for number of patents and companies helped, new investments and technology applications generated, and so on.

4. Hsinchu Science Park

In Taiwan, there are three types of centrally managed industrial estates with different overseeing authorities: 13 science parks under the National Science Council, 8 export processing zones under the EPZ Administration of MoEA, and 61 industrial parks under IDB/MoEA.¹¹ Besides centrally managed industrial estates, Taiwan also has 18 industrial parks developed by local governments and 93 industrial parks developed by the private sector.

The National Science Council, through its Science Park Administration, supervises Taiwan's 13 science-based parks. Among them, Hsinchu Science Park (HSP), established in December 1980, was the first and most successful, and has become the central location for Taiwan's ICT industry with high international reputation. It now receives about 1,000 visiting missions annually from all over the world to learn how such a high-tech park can be created and managed. In its 30-year history, the number of tenant companies, their revenues, and park employment grew significantly, which as of 2010 stood at 449 companies, US\$40.9 billion and 139,416 employees (including 4,134 foreigners of which 1,074 are highly skilled), respectively. The average R&D/sales ratio at HSP was 6.0% in 1989-2008 against the national manufacturing average of 1.1%. Land in HSP is state-owned and leased out on a 20-year contract at subsidized rates to domestic and foreign firms with no intervention in companies' activities. 400 standard factories with the size of 700-1,000 m² are also available for rent (a firm may rent more than one unit). The monthly rent is NT\$50/m² for land and NT\$100/m² for rental factory. One-stop service, good infrastructure and comfortable living conditions are guaranteed.

¹¹ Industrial parks under IDB/MoEA (last category) focus on light industry, basic consumer goods, petrochemical, etc. with regional specialization and local regulatory differences. Unlike science parks or EPZs, these industrial parks can sell land to investors. On the other hand, they may not provide one-stop investor service. There is a plan to merge the administration of EPZs and MoEA-managed industrial zones. Besides these centrally managed industrial estates, Taiwan also has 18 industrial parks developed by local governments and 93 industrial parks developed by the private sector.

By company revenue, HSP's largest industry is IC (67.5%) followed by opto-electronics (20.7%), computer (6.4%), telecom (2.7%) and precision machinery (1.8%). Its renowned tenants include TSMC, UMC, Acer, Foxconn, AUO, Logitech, Du Pont, Hoya, Shin Etsu and DNP. HSP is host to 44 foreign firms, of which 10 are Japanese and 17 are American. 95 companies were set up by overseas Chinese.

Although HSP's land (653 ha) has no plan for future expansion, there is a relatively high turnover of tenant companies whose number is continuously increasing. Instead of enlarging HSP, satellite parks are created to accommodate more firms. At HSP, about 30 companies move in every year. As for the number of the companies move out, it depends on the fluctuations in economy and differs every year. Average land size per factory is becoming smaller over the years, which is the intention of the Science Park Administration. Applying companies are given exams regarding their R&D activities, capital, environmental concern, etc. There are about 60 companies waiting to enter HSP at present. Companies which fail to spend at least 2.28% (twice the national average) of sales revenue on R&D, or those which miss monthly payments twice, are asked to leave HSP.

The Science Park Administration is a central agency which has invested about NT\$86 billion since the establishment of the park. Besides state investment, HSP's income came from management fee and rental and operational revenues. HSP started to make profit ten years ago and now enjoys stable revenue. Because HSP is the leading science park, it financially assists other science parks in Taichung, Tainan, etc. and monitors their operations.

5. Export processing zones

Taiwan established its first export processing zone (EPZ) at Kaohsiung Port in December 1966, combining the functions of free trade zone and industrial zone¹². Its industrial focus changed over time along with overall structural transformation of Taiwan. Its tenants were engaged initially in low-end OEM such as garment which gradually moved up to mid-end and high-end OEM in technology- and capital-intensive products by the mid 1990s. Subsequently, R&D and high-value ITC industries were added. The current focus industries include IC testing and packaging (Nantze EPZ), LCD modules (Kaohsiung EPZ), and opto-electronics (Taichung EPZ). Gauged by total corporate revenue in 2009 (US\$8.66 billion), the dominant sector in EPZs was electronic parts and components (64.2%) followed by non-metallic mineral products (8.8%) and computer, electronic and optical products (8.6%). Compared with science parks which require high R&D/sales ratios for entry and stay, EPZs are for more downstream manufacturing.

The EPZ Administration of MoEA, located in Kaohsiung, oversees eight EPZs in Central and

¹² The brochure of EPZ Administration says Kaohsiung EPZ was the first such park in the world but some MoEA officials in Taipei said it was not. The mission was unable to identify the first country to establish an EPZ.

Southern Taiwan. The total area of these zones is 532 ha, which includes Kaohsiung EPZ (72.4 ha) and Nantze EPZ (97.8 ha). Corporate revenues, investments and trade at EPZs have increased significantly over the decades. In 2010, total tenant companies were 456 in number producing NT\$380 billion in revenue and US\$19.2 billion in export (US\$10.12 billion) and import (US\$9.09 billion). As factors of success, EPZ Administration cited right timing, excellent location, perfect legal system, single contact window, excellent investment environment, skilled workers, and others.

About five years ago, EPZ Administration began to bridge and mediate industry-university linkage. The program consists of human exchange such as student internship and visiting professors as well as research cooperation for technology transfer and commercialization. EPZ Administration offers matching services, one-stop window and database for universities. Based on company needs, a student team led by a professor is to conduct joint R&D (as is actively done in Nanyang Polytechnic in Singapore). While such industry-university linkage was strong from the outset at HSP, this is a relatively recent policy drive at EPZs.

The mission visited the EPZ Administration office in Nantze EPZ and paid a factory visit to Taiwan Brother Industries, Ltd. Located in that EPZ which manufactured high-end personal-use sewing machines with artistic embroidery capability.

6. SME policy

Promotion of small and medium enterprises is the responsibility of SME Administration under MoEA. In 2010, the number of SMEs in Taiwan was 1.24 million, or 97.77% of all enterprises. The SME sector accounts for 76.7% of total employment, 29.8% of total sales, and 17.9% of total export. The number of start-up companies is 88,531 annually, amounting to 7.1% of total SMEs. For manufacturing, construction, mining and quarrying, SMEs are defined as establishments with less than NT\$80 million (US\$2.5 million) in paid-in capital or less than 200 persons. For service and commerce, they are establishments with less than NT\$100 million (US\$3.2 million) in paid-in capital or less than 100 persons. Micro businesses are defined as establishments with less than 5 persons for all sectors.

SME support is provided in three layers. The “award strategy” is adopted for top SMEs (1-3% of total) by which national, rising star and R&D awards are given. The “guidance strategy” is used for the middle layer (27-34%) where 11 guidance systems are available¹³. For the remainder of “foundation” SMEs (65-70%), the “grouping strategy” comprising of mutual cooperation, industry cluster, local cultural industry and financing programs is offered. SME Administration works closely with IDB, DOIT, Bureau of Foreign Trade and Department of Commerce, all under MoEA, to provide integrated support.

¹³ The guidance systems are managed by appropriate bureaus and departments of MoEA and consist of industrial safety, R&D, pollution prevention, production technology, marketing, management, finance, quality upgrading, information management, business start-up and incubation, and mutual assistance and collaboration.

SME Administration has five divisions corresponding to five task areas, which are Policy Planning, Management Consulting, Business start-up and Incubation, Information Technology, and Financing. Taiwan's SME service network consists of SME Administration headquarters with a one-stop service center in Taipei, two regional offices in Center and South, and 24 local service centers. SME Administration also cooperates with the National Association of SMEs and its 20 branches, the China Youth Career Development Association and its 21 branches, and 23 industrial associations and 24 chambers of commerce at central and municipal levels. SMEs located in industrial estates can receive services from zone administrations.

Financial support for SMEs is provided by the SME Development Fund and the National Development Fund. These funds are on-lent by commercial banks to SMEs and start-up companies. 15% of funding from the SME Development Fund goes through SME investment companies. Additionally, the SME Credit Guarantee Fund guarantees 80-90% of commercial bank loans to SMEs (which seems a very generous guarantee). The Incubation Fund Account and various official rewards given to excellent SMEs are additional facilitators of SME finance. These government measures are expected to pump-prime SME finance by private funds, capital markets and venture capital.

For management and technical support, SMEs are provided with classes, enterprise consultancy (which is connected to bank loans), technology and linkage. SME consultation service is given by private firms and individual consultants through open bidding for government procurement. Unlike Malaysia (or Thailand in the past), no government officials are SME consultants. SMEs receive consultation free of charge. However, if new investment or training becomes necessary, that must be financed by SMEs themselves. Among Taiwanese industrial experts, Japanese terms such as *kaizen* and *shindan* are not well known although standard productivity tools such as 5S and QCC are widely recognized and used.

One promotion measure of interest is the Taiwan One Town One Product (OTOP) program, adopted from Japan's One Village One Product movement, which aims to develop local specialty industries with township or city as units. Starting from 1989, SME Administration has supported local SMEs with management, design, packaging, technology, space arrangement, and so on; participation in exhibitions and training courses; and creation of publications, websites and Taiwan OTOP shops. A total of 96 featured towns have successfully generated their distinctive local products.

Attachment 1: Mission details

Attachment 2: Organizations/persons visited

Attachment 3: List of information collected

Mission Schedule (20- 26 Mar. 2011)**1. Mission Members**

Kenicni Ohno	Professor, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Sayoko Uesu*	Research Associate, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan
Berihu Assefa Gebrehiwot	Researcher, National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan and Ethiopian Development Research Institute, Addis Ababa, Ethiopia
Nguyen Thi Xuan Thuy	Researcher, Vietnam Development Forum (VDF) / GRIPS-NEU Joint Research Project, Hanoi, Vietnam
Pham Thi Huyen	Researcher, Vietnam Development Forum (VDF) / GRIPS-NEU Joint Research Project, Hanoi, Vietnam

*Participated from 20 to 23 March only.

2. Mission Schedule

DATE			TIME	Location	ACTIVITY
1	20	Sun	AM		
			PM	Taipei	Arrival
2	21	Mon	AM	Taipei	Industrial Development Bureau, Ministry of Economic Affairs (IDB/MOEA)
			PM	Taipei	Taiwan Institute of Economic Research (TIER)
3	22	Tue	AM	Taipei	Prof. Tain-Jy Chen, College of Social Sciences, National Taiwan University
			PM	Taipei	Dr. Wan-Wen Chu, Research Fellow, Research Center for Humanities and Social Sciences, Academia Sinica
4	23	Wed	AM	Taipei	Department of Industrial Technology, Ministry of Economic Affairs, (DOIT/MOEA)
			AM	Taipei	Small and Medium Enterprise Administration, Ministry of Economic Affairs (SMEA/MOEA)
			PM	Taipei	Chung-Hua Institution for Economic Research (CIER)
5	24	Thu	AM	Hsinchu	Hsinchu Science Park Administration, National Science Council
			PM	Hsinchu	Industrial Technology Research Institute (ITRI) and ITRI College
6	25	Fri	AM	Kaohsiung	Export Processing Zone Administration, Ministry of Economic Affairs (EPZA/MOEA)
			AM	Kaohsiung	Taiwan Brother Industries Ltd.
			PM	Kaohsiung	Metal Industries Research and Development Centre (MIRDC)
7	26	Sat	AM	Kaohsiung	Departure

Note: Among the five mission members, Kenichi Ohno and Sayoko Uesu (GRIPS Development Forum); and Nguyen Thi Xuan Thuy and Pham Thi Huyen (Vietnam Development Forum) are the members of the JICA-commissioned study team.

Organizations/Persons Visited

Government and its Organizations

Organization	Name	Position
Industrial Development Bureau, Ministry of Economic Affairs	Hui-Ying Chen	Deputy Director, Industrial Policy Division
Export Processing Zone Administration, Ministry of Economic Affairs	Robert M.S. Jahn	Senior Specialist
	Han Wen Kuan	Chief of P.R. Office
	Kuan-Yu Huang	Office of Public Relations
Department of Industrial Technology, Ministry of Economic Affairs	Hao-Chu Lin	Section Chief, Department of Industrial Technology
	Edie Chin An Wang	Business Manager, International Business Center, ITRI
Small and Medium Enterprise Administration, Ministry of Economic Affairs	Chen-Tsair Cheng	Deputy Director General
	Pu-Yun Long	Commercial Secretary, Business Startup and Incubation Division
	Chia-Hsien Yang	Section Chief, Business Startup and Incubation Division
Hsinchu Science Park Administration, National Science Council	Susan S. Chen	Deputy Director, Investment Services Division
	Tuan, Ssu-Heng	Section Chief, Investment Services Division
	Grace Chen	Investment Services Division

Research Institutes / Universities

Organization	Name	Position
Taiwan Institute of Economic Research (TIER)	Sung Min-Te	Director, Secretariat of Industrial Development Advisory Council
	Gary Chen	Public Relations Officer, International Affairs Specialist
	Liu Yau-Jr	Project Principal and Associate Research Fellow, Research Division II
National Taiwan University	Tain-Jy Chen	Professor, Department of Economics
Metal Industries Research and Development Centre	Paul Chung	Vice President
	Judy C.Lo	Project Manager, IP & Innovalue Section, Planning & Promotion Dept.
	Louis Hung-Lu Yen	Project Manager, IP & Innovalue Section, Planning & Promotion Dept.
	Charles Chen	Project Manger, Industrial Research Section, Planning & Promotion Dept.
Industrial Technology Research Institute (ITRI)	Ethel Cheng	IP & Innovalue Section, Planning & Promotion Dept.
	Shing-Yuan Tsai	Vice President and Executive Director
ITRI College	Ho, Kwun-Yao	Deputy Representative of Tokyo Office
ITRI College	Feng-Kwei Wang	Executive Director
Academia Sinica	Wan-Wen Chu	Research Fellow, Research Center for Humanities and Social Sciences
Chung-Hua Institution for Economic Research (CIER)	Jiann-Chyuan Wang	Research Fellow and Vice President
	Hui-Lin Wu	Research Fellow, Division of Taiwan Economy
	Tsung-Che Wei	Assistant Research Fellow, Division of Taiwan Economy
	Hsien-Yang Su	Research Fellow, International Division/Director, Japan Center

Company

Organization	Name	Position
Taiwan Brother Industries Ltd.	Morinaga Tadashi	Representative Director & General Manager
	Da Shi Kong	Manager, VM Promotion Department

List of Information Collected

Source	Title	Authors / Publishers
Industrial Development Bureau, Ministry of Economic Affairs (IDB/MOEA)	PPT: Industrial Development in Taiwan, R.O.C, 2011	IDB/MOEA
	Industrial Development in Taiwan R.O.C. 2010	
Taiwan Institute of Economic Research (TIER)	Leaflet/Pamphlet: Taiwan Institute of Economic Research	TIER
	PPT:Taiwanese Economic Development	Ming-Te Sun, TIER
Department of Industrial Technology, Ministry of Economic Affairs (DOIT/MOEA)	PPT: Industrial Technology Innovation (Date: 2011.3.23)	DOIT/MOEA
	Leaflet/Pamphlet: 2010/2011 Department of Industrial Technology	
Small and Medium Enterprise Administration, Ministry of Economic Affairs (SMEA/MOEA)	Small and Medium Enterprise Development in Taiwan, ROC	SMEA/MOEA
	PPT: SME Development and Policy Measures in Taiwan, March 2011	
	Taiwan One Town One Product, Taiwan Local Cultural Industries Map	
	DVD: Building Industries from Creative Ideas	
	Incubation Centers 2010	
	White Paper on Small and Medium Enterprises in Taiwan, 2010	
	Annual Report 2009	National Association of Small & Medium Enterprises
Chung-Hua Institution for Economic Research (CIER)	Unbiased, Independent and Transcendent, National Policy Think-Tank	CIER
	Figures: The system of technology development in Taiwan/ The division of labor for technology development in Taiwan	Dr. Wang, CIER
Hsinchu Science Park	Discovering the Beauty of the Hsinchu Science Park, A Compilation for the 30th Anniversary of the Hsinchu Science Park	Science Park Administration
	Innovation for a better tomorrow	
	Investment Guide	
	Map of Hsinchu Science Park	
	PPT: Welcome to the Hsinchu Science Park	
Industrial Technology Research Institute (ITRI)	PPT: ITRI/Industrial Development /Government Policy	Shing-Yuan Tsai, ITRI
	Annual Report 2009	ITRI
	Innovative Technologies for a Better Future	
ITRI College	Program Overview	ITRI College
Export Processing Zone Administration, Ministry of Economic Affairs (EPZA/MOEA)	Historical Gallery Guide	EPZA/MOEA
	Transforming for the Global Economy, An Investment Guide to Export Processing Zones in Taiwan	
	EPZ Statistics at a glance	Victoria Kuan-Yu Huang, EPZA/ MOEA
	PPT: Export Processing Zone: An Overview	
	"Taiwan's Export-Processing Zones: Shifting Roles through the Decades", Taiwan Business Topics (December 2010)	Steven Crook
Metal Industries Research and Development Centre (MIRDC)	Pamphlet: Metal Industries Research and Development Centre	MIRDC
	CV of Dr. Paul C.K.Chung	
	PPT: A Brief Introduction of MIRDC, March 25, 2010	