CHAPTER

4

A Comparative Study of *Kaizen* Projects in Tunisia and Ethiopia

Tsuyoshi Kikuchi

1. Introduction

The Japan International Cooperation Agency (JICA) has been assisting a quality and productivity improvement project, hereinafter referred to as 'the *Kaizen* project,' in Tunisia and Ethiopia for roughly 10 years. The first-stage of cooperation began in 2006 for Tunisia and in 2009 for Ethiopia, and has been followed by second and third stages in both countries. The time span of 10 years is by no means a short one for JICA cooperation for a project with a specific theme. This chapter analyzes the results of JICA cooperation by comparing the achievements of the *Kaizen* projects in these two countries to identify further challenges and draw implications for the future.

JICA cooperation in the *Kaizen* project in Tunisia (2006-08) was the first example in Africa, followed by a similar project in Ethiopia that began three years later (2009-11). While there are many research papers in recent years dealing with the *Kaizen* project in Ethiopia,[1] hardly any such papers are found for Tunisia.[2] This is why the author has been motivated to conduct a comparative analysis, based on his own experience of the projects in Tunisia and in Ethiopia. This chapter is organized as follows. First, the introductory section defines the term achievement as used in this chapter. We should note that individual researchers may

[1] The Journal of International Development Studies special issue (27(2), 2018) *Achievements and Future Tasks of Kaizen Research in International Development Efforts*, published by the Japan Society for International Development (JASID), presents seven research papers, most of which deal with Ethiopia. The leading paper by Shimada (2018) mentions that there are nine other papers on *Kaizen* in Ethiopia. In addition to the above, three books published after 2018 contain papers on the *Kaizen* project supported by JICA. These are: Otsuka et al. (2018), Hosono et al. (2020), and Yamada and Ohno (2021).

[2] There is a paper by the author compiling the experience of the author's involvement in JICA's first-stage *Kaizen* project in Tunisia (Kikuchi 2008).

conceptualize the achievement of a *Kaizen* project differently. In this chapter, the term achievement is conceptualized in the author's own way. Section 2 describes the history of JICA cooperation in Tunisia and Ethiopia in the last 10 years. Section 3 provides a comparative analysis of the achievements of the *Kaizen* projects in these two countries. Section 4 discusses these achievements from the perspective of 'customization' and 'translative adaptation' (Maegawa 2004). Section 5 suggests that the advancement of *Kaizen* technologies and the organizational structure to adapt to such technologies remain challenges for these countries. Section 6 draws implications for future industrial development cooperation and Section 7 concludes the chapter.

In both Tunisia and Ethiopia, most local enterprises participating in *Kaizen* projects enjoyed the positive achievements such as quality improvement, productivity improvement, cost reduction, and/or a shorter delivery time. What do these achievements signify for their future business? Their significance for the future lies not simply with these achievements but relates to whether or not a mechanism, organization, or system to produce them has been established. For example, the development of human resources should not simply mean the number of people trained but the number of people trained to become trainers who can provide technical guidance on *Kaizen* for customers (for industrial sector private and public enterprises). There is also the question of whether or not a mechanism has been established to continually train employees in *Kaizen*.

Based on this understanding, the term 'achievement' in this chapter is used not simply to mean a result but to indicate something with potential for sustainable development in the future (especially after the termination of JICA cooperation). Here, achievements that enable this form of sustainable development are classified into three categories. The first is the formulation of the country's unique vision, policy, and strategy for the future together with a clear target direction and activities for the dissemination of *Kaizen*. The second is the provision or firm establishment of a mechanism, organization, and system to make such activities concrete. The third is the existence of developed and accumulated capacity to make such mechanisms, organizations, and systems functional. The basic understanding of the author is that sustainable development is only feasible when all of these three categories of achievements are present side by side. Thus, this chapter uses the following three perspectives as a framework of comparative analysis: (i) clarification of the vision, policy,

and strategy; (ii) establishment of the mechanism, organization, and system; and (iii) development and accumulation of capacity.

2. History of JICA Cooperation in Tunisia and Ethiopia

JICA cooperation for the *Kaizen* projects in Tunisia and Ethiopia consists of three stages (Table 4.1). The total project period of these three stages is as long as 10 years in both countries.

JICA's first-stage cooperation for Tunisia and Ethiopia can be described as a pilot project for both countries. As a result of the first-stage cooperation, it was confirmed that the concept and methods of *Kaizen* were not only effective for the quality and productivity improvement of enterprises in both countries but also transferable (Mekonen 2018; Kikuchi 2008, 2010),[3] resulting in the governments of both countries making a request to Japan for second-stage cooperation. Consequently, JICA began second-stage cooperation.

There were not many differences in terms of the training-level in the second-and third-stage cooperation with either Tunisia or Ethiopia. The second-stage cooperation aimed at fostering human resources capable of providing training, guidance and consulting services for enterprises using basic *Kaizen* methods. The third-stage cooperation aimed at fostering human resources capable of providing guidance on intermediate (and partially advanced)-level *Kaizen* technologies.[4] In Tunisia, the core organization to receive JICA cooperation (counterpart organization) has been UGPQ (*Unité de Gestion du Program National de Promotion de la Qualité*) of the Ministry of Industry and SMEs (*Ministere de l'Industrie de PME: MIPME*). The UGPQ was established in 2005 for the purpose of promoting the Tunisian enterprise upgrading program (*Program de Mise à Niveau*: PMN). Its main activities are to provide support (training and consultation) for enterprises in relation to manufacturing technologies and international quality standards (ISOs) and to train newly recruited staff members. It subsequently became an organization directly controlled

[3] Overall, the Ethiopian experience has proved that differences in religion, culture, and diversity are not impediments to the transfer of *Kaizen* concept to Africa and that *Kaizen* could bring about dramatic changes to companies and public institutions (Mekonen 2018, 152-53).

[4] *Kaizen* technology can be classified into three levels according to the level of challenge: basic-level, intermediate-level, and advanced-level (Sugimoto 2018, 77).

Table 4.1. History of JICA Cooperation for *Kaizen* Projects in Tunisia and Ethiopia

JICA's Cooperation	Tunisia Project Title / Duration / C/P	Ethiopia Project Title / Duration / C/P
First-stage	• Project: The Study on the Master Plan for Quality/Productivity Improvement • Period: August 2006 - July 2008 (2 years) • C/P: UGPQ, CETIME, CTAA	• Project: The Study on Quality/ Productivity Improvement • Period: October 2009 - May 2011 (1 year 8 months) • C/P: KU
Second-stage	• Project: The Project for Quality/ Productivity Improvement (Phase I) • Period: September 2009 - March 2013 (3 years 6 months) • C/P: UGPQ/UGPQP, CETIME, PACTEC	• Project: The Project for Capacity Building for Dissemination for Quality/Productivity Improvement (*Kaizen*) • Period: November 2011- October 2014 (3 years) • C/P: EKI, TVET
Third-stage	• Project: The Project for Quality/ Productivity Improvement (Phase II) • Period: January 2016 - December 2021 (6 years) • C/P: UGPQP, CETIME, CETTEX, CTC	• Project: The Project on Capacity Building for *Kaizen* Implementation for Quality and Productivity Improvement and Competitiveness Enhancement • Period: July 2015 - July 2020 (5 years) • C/P: EKI

Notes: 1. C/P: Counterpart Agency to receive JICA's cooperation.
2. JICA's third-stage cooperation for Tunisia is still in progress at the time of writing (February 2021).
3. Although the Project Design Matrix (PDM) for the third-stage cooperation for Tunisia lists the UGPQP and three national technical centers[5] (CETIME, CETTEX, and CTC) as the principal target organizations, another five technical centers did in fact receive the transfer of technology (training and guidance) in consideration of the need to widely disseminate *Kaizen* (JICA and JPC 2020).

Source: The table was prepared by the author based on various JICA reports on the *Kaizen* Projects in Tunisia and Ethiopia.

by the Minister's Secretariat of the Ministry of Industry, Energy and SMEs (*Ministère de'Industrie, de l'Energie et des PME*: MIEPME).[6]

During the period of JICA's second-stage *Kaizen* project, the Jasmine

[5] There are eight national technical centers under the Ministry of Industry: the Technical Center of Mechanical and Electrical Industries (CETIME), Technical Center for Agribusiness (CTAA), Technical Center for Packing and Packaging (PACKTEC), Technical Center for Textiles (CETTEX), Technical Center for Chemistry (CTC), National Center for Leather and Shoes (CNCC), Technical Center for Wood and Furniture Industry (CETIBA), and the Technical Center for Construction Materials, Ceramics and Glass (CTMCCV).

[6] As of May 2021 the ministry in charge industrial sector in Tunisia is the MIEM.

Revolution broke out, toppling the administration which had been in power for 23 years. This change of government resulted in a suspension of the prioritized work under the project to examine a concrete plan to upgrade the UGPQ from a temporary to a permanent organization.[7] In January 2016, the MIEPME was reorganized as the Ministry of Industry (*Ministère de l'Industrie*: MI), which then became the Ministry of Industry and Commerce (MIC) in September 2016 through a merger with the Ministry of Commerce. The MIC was again reorganized as the Ministry of Industry and SMEs (MIPME) in September 2017 (JICA and JPC 2020). As of May 2021, the supervising ministry of UGPQP[8] is the Ministry of Industry, Energy and Mines (MIEM).

Despite these changes, the UGPQ has always been a temporary organization since its establishment without an independent budget, and its several full-time staff members are currently assigned employees from the MIPME. Meanwhile, it has acted as the window as well as the coordinator for JICA's cooperation projects and has dealt with individual projects using suitable consultants loaned from national technical centers under the jurisdiction of the MIPME. Therefore, the system to receive JICA cooperation is essentially the result of collaboration between the UGPQ/UGPQP and national technical centers.

The target personnel for training by the JICA project team in Tunisia are mostly engineers who previously worked for or currently work at the relevant technical centers, and some senior officials of the UGPQ/UGPQP. In contrast, almost half of the target personnel for training in Ethiopia are university graduates with no experience of working for an enterprise except for those training under the first-stage cooperation program.[9] While more details are discussed in Section 5, this difference in the target personnel for training has highly significant implications for human

7 At the time, the name 'Tunisia Quality/Productivity Center (TQPC)' was proposed for the planned permanent organization (JICA/JPC 2013).

8 In 2016 during the third-stage cooperation period, the UGPQ was renamed the Management Unit of the National Program of Quality and Productivity Promotion (*Unité de Gestion du Program National de Promotion de la Qualité et la Productivité*: UGPQP). In this chapter, any reference to the UGPQ from the second-stage cooperation after this change uses the term 'UGPQP' or 'UGPQ/UGPQP' depending on the particular context.

9 The target personnel for training in the first-stage cooperation by JICA were staff members of the *Kaizen* Unit (KU) who had been selected from those working at various industrial development institutes (Metal Industry Development Institute, MIDI; Textile Industry Development Institute, TIDI; Leather Industry Development Institute, LIDI; and others) of the Ministry of Industry (MoI).

resources development in the future.

In Ethiopia, the core organization acting to receive JICA cooperation is the Kaizen Unit (KU) established as a section of the Ministry of Industry (MoI) during the first-stage of cooperation. During this period (2009-11), the Government of Ethiopia confirmed the effectiveness as well as adaptability of *Kaizen* technologies (concept and methods) for the country, expanded and reorganized the KU into the Ethiopian Kaizen Institute (EKI) prior to the commencement of second-stage cooperation (2011-14) as an independent organization to disseminate *Kaizen* in Ethiopia (Mekonen 2018).

At the time of the commencement of second-stage cooperation, the number of personnel at the EKI was 10 (including the Director), all of whom had been previously trained as members of the KU. As of June 2020, the staff strength, including the Director General and other senior staff members, is as many as 154, of whom 109 are *Kaizen* consultants (JICA et al. 2020). The supervising Ministry for the EKI was originally the MoI. For the second-stage cooperation, while the EKI acted as the core counterpart organization, Technical Vocational Education and Training (TVET) under the jurisdiction of the Ministry of Education (MoE) also participated as a counterpart organization. The other principal organizations cooperating with EKI in disseminating *Kaizen* in Ethiopia are industrial development institutes (MIDI, TIDI, LIDI,[10] and so on), and regional *Kaizen* institutes (RKIs).

Although EKI had been under the jurisdiction of the MoI since its establishment in 2011, during the third-stage cooperation in October 2015 the supervising ministry was changed to the Ministry of Public Service and Human Resource Development (MoPSHRD) to disseminate *Kaizen* to the public service sector in addition to the manufacturing sector. Afterwards the MoPSHRD was renamed the Civil Service Commission (CSC) under the direct control of the Prime Minister's Office in October 2018 (JICA et al. 2020).

[10] See footnote 9 for the full names of the organizations.

3. The Achievements of the *Kaizen* Projects in Tunisia and Ethiopia

This section compares the achievements of the *Kaizen* Projects in the two countries in the light of three achievement categories: (i) vision, policy, and strategy; (ii) mechanism, organization, and system; and (iii) development and accumulation of capacity. Also, other achievements are added to the above categories such as change of mindset and function as a center of excellence.

In Chapter 2, Ohno and Mekonen state that 'the following six factors are critical for designing and implementing a national movement that can successfully transform the mindset of the people,' based on the experience of Japan and Singapore:

Factor 1. National commitment to a quality and productivity movement;
Factor 2. Institutional infrastructure for a quality and productivity movement;
Factor 3. Grass-root awareness raising and participation;
Factor 4. Standardized training and consulting programs;
Factor 5. Industry-academia-government partnership for a quality and productivity movement; and
Factor 6. Development of the private sector capability to sustain quality and productivity improvements.

Although they focus on productivity movements, these six factors can also be applied as factors that lead to success in movements related to *Kaizen* in general. In this chapter the achievements brought about in Tunisia and Ethiopia by these projects over the past 10 years are divided into three categories that will be important in the sustainable development of *Kaizen* in the future.

These three categories of the achievements of *Kaizen* in both countries cover most of the six factors described later. The first category (vision, policy, and strategy) is related to Factor 1. The second category (mechanism, organization, and system) and the third category (development and accumulation of capacity) cover Factor 2 and Factors 4 to 6, respectively. As discussed in this chapter later Factors 5 and 6 are particularly important for the dissemination of *Kaizen* from a long-term perspective. Regarding Factor 3 (Grass-root awareness raising and participation), this is not

directly related to any specific category but is indirectly connected to the 'Awards Scheme' in the second category. *Kaizen* will become known to the general public as the media continues to report on the awards given to companies with remarkable achievements (see Chapter 2).

3.1. Vision, policy, and strategy

What policy documents are available in Tunisia and Ethiopia that indicate the way of thinking and direction of activities in the form of a vision, policy, and strategy for the dissemination of *Kaizen* in the coming years? Tunisia has an Annual Performance Plan (APP) as an industrial plan prepared by the Ministry in charge of the industrial sector.[11] 'Productivity improvement' in addition to quality improvement has been recognized as an important pillar of Tunisia's industrial policy in this APP.[12] The National Productivity Promotion Committee (NPPC) was established to promote the productivity improvement in Tunisia on March 24, 2021 (Decree of the MIEM).[13] One of important tasks of the Committee is to formulate policy for productivity promotion for private companies as well as public organizations.

Ethiopia has the Growth and Transformation Plan II (GTP II). In this plan, quality/productivity improvements and the enhancement of competitiveness are considered to be the keys to achieve reform of the economic structure, and *Kaizen* is considered to be the principal tool used to achieve these (Ohno 2018; EKI 2019).[14] As of February 2020, the EKI was formulating 'the 10 Year Strategic Reform Plan (2020–2030)' as a new edition of this plan. What is notable about these efforts in Ethiopia is the strong interest in and understanding of *Kaizen* on the part of the late Prime Minister Meles Zenawi. Under his strong leadership,[15] the

[11] In Tunisia administrative organizations are frequently reorganized. As of February 2021, the Ministry in charge of the industry sector is the MIEM.

[12] Information from the JICA expert team for the Tunisian *Kaizen* project.

[13] Information source: *Journal Officiel de la Republique Tunisienne* (April 2, 2021).

[14] 'The Ethiopian government adopted *Kaizen* as an exemplary approach and tool for growth and development' (EKI 2019).

[15] Many researchers have pointed out that the greater than expected and remarkable achievements of the *Kaizen* project in Ethiopia can be attributed to the strong leadership of the late Prime Minister Meles (GRIPS Development Forum 2016; Ohno 2013; Ohno 2018; Jin 2018; and Mekonen 2018). Kenichi Ohno described Meles as follows: 'The intellectual capacity and desire of Prime Minister Meles regarding development is probably unrivalled as a leader of a country and it can be definitely affirmed that the vision, policy framework and implementation system for the development of Ethiopia

JICA-supported *Kaizen* project materialized and the EKI was established in October 2011 as the core organization for the dissemination of *Kaizen*. It is said that 'the Policy Dialogue on Industrial Development of Ethiopia'[16] assisted by JICA had a positive impact on that decision.[17]

3.2. Mechanism, organization, and system

Both countries have been making efforts to create and consolidate the mechanisms, organizations, and systems for the dissemination of *Kaizen*. Here, comparison between Tunisia and Ethiopia is attempted, taking into consideration such efforts as: (i) the national-level organization and system, counterpart organization for JICA's cooperation (or core organization for the dissemination of *Kaizen*) and the principal collaborating/cooperating organizations; (ii) the human resources development system; (iii) the qualification certification system; (iv) the system to disseminate *Kaizen* to enterprises; (v) the awards scheme; (vi) collaboration and cooperation with industrial associations; and (vii) collaboration and cooperation with universities and research institutes, respectively.

In addition, the 'change of mindset' benefitting enterprises in both countries and the ongoing development of these two countries to function as centers of excellence are discussed as important achievements because these could lead to the further dissemination and development of *Kaizen* technologies in the future.

3.2.1. National-level organization and counterpart organization for JICA cooperation

As stated in 3.1, the NPPC was established on March 24, 2021 as a ministerial-level national body to promote productivity improvement

reflect his strong conviction' (GRIPS Development Forum 2016).

16 The Policy Dialogue on Industrial Development of Ethiopia started in 2009 in response to a request by the late Prime Minister Meles (GRIPS Development Forum 2016). The industrial policy dialogue is a modality of assistance aimed at transferring the experience of development, especially in the methodology of industrial policy formulation, of East Asia to developing countries (JICA and GRIPS Development Forum 2011, 12). Please also see the volume of this research project featuring industrial policy (Volume 1), especially Chapters 1 and 8.

17 Izumi Ohno who led the Policy Dialogue on Industrial Development of Ethiopia together with Kenichi Ohno stated that 'the policy dialogue was closely entangled with the process of introducing and developing *Kaizen*, producing a synergy effect between actual practice and policy formulation' (Ohno 2018, 20).

in Tunisia. Although the NPPC focuses on productivity, it is also understood as a national level organization for the dissemination of *Kaizen* in Tunisia since it carries out activities such as the operation of the *Kaizen* trainer qualification system in addition to policy formulation on productivity promotion. The members of the Committee are ministries responsible for industry, economy, and finance, higher education and scientific research, and professional training; associations in private sector (UTICA, CONECT); labor unions; and other knowledgeable persons. This membership is relevant to the *Kaizen* network discussed later in this chapter.

In Tunisia, the counterpart organizations for JICA cooperation are the UGPQ/UGPQP and national technical centers under the jurisdiction of the same ministry. *The Centre Technique des Industries Mecaniques et Electriques* (CETIME) has been selected as a counterpart organization for training from the first to the third-stage of JICA cooperation. One of the reasons is to utilize the results accumulated in CETIME from previous[18] JICA cooperation.

In Ethiopia, the National Kaizen Council (NKC) was established in 2013 by former Prime Minister Hailemariam Desalegn as a superior organization above the EKI which was to be the counterpart organization for JICA cooperation. The chairman of this Council is the Prime Minister. The Council functions as a supervisory body of the EKI and also discusses the future vision for the dissemination of *Kaizen* and the direction for a national movement (Mekonen 2018). The counterpart organization for JICA cooperation in Ethiopia was the KU in the first-stage, and then the EKI in the second-stage. As mentioned above, in both countries, counterpart organizations have national-level superior bodies in addition to supervising ministries. However, the system of counterpart organizations that receive JICA's cooperation is different.

The major difference between Tunisia and Ethiopia in regard to the counterpart organization for JICA cooperation is that while the UGPQ/

[18] CETIME was involved in the Study on Plan for Mechanical and Electrical Industry in Tunisia as a counterpart (1999-2000) (JICA and SAIESU 2000). The objective of the Study was for the JICA Study Team to transfer the methodology of corporate diagnosis to counterpart and local enterprises. In addition, a senior volunteer, who retired from the Toyota company, was working with CITEM as a *Kaizen* consultant during the same period of the first stage of JICA cooperation on the project (2006-08).

UGPQP and the national technical centers have received training on *Kaizen* technologies as a group of counterpart organizations in Tunisia, the KU/EKI has been the core organization for such training in Ethiopia even though TVET was added in the second-stage of cooperation. Simply put, the organizational structure to receive JICA cooperation can be said to be of 'the collaborative type' in Tunisia and 'the independent type' in Ethiopia. Which one is better or which one to be chosen will depend on the policies and conditions of each country. This point is discussed in Section 5.

Another difference between Tunisia and Ethiopia is in the supervisory body of the counterpart organization. The supervisory body of UGPQP is the MIEM, but that of the EKI has been transferred from the Ministry in charge of industry to the CSC under the direct control of the Office of the Prime Minister. The reason for the transfer to CSC is that the Ethiopian government has a policy of spreading *Kaizen* methods and way of thinking to the general public beyond the industrial sector. The idea of spreading the concept to the private and industrial sectors as well as the public sector is also seen in Tunisia, as can be seen from the membership of the NPPC as mentioned above.

3.2.2. Human resources development system

JICA cooperation up to the present has established a *Kaizen*-related human resources development system in both Tunisia and Ethiopia. The basic framework for human resources development is a combination of theoretical training (classroom training or CRT) and practical training (in-company training or ICT) with emphasis being placed on ICT. Practical training means that the trainees attempt to apply the theories of the *Kaizen* technologies that they learn during CRT on the actual production floors of enterprises, together with a plant manager and workers of an enterprise. In other words, practical training, i.e. ICT, is 'on-the-job training,' a 'learning-by-doing approach,' or an 'experience-based approach.'[19]

The reason for the emphasis on practical training is that the experience of previous *Kaizen* Projects has taught us the relevance of the idea of 'learning from experience' or 'mastering through experience' (Stiglitz

[19] Jin (2018) states that 'the learning-by-doing approach' is a unique characteristic of technical cooperation provided by Japan (39).

and Greenwald 2015; Japanese translation 2017, 56-57) for learning *Kaizen* technologies (concept and methods). In Tunisia, human resources development includes training using a simulation production line[20] in addition to CRT and ICT. As far as ICT in Tunisia is concerned, its purpose includes deeper understanding of the relatively advanced *Kaizen* methods required in Tunisia in addition to the application of the basic knowledge acquired through CRT. The training uses a simulated production line and is a system that allows the trainees to practice the production of experimental products or the assembly of components using standard production or assembly equipment, thus allowing the trainees to experience a simulated production floor. Tunisia is the only country using such a system for human resources development among the eight African countries in which JICA's *Kaizen* Projects are implemented (JICA and JPC 2020).

The principal human resources development program in Tunisia is the Training of Trainers (ToT) Program. This program consists of three-levels, and it takes four years to complete all three-levels. Tables 4.2 and 4.3 outline the contents of the ToT Scheme.

Table 4.2. Tunisia: Training of Trainers (ToT) Scheme (Qualification)

Level	Qualification Name	Requirement	Training Period
3	*Kaizen* Master Trainer (MT)	MT has the knowledge and skills to implement a *Kaizen* project. MT can provide training services for certification and / or supervision in *Kaizen*	2 years
2	*Kaizen* Advanced Trainer (AT)	AT has the knowledge and skills to implement a *Kaizen* project. AT may provide basic *Kaizen* and advanced *Kaizen* training services for *Kaizen* certification under the supervision of a certified Master Trainer	18 months
1	*Kaizen* Basic Trainer (BT)	BT has the knowledge and skills to implement a *Kaizen* project. This skill level does not allow the BT to provide training services for certification in *Kaizen*	6 months

Note: The above ToT Scheme is under discussion as of May 2021.
Source: Prepared by the author, modifying Fig. 5 in JICA and JPC (2020, 55) and using information provided by the members of the JICA expert team in the third-stage of the project.

[20] This is a facility installed with JICA's cooperation. The facility enables training in linking CRT and ICT and is currently managed and maintained by CETIME (the national technical center).

Table 4.3. Tunisia: Training of Trainers (ToT) Program (CRT and ICT)

	Classroom Training (CRT)		In Company Training (ICT)	
	Contents	Duration	Contents	Duration
Basics	• 5S • Visualization • Just in Time Production • Basic TPS • Basic TPM • Basic TQM	10 days	• 5 visits to each of 2 enterprises • Application of knowledge acquired through CRT to the production floor (Practice)	5 months
Advanced Part 1	• *Kaizen* of arrangements • One piece flow production • 'Kanban' • 'Jidoka' • 'Poka yoke' • 'Dandori' • Stock Control • Concept of TPS, TQM, TPM	10 days	• 5 visits to each of 2 enterprises • Application of knowledge acquired through CRT (Advanced Part 1) to the production floor (Practice)	5 months
Advanced Part 2	• Training with a simulation production line • *Kaizen* and Lean/Six Sigma • Financial Impact by *Kaizen* • Evaluating *Kaizen* performance	8 days	• 10 visits to each of 2 enterprises • Application of knowledge acquired through CRT (Advanced Part 1 and Part 2) to the production floor (Integrated Practice)	10 months

Source: Prepared by the author, referring to the Project Progress Report (JICA and JPC 2020, Fig.1) and information provided by the members of the JICA expert team in the third-stage of the project.

In Tunisia, human resources development programs include ToT for *Kaizen* Basic Trainers (BT) and *Kaizen* Advanced Trainers (AT) for the Private Sector. The fee for such a training course is fairly expensive for small and medium enterprises; but the Government of Tunisia has established a relevant subsidy system (JICA and JPC 2020, 17). In Ethiopia, the basic training method consists of CRT and ICT. Human resources development concerning *Kaizen* in Ethiopia can be classified into three-levels: basic, intermediate, and advanced. Basic-level and intermediate-level *Kaizen* technologies were transferred to EKI consultants by the JICA expert team during the second-stage and third-stage cooperation periods, respectively. The standard duration of a human resources development program in Ethiopia is one month for CRT and seven months for ICT. Table 4.4. shows the contents of the CRT Intermediate-level Consultant

Table 4.4. Ethiopia: Intermediate-level Consultant Training Program

Date	AM	PM
1st Day	Orientation Pre-CRT Exam	Intermediate *Kaizen* Story and Tool
2	• QC story & tools • IE • Case method	(Continued)
3	(to be continued)	(Continued)
4	Production Planning • Outline • Production types	• Steps of production planning • Bullwhip effect • MRP
5	(to be continued)	(Continued)
Weekend		
6	Toyota Production System (TPS) • 'Heijyunka (Smoothing)' • Standardized work • Visual control & 5S	• 'Jidoka & Five Whys' • Just-in-Time • Value Stream Map
7	• Case Method	• Kanban training
8	Cost and Accounting	• Case method
9	Economic Engineering • *Kaizen* effect calculation	• Cost & profit study • Sunk Cost
10	• Capacity and profitability analysis • Investment pay-off analysis	• Case method
Weekend		
11	Inherent Technology • Briefing	• Visit to MIDI
12	• Visit to LIDI	• Visit to TIDI
13	TQM • Framework of TQM • SWOT analysis	• Case method
14	• Policy management	• Case method
15	TPM • Steps of TPM • 16 major losses	• Case method
Weekend		
16	• 8 pillars of TPM • Preventive maintenance	• Case method
17	Ethical code	Orientation of ICT Post-CRT Exam

Note: This is the fifth batch for CRT, September to October 2020.
Source: Table in JICA and JPC 2020 modified by the author.

Training Program in Ethiopia.

During the period of the JICA's third-stage cooperation for Ethiopia, the Management Skill Development Program was developed. Because of the need to train trainers to complement this program, the ToT on Management Skills Program was also developed. There is a slight difference between Tunisia and Ethiopia in terms of human resources development as shown in Table 4.3 (Tunisia) and Table 4.4 (Ethiopia). The CRT in both countries includes intermediate (and partially advanced)-level *Kaizen*, giving the impression that the technical contents are virtually the same in both countries although the point of emphasis in the training differs. In Tunisia, trainers are taught to faithfully apply the *Kaizen* technologies (concept and methods) learned during CRT in the ICT as the phrase 'application of the knowledge mastered in CRT to the production floor (practice)' in the table clearly indicates. In contrast, ICT in Ethiopia teaches how to proceed with a consultation in accordance with the *Kaizen* steps, using the fourth batch ICT (January 16 to July 27, 2019) of the Intermediate-level Consultant Training Program as an example (JICA et al. 2016). In other words, Tunisia aims at training *Kaizen* trainers[21] while Ethiopia emphasizes the training of *Kaizen* consultants.[22] This difference relates to the name of the qualification in the qualification certification system of each country.

Another difference between Tunisia and Ethiopia is that Tunisia in principle charges a fee for training and consultation for private enterprises. This is an issue for Ethiopia to consider in the coming years (JICA and JPC 2020).

3.2.3. Qualification certification system

As described above, the qualification title differs between Tunisia (Trainer) and Ethiopia (Consultant).[23] The qualification certification system in Tunisia was introduced during JICA's third-stage cooperation, and three

[21] JICA's third-stage cooperation for Tunisia is said 'to have attempted to foster such individual qualities as enthusiasm, cooperativeness, leadership, and so on; all of which are required for the training of trainers' (JICA and JPC 2020, 28).

[22] The training of a consultant focuses on problem identification and problem solutions discovered by themselves.

[23] In the certification system, qualified persons are called 'consultants' in Ethiopia and 'trainers' in Tunisia. Even in Tunisia, they are called 'consultants' in the actual workplace. In this chapter, the Tunisian qualified persons are referred to as either 'trainers or consultants,' depending on the context.

types of qualification, i.e. *Kaizen* Master Trainer (MT), *Kaizen* Advanced Trainer (AT), and *Kaizen* Basic Trainer (BT), are certified (Table 4.2). As of February 2020 there was an ongoing process to formulate a ministerial ordinance to have these qualifications certified by the government (MIPME) (JICA and JPC 2020). The ministerial ordinance was issued on March 24, 2021 with the establishment of the NPPC.

In Ethiopia, the *Kaizen* Consultant Certification, Accreditation and Registration System (CARS) was established in 2017 during the third-stage cooperation to ensure the quality of *Kaizen* services. There are three types of consultant qualifications, i.e. Basic-level Consultant (BC), Intermediate-level Consultant (IC), and Advanced-level Consultant (AC)[24] but the current qualification holders are either BC or IC (JICA et al. 2020).

3.2.4. Kaizen dissemination system for enterprises

In both countries, the system to disseminate basic *Kaizen* technologies was established during JICA's second-stage cooperation. In the third-stage cooperation, emphasis is placed on the transfer of intermediate-level *Kaizen* technologies in both countries and in Tunisia the transfer of some advanced-level technologies was attempted through ICT by establishing a system to disseminate *Kaizen* technologies to enterprises. However, the human resources capable of making this system function (i.e. human resources capable of guiding enterprises) are limited both qualitatively[25] and quantitatively and cannot fully meet the needs of private enterprises, making it essential for trainers and consultants to build up their practical experience in the coming years.

3.2.5. Awards scheme

The awarding of enterprises is important in two ways. First, it gives an extra incentive to enterprises that have already introduced *Kaizen* by recognizing their significant achievements. Second, it promotes a need

[24] Ethiopia is examining the introduction of the category 'Principal Consultant,' a higher qualification than the existing three consultant-levels (JICA et al. 2020).

[25] In case of Tunisia, although not so many, those who received one-on-one training by the JICA expert team between the 2nd stage (2009-13) and the 3rd stage (2016-21) can now provide the relatively high level of training services and technical guidance to companies on a commercial base (fee base). (Information source: JICA experts involved in the third stage of the JICA *Kaizen* project).

or demand for *Kaizen* on the part of those enterprises that have not yet introduced it. In Tunisia, as of February 2020, the MIPME was in the process of formulating a ministerial ordinance to establish a *Kaizen* Awards Scheme during the third-stage cooperation.[26] The ordinance regarding this Award was issued on March 24, 2021 with the establishment of the NPPC. In Ethiopia, the National *Kaizen* Awards Scheme was established in 2015, and a ceremony is held in September (the first month of the Ethiopian calendar) every year to reward enterprises and *Kaizen* Promotion Teams (KPTs) as small groups and individuals that have accomplished significant *Kaizen* achievements (Mekonen 2018).

3.2.6. Collaboration and cooperation with private associations

In both Tunisia and Ethiopia, the core organization to promote the dissemination of *Kaizen* is a public body. Although it may be the case that a public body acts as a driving force in a developing country in the stage of industrial catching-up, the dissemination of *Kaizen* should be eventually driven by the initiative of the private sector. Accordingly, the role of the government of a developing country is to create an environment in which private bodies, such as industrial associations and management associations, are fostered and developed. Collaboration and cooperation between the core organization (at present public body) and private associations are essential for the dissemination and expansion of *Kaizen* technologies from the long-term perspective.

Large-scale private bodies in Tunisia are the *Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat* (Tunisian Confederation of Industry, Trade and Handicrafts: UTICA)[27] and the *Confederation des Entreprises Citoyenne de Tunisie* (Confederation of Citizen Enterprises of Tunisia: CONECT),[28] both of whom are members of the Joint Coordinating Committee (JCC) for the third-stage *Kaizen* project of JICA. The UGPQP collaborates with

[26] In 2008 during the period of JICA's first-stage cooperation, the First Grand Prix of the President was established for the Improvement of Quality and Innovation. This institutional arrangement was abolished during the Jasmine Revolution in 2010-11 (JICA and JPC 2020).

[27] The UTICA was established in 1947 and its membership includes some 150,000 private enterprises in the industrial, commercial, service, and handicraft sectors, excluding the tourism and financial sectors. It is part of the Tunisian National Dialogue Quartet which was awarded the Nobel Peace Prize in October 2015 (JICA and JPC 2020).

[28] The CONECT is a body of enterprise managers in diverse business fields, including the public sector and foreign subsidiaries, in Tunisia (JICA and JPC 2020).

these two bodies to jointly host seminars and dispatches lecturers to seminars organized by these bodies. The relationship between the eight national technical centers and private enterprises includes the provision of various technical services by these centers for private enterprises and the representation of leading private enterprises on the board of directors of the technical centers in eight technical fields. In other words, each center is operated by a public-private partnership type board of directors.

In Ethiopia, in the third-stage cooperation period, no cooperative relationship has emerged between the EKI and private bodies (especially industrial associations).[29] However, the Ethiopian Industrial Engineers Association is entrusted to conduct part of the work related to the CARS examination. This Association may be the only private body in a cooperative relationship with the EKI at present. Based on the above, the collaboration between the public sector and private sector appears to be relatively more advanced in Tunisia in view of the collaboration or cooperation between the UGPQP and the national technical centers and private associations.

3.2.7. Collaboration and cooperation with universities

Universities and higher education institutions can play a significant role in industrial development. As mentioned in Chapter 2, in the case of Japan's experience in the *Kaizen* field for example, universities have played an important role together with private associations in the study of *Kaizen* (systematization and experimental application), development of new methods, and human resources development (JUCE 1997; JPC-SED 2005; and JIIE 2010).

In Tunisia, the government, especially the MIPME, emphasizes academic-industrial collaboration in its industrial policy (JICA and JPC 2020). During JICA's third-stage cooperation a dissemination and enlightenment seminar on quality/productivity improvement (*Kaizen*) for university lecturers and a seminar for university students have been organized within the framework of the *Kaizen* project, targeting several universities and higher educational institutions. The seminar for university lecturers in particular

[29] In Ethiopia no private bodies have relations with the third stage of the JICA supported *Kaizen* project, but the Ethiopian Chamber of Commerce and Sectoral Associations (ECCSA) was a member of the JCC in the second stage of JICA cooperation.

involved not only *Kaizen* theories but also practical training using a simulated production line. Apart from these seminars, a proposal for a quality and productivity improvement curriculum has been submitted to a university via the Ministry of Higher Education and Scientific Research.

The University of Tunis has a Higher National Engineering School (*Ecole Nationale Superieure d'Ingenieure de Tunis*: ENSIT) which has the status of a faculty and offers an industrial engineering course. The curriculum for this course includes such lecture themes related to *Kaizen* as production control, quality management and supply chain.[30] The ENSIT has strong interest in *Kaizen* and hopes therefore to strengthen its collaboration and cooperation with the UGPQP and national technical centers.

What is notable in Ethiopia regarding links between *Kaizen* and universities is the fact that a *Kaizen* master's degree course as well as a *Kaizen* PhD course have been established. A two-year master's degree course started at Mekelle University in March 2014 under the guidance of a Japanese university professor (Hiroshi Osada, Professor Emeritus, Tokyo Institute of Technology). A four-year PhD course was introduced at the same university in October 2018 (JICA et al. 2020).

3.3. Development and accumulation of capacity

The establishment of 'a mechanism, organization, and system' for the future dissemination of *Kaizen* in Tunisia and Ethiopia can be regarded as a device to materialize the vision, policy, and strategy for the future of *Kaizen*. What is required as the next stage is the capacity to make these devices actually function. Here, the term capacity is subdivided into individual capacity, organizational capacity, and network capacity.

Individual capacity means the capacity of individual trainers or consultants engaged in the work to disseminate *Kaizen*. In other words, it means training/guidance capacity and/or consulting capacity (ability to discover and solve problems). Organizational capacity means the capacity of a core organization to disseminate *Kaizen* in the present context and includes the capacity to operate the organization itself,[31] the capacity to

[30] Based on ENSIT's brochure introducing its curriculum.

[31] The operation of an organization includes the operation and management of training programs, qualification systems, awards schemes, and various events in addition to the gathering and analysis of information and data.

train, strengthen and utilize the capacity of individual persons belonging to the organization in question, and the capacity to cooperate as well as coordinate with organizations, bodies, associations, universities, and so on, that form a network.[32]

Network capacity means the capacity generated by a network headed by a core organization for the dissemination of *Kaizen*, with other members being related organizations and bodies, associations, universities, and so on. Even if a core organization for the dissemination of *Kaizen* exists, there is a limit to its ability to sustain and further develop the nationwide dissemination of the concept alone. For its sustained dissemination and development, a network to ensure linkage and cooperation between related organizations and bodies is essential (Kikuchi 2014).

It is not easy to qualitatively determine the three types of capacity. This chapter only looks into the quantitative aspect of capacity, including the number of training participants[33] or the number of those who have completed training, the number of people who have obtained a qualification, and, in the case of Ethiopia, the number of master's and PhD course students and the number of students completing these courses. In the case of Tunisia, individual capacity is represented by the number of qualified persons in the different stages of cooperation with JICA (see Table 4.5).

The next topic is the capacity of a core organization for the dissemination of *Kaizen* in Tunisia. The UGPQ/UGPQP as the core organization has been a temporary organization which is renewed every five years. It does not have its own budget and has only a limited number of full-time staff. During JICA's third-stage cooperation period, the staff members consist of three full-time UGPQP employees and four Master Trainers temporally transferred from the technical centers. The UGPQP has been receiving JICA cooperation to train personnel (MTs, ATs, and BTs) through the system of collaboration with national technical centers. It has also established a mechanism to improve such activities as organizational capacity, since the UGPQP has been engaged in the training of and technical guidance

[32] If the core organization is to perform the role of a Center of Excellence for the dissemination of *Kaizen* to neighboring countries in the future, it is required to develop the capacity to function as a secretariat to fulfil such a role.

[33] Excluding the number of participants from companies, that is, executive managers, factory managers, and workers involved in *Kaizen* projects.

for enterprises using trained personnel.

Table 4.5. Tunisia: Numbers of *Kaizen* Master Trainers (MT) and *Kaizen* Advanced Trainers (AT) at UGPQP/Technical Centers

	Second-stage Cooperation (AT)	Third-stage Cooperation		
		MT	AT	MT+AT
UGPQP		1	0	1
CETIME	5	6	2	8
CETTEX		7	5	12
CTC		4	1	5
CTAA		1	4	5
PACKTEC	2		2	2
CTMCCV		1	3	4
CETIBA			3	3
CNCC			2	2
Sub Total (1)	**7**	**20**	**22**	**42**
MIPME		1	1	2
Private Co.		1		1
Sub Total (2)	**0**	**2**	**1**	**3**
Total (1) + (2)	**7**	**22**	**23**	**45**

Notes: In addition to the above numbers of qualified trainers, 2 AT Candidates, 41 BT Candidates, 16 staff members of national training centers, and 25 private company staff are under training as of February 2020.

Source: Project Database (provided by the JICA Expert Team as of February 2020).

In addition to the management of training and guidance for enterprises, the operation of the UGPQP includes the management of qualification systems, award schemes, and various events and also the gathering and analysis of information and data. Therefore, the staff strength of the administration department must increase since a greater number of such activities are planned in the coming years.[34]

Regarding network capacity, although the UGPQ/UGPQP has so far maintained a collaborative relationship with technical centers as well as various private associations and universities, these relationships will

[34] If the UGPQP is to perform the role of a Center of Excellence for the dissemination of *Kaizen* to neighboring countries in the future, it is required to develop the capacity to function as a secretariat to fulfil such a role.

be strengthened with the establishment of the NPPC comprehensive network. Once this network is established, the UGPQP will be required to have the capacity to coordinate and liaise with network members (meaning the capacity to act as a secretariat).

What about the individual, organizational, and network capacities in Ethiopia? The individual capacity is represented by the number of training participants[35] and qualification holders in the JICA's first-stage through third-stage cooperation (Table 4.6).

Table 4.6. Ethiopia: Numbers of *Kaizen*-Related Qualification and Academic Degree Holders

Qualification/ Level	Qualification/ Academic Degree Holders
Advanced-level Consultant (AC)	0
Intermediate-level Consultant (IC)	24 (EKI: 17)
Basic-level Consultant (BC)	23 (EKI: 10)
5S Master	127
5S Leader	161
Kaizen Starter (KS)	60
Trainers for the Senior Management Training Programme (ToT)	5
Master's Degree Holders	66 (EKI: 63)
Those Having Completed the PhD Course	0 (4 attending the course)

Note: Figures in the table are as of June 2020.
Source: Prepared by the author based on the Progress Report (JICA et al. 2016, 2020).

Let us now examine the organizational capacity of the EKI, which is the core organization for the dissemination of *Kaizen* in Ethiopia. The capacity to operate the organization itself is affected by the capacity of top management. The first Director General of the EKI exerted his leadership as if responding to the strong leadership of the Prime Minister and skillfully managed the EKI while securing budgetary appropriation from the government and acquiring the necessary human resources. Along with its increasing manpower strength in terms of not only consultants but also administrative staff, the EKI has also been attempting to develop and

[35] Excluding the number of participants from companies, i.e., executive managers, factory managers, and workers.

strengthen the managerial capacity of senior staff to gradually enhance the overall capacity of the organization.

In regard to the capacity of the EKI to train, strengthen, and utilize consultants, a mechanism has already been established to continually train and strengthen consultants capable of providing basic as well as intermediate-level *Kaizen* training and technical support (consultations, guidance, and so on). These trained consultants have been actively utilized to guide younger consultants and to provide training as well as technical services for enterprises. The data (Table 4.6) can be considered to show the organizational capacity of the EKI from a quantitative viewpoint. It is said that the current manpower strength of the EKI cannot cope with the demand for *Kaizen* from enterprises (JICA et al. 2020).

Regarding the network capacity in Ethiopia, although the EKI has so far established an individual relationship of cooperation with national industrial development institutes (MIDI, LIDI, TIDI, and so on), regional *Kaizen* institutes (RKIs), TVET, and universities, its collaboration with private associations has been thin.[36] It will be particularly important for the EKI to build a cooperative relationship with industrial associations in the private sector in the future. In any case, no comprehensive network with members consisting of organizations (especially, industry, government, and academia) related to the dissemination of *Kaizen* has yet to be established in Ethiopia.

The individual and organizational capacities developed and accumulated through JICA's *Kaizen* Projects over a period of 10 years in Tunisia and Ethiopia are summarized in Table 4.5 (Tunisia) and Table 4.6 (Ethiopia), respectively. Regarding network capacity, at present it is hard to say that such a comprehensive network has been established in Ethiopia. The network capacity related to the dissemination of *Kaizen* in both countries depends on the ability to cooperate and coordinate of public organizations and institutions, private and industrial associations, and universities that make up the network of the core organizations like UGPQP and EKI. In the case of Tunisia, UGPQP has had an individually collaborative relationship with eight national technical centers, industrial

[36] No private associations similar to the UTICA or CONECT in Tunisia, have been established in Ethiopia. Nevertheless, such associations as the Ethiopian Chamber of Commerce and Sectoral Associations and the Addis Ababa Chamber of Commerce and Sectoral Associations may be able to act as substitutes.

associations, and universities. A comprehensive network will be formed with the establishment of the NPPC. In the case of Ethiopia, EKI as the core organization has a relationship with national industrial development institutes (MIDI, LIDI, TIDI, etc.), RKIs, and specific universities, but no private sector associations, like UTICA and CONECT in Tunisia. In the long run, the role of the private sector (especially industrial associations, management associations, and so on.) is important for the dissemination of *Kaizen*. At present there is no comprehensive network in Ethiopia.

What must be especially considered for the formation of a network for the dissemination of *Kaizen* is the creation of a so-called industry, government, and academic cooperation system. The formation of a network is a challenge for Ethiopia in trying to develop the spread of *Kaizen* sustainably. This topic is touched on again in Section 6 from the viewpoint of future industrial development cooperation.

3.4. Other achievements

In addition to the above-mentioned achievements, there are two other achievements resulting from the *Kaizen* Projects in Tunisia and Ethiopia in the last 10 years that could have implications for the future development of *Kaizen*. One is the mindset change of managers and workers of enterprises, and the other is related to the dissemination of *Kaizen* to neighboring countries beyond the borders of Tunisia and Ethiopia or to countries using the same language. The latter advances the possibility of these two countries becoming centers of excellence in Africa.

3.4.1. Change in mindset

It is possible to quantify quality improvement, productivity improvement, cost reduction, and a shorter delivery time as results of the introduction of *Kaizen* technologies. However, there are other achievements which cannot be quantified. Based on the experience of the author's involvement in the *Kaizen* Projects in Tunisia (2006-08) and Ethiopia (2011-14), there are cases where the view of a business owner has changed, and conventional business judgement based on intuition and experience has been replaced by that based on statistics, data, or a statistical method. There are also cases where the relationship between an owner and workers has improved, workers' moral and teamwork have improved, and both the owner and workers have become more proactive toward their work. All of these are

the results of the introduction of *Kaizen*, and these achievements have a positive impact on the formation of capacity to implement further activities.

Jin (2020) explores the impacts of the *Kaizen* Projects assisted by JICA in Ethiopia. According to his study findings, *Kaizen* activities have resulted in positive changes to the leadership of the management, the teamwork of workers, the in-house communication of enterprises, attitudes towards learning, and so on. In other words, *Kaizen* group activities have facilitated a change of the mindset of workers (relating to the 5S, QCC, the elimination of *muda*, and so on). The change of mindset mentioned here may be translated to the 'core capacity' advocated by Jin (2018 and 2020). According to him, 'the core capacities are the central force in capabilities in handling issues such as discipline, will, attitude, leadership, and management capabilities which are needed for producing desirable results through the use of the technical capacities' (Jin 2018, 40). Meanwhile, Hosono (2018) describes 'core capacity' as 'cross-cutting core capacity' as it is the capacity equipped with diversity beyond a specific field.

The author visited Tunisia and Ethiopia in February 2020. A statement by an owner of a Tunisian enterprise produced an especially long-lasting impression. In response to a question about the western style of *Kaizen*, say, Six Sigma (SS) and the Lean manufacturing system (LMS) in the questionnaire, he answered that while they are effective as standardized tools, they cannot be expected to trigger a change of the mindset.' This business owner introduced the LMS for seven years with guidance from a European consultant but switched to *Kaizen* based on his own study of Japanese-style *Kaizen*. According to him, while other senior management personnel were reluctant to make a switch, the workers were more responsive. The introduction of *Kaizen* based on his decision led to greater achievements while achieving a change of mindset among workers. His earlier statement must reflect the experience of his enterprise.

In short, a change of the mindset of managers and workers as an 'achievement' and the subsequently created core capacity can be rightly considered to further amplify the possibility of the sustained development of *Kaizen* in the future.

3.4.2. Function as a regional center of excellence

As mentioned earlier, Tunisia was the first African country to implement JICA's *Kaizen* project. Its achievements and experience of the last 10 years are valuable assets, many of which are useful for other African countries. The Africa Kaizen Initiative (AKI)[37] hopes that Tunisia will become a center of excellence in Francophone Africa (Maghreb and Sub-Saharan Africa) (JICA and JPC 2020). There is already a pertinent case. In 2019 (from September 30 to October 11), a *Kaizen* training course (knowledge-sharing among Francophone countries) was held in Tunis with MTCs (Master Trainer Candidates) from the UGPQP and technical centers acting as trainers. Trainees from five African countries, i.e. Senegal, Democratic Republic of the Congo, Burkina Faso, Morocco, and Algeria, participated in this training course.

There is a growing possibility of Ethiopia functioning as a center of excellence for its neighboring countries as well as other English-speaking African countries. As described earlier, Ethiopia has also produced many positive achievements in *Kaizen* Projects in the last 10 years. As in the case of Tunisia, achievements and experiences in Ethiopia are valuable assets and many of which are useful for other African countries. Several African countries have sent observation teams to learn about the *Kaizen* achievements in Ethiopia. There have also been cases of Ethiopia sending a mission to another African country to provide guidance on *Kaizen*. One such example is the training on the 5S and elimination of *muda* which took place in Djibouti in April 2019 during the period of JICA's third-stage cooperation with EKI consultants acting as the trainers.

In this way, both Tunisia and Ethiopia are on course to possibly becoming a Center of Excellence in the future for neighboring countries as well as other African countries in the same linguistic areas, and such a possibility is growing ever stronger. This development will mean a shift of JICA cooperation from conventional country-based cooperation to region-based cooperation. In other words, it will mean moving to assistance for

[37] The Africa Kaizen Initiative is a project promised by Japan's Prime Minister Abe and the New Partnership for Africa's Development (NEPAD) at the Sixth Tokyo International Conference for African Development (TICAD VI) held in Nairobi, the capital of Kenya, in August 2016 to improve the quality and productivity of factories in Africa through the introduction of *Kaizen*. This project started in April 2017 with the joint sponsorship of JICA and the NEPAD.

the creation of Centers of Excellence[38] for the dissemination of *Kaizen*. Cooperation in the creation of Centers of Excellence can be interpreted as a move to improve the efficiency of cooperation as it fosters ownership to countries that are the recipients of cooperation by eventually becoming a Center of Excellence. *Kaizen* can be further disseminated to neighboring countries and regions through the activities of each country.

4. Customization and Translative Adaptation

Japan has learned and modified technology and knowledge originating in Europe and the United States (US) according to its own needs in the process of modernization after the Meiji era and economic development after the World War II through 'translative adaptation.'[39] 'Translative adaptation' is a term used by cultural anthropologist Keiji Maegawa (Maekawa 2004, 38). The concept of' translative adaptation used in this research is explained in Chapter 1. Strictly speaking, the concepts of 'customization' and 'translative adaptation' are different, but both are stated to be interchangeable (See Chapter 1).

Technology transfer, from the perspective of the recipient, is to learn technology from a foreign country, attempt to apply the acquired technology, modify or customize it to suit their own needs, and then diffuse the modified technology widely (Kikuchi 2014, Chapter 2). Moreover, it is a process of making further modification to meet needs, rather than ending with one modification. In other words, technology transfer is a process of continuous modification or customization for the recipient of the technology. Based on this recognition, the project assisted by JICA has not only transferred *Kaizen* technology to the recipient country, but also provided technical cooperation in consideration of continuous customization in the recipient country (Jin 2018, 38).

The AKI is promoting standardization for the spread of *Kaizen* in Africa. What is the difference between standardization and customization? Here,

---

[38] Outside Africa, Argentina is already functioning as a Center of Excellence in the *Kaizen* field in Latin America. The core organization is *Instituto National de Technologia Industrial* (INTI) (JICA 2017).

[39] See the website of JICA Ogata Research Institute and the *Research Project on the Japanese Experiences of Industrial Development and Development Cooperation: Analysis of Translative Adaptation Process*
https://www.jica.go.jp/jica-ri/research/strategies/20190724-20240331.html.

the author would like to clarify the difference. At the first glance, the two terms may seem contradictory. Standardization is the unification or averaging of methods and approaches that suit needs and conditions of every country, while customization is their modification or adjustment tailored to the needs and conditions of each country. The methods and approaches that the AKI targets for standardization may be basic and acceptable to any country. However, it is not always compulsory for AKI member countries to follow the standard. The countries which will introduce and disseminate *Kaizen* could customize the methods and approaches standardized by the AKI according to their own needs and conditions (Kikuchi and Suzuki 2018).[40]

4.1. Customization in Tunisia and Ethiopia

How about the customization of *Kaizen* technology in Tunisia and Ethiopia for the last 10 years? Trainees from both countries first tried to absorb the methods and way of thinking born from a different industrial climate and corporate culture brought by the Japanese expert team, while the expert team made efforts to get the trainees of both countries to understand the essence of *Kaizen* and to learn how to apply the learned knowledge and methods to real production at factories. As the project progressed, both trainees and JICA experts became aware of the need for adjustments and modifications according to differences in the industrial climate and corporate culture of each country.

Both countries have been working on the review of training curricula, the improvement of teaching materials and manuals, translation into ethnic languages (Ethiopia), and dissemination to rural areas and the development of private human resources according to their own country's needs and conditions. In Tunisia, the training method taught by JICA was a combination of CRT and ICT. But after training in Japan, the counterparts (UGPQP and national technology centers) developed their own training method using 'simulated production lines' between CRT and ICT (JICA and JPC 2020). Although it is not the customization of a 'simulated production line' itself, it is evaluated as a customization of the training method in that the 'simulated production line' seen in Japan is

[40] The Africa Kaizen Initiative's 'standard should focus on transferable knowledge and skills so that customization can be attempted in each country' (Kikuchi and Suzuki 2018, 144).

added to the training method (a combination of CRT with ICT) taught by the JICA expert team through their own initiative.

In Ethiopia, the Kaizen Promotion Team (KPT) and the TIISO model are the other examples of customization. EKI has modified the Quality Control Circle (QCC) originally developed in Japan into KPT. The KPT includes not only the concept of QCC but also that of cross functional teams (Mekonen 2018). EKI has also developed the TIISO model as a unique model for *Kaizen* dissemination in Ethiopia with reference to the successful experience of the approach in Japan and other countries. The TIISO model consists of five stages: testing, institutionalizing, implementing, sustaining, and ownership (Mekonen 2018, also see Chapter 3).

4.2. The period from learning to customization in Japan

Is 10 years long enough for Tunisia and Ethiopia to customize foreign-born *Kaizen* technology? This study confirms the experience of customization in the development process of Japanese production management technology. Quality Control Circles (QCC), Total Quality Management (TQM), Total Productive Maintenance (TPM), and the Toyota Production System (TPS) are typical Japanese *Kaizen* technologies (ways of thinking and methods). The literature survey for this study shows how many years have passed since the originals were learned from the US and became unique technologies in Japan (Japanization, indigenization).

QCC: In 1950, an American statistician, W. Edwards Deming introduced statistical quality control to Japanese managers, engineers, and researchers through an eight-day course or one day seminars. This was the event that triggered the quality improvement movement in Japan. Twelve years later, in 1962, QCC was developed mainly by Hajime Ishikawa as a method to promote quality improvement activities at the corporate level. And in the same year, the QC circle headquarters was set up in the Union of Japanese Scientists and Engineers (JUSE) (QC Circle Headquarters [1970] 2012);

TQM: TQM is an approach based on the use of quality concepts developed in Japan. By the late 1970s, the diligent application of these techniques by Japanese manufacturing companies had enabled them to overtake Western manufacturers. Ironically, however, the quality movement was originally inspired by American ideas (Crainer and Dearlove 2001, 419-20). The study of quality control began in the latter half of the 1940s and

took into consideration the practical utilization of statistical methods by engineers, the strengthening of organizational management by executive managers and factory managers, the development of QC circle activities at the front line of the workplace, and so on;

Policy Management: Born in Japan, this is an important pillar that supports TQM. This is an idea that evolved from American-born goal management. Goal management emphasizes results, while policy management emphasizes processes, and it takes about 10 years to reach that point (Osada et al. [1996] 2005);

TPM: The driving force behind the development of TPM was Seiichi Nakajima of Japan Management Association (JMA). In 1951 he studied PM (Preventive Maintenance) developed in the US, and in 1969, he proposed TPM, as a further development of the conventional PM (JMA 2010);

TPS: Taiichi Ohno, an engineer who had been in charge of machine shops within Toyota Motor Corporation since the post-war reconstruction started in 1945, investigated American supermarkets and thought that the method of supermarket organization might be connected to the concept 'just in time.' He started applying the method at manufacturing sites ('*gemba*' in Japanese) in 1952. In 1956, Ohno had a chance to go to the US and could confirm the methods in the American supermarket system with his own eyes. After coming back to Japan, he adopted the *Kanban* system company-wide in 1962. The '*Kanban* system' is a management tool for realizing just in time, the first pillar of the TPS (Taiichi Ohno [1978] 2014).

As we have seen, the period from when Japan learned technologies (including ways of thinking and methods) from western countries, especially the US, to when those were modified or customized to adapt to Japan's needs and conditions is more than 10 years. From the above cases we can see that it took more than 10 years for QCC and TQM, and more than 15 years for TPM and for TPS, to learn production management technologies from western countries, especially the US, and to customize them to Japan's technological needs and conditions.

As a conclusion for this section, although some customizations or translative adaptation of *Kaizen* have been tried in Tunisia and Ethiopia for the last 10 years, this period has not been long enough to create innovative systems and methods of *Kaizen* that can be achieved after trial and error.

The 10 years for both countries was a period focused on learning and application of *Kaizen* at '*gemba*' and it will be left to the future to create unique advanced-level systems and methods of *Kaizen* that will suit the needs and conditions of their own countries.

5. Future Challenges: Advancement of *Kaizen* Technologies and Organizational Structure in Tunisia and Ethiopia

5.1. Advancement of Kaizen technologies

One prominent achievement of JICA cooperation for *Kaizen* in Tunisia and Ethiopia in the last 10 years is that both countries have mastered basic as well as intermediate (and partially advanced[41]) level *Kaizen* technologies. In addition, a system for developing such human resources has also been established in each country. The future challenge for them is how to achieve the learning and dissemination of advanced-level *Kaizen* technologies while making continuous efforts to further disseminate and firmly establish the *Kaizen* technologies they have mastered so far. Typical examples of advanced *Kaizen* technologies are TQM, TPS, and TPM, all of which were developed in Japan. Such technologies that were developed in the US as Six Sigma (SS), the Lean manufacturing system (LMS),[42] and Business Process Reengineering (BPR) can be added to this list. These *Kaizen* technologies born in the US are modified or customized versions of TQM, TPS, and TPM.

The themes to be discussed in this section are: 'What kind of an organizational structure should be in place?' and 'What are the necessary conditions for the required capacity?' for the learning and dissemination of advanced *Kaizen* technologies in the future.

5.2. Organizational structure

In this chapter, the term organizational structure includes the core organization to disseminate *Kaizen*, the organizations collaborating and cooperating with the core organization, and the mechanisms and

[41] In Tunisia, some advanced-level *Kaizen* technologies, especially TPS, were transferred to trainers of UGPQP and the technical centers through ICT as well as CRT (see Table 4.3).

[42] SS and L became international standards in the form of ISO 18404 in December 2015. The title of ISO 18404 (2015) is 'Quantitative methods in process improvement – Six Sigma – Competencies for key personnel and their organizations in relation to Six Sigma and Lean implementation.'

systems pertaining to *Kaizen* learning, training, and dissemination. As described above, the organizational structure to receive JICA cooperation differs between Tunisia and Ethiopia. In Tunisia, the UGPQ/UGPQP as a core organization for *Kaizen* learning and dissemination has been a temporary organization since its establishment in 2005 and there has been a collaborative system involving the UGPQ/UGPQP and the national technical centers (collaborative type). On the other hand, the EKI in Ethiopia was established in 2011 after JICA's first-stage cooperation and has been the core organization receiving the JICA cooperation in that country (independent type). It doesn't matter which type is better here. Looking back on the achievements of the *Kaizen* projects of both countries over the past decade, it can be said that each type has brought about appreciable results in each country.

However, there is no guarantee that each type of organizational structure that has worked effectively in both countries will remain valid in the future. The two countries must not only challenge the acquisition of more advanced *Kaizen* technology, but also strive to disseminate the technology that they have acquired so far. Also, in the long run, how will both countries develop the private associations and private consultants who are expected to play an important role in promoting *Kaizen*? Considering these matters, what type of organizational structure is appropriate is an extremely challenging issue for both countries.[43]

5.3. Capacity and conditions for advancement of Kaizen

The needs (demand) of enterprises for advanced *Kaizen* are not currently apparent but will emerge in due course. Competition between enterprises in the international market is likely to grow rather than ease off in the coming years. It will be especially necessary for Tunisia to strengthen its market competitiveness in terms of not only price but also quality, to meet the demands of the European Union (EU) countries that have been the main export destinations for Tunisian products for many years.

What are the required capacity and conditions to master and disseminate

[43] From a long-term policy level perspective, what to do with the organizational structure for the dissemination of *Kaizen* may depend on whether the state leads the private sector or the state outsources it to the private sector. In other words, it may depend on whether the country aims to become a developmental state or a small government based on neoliberalism.

the necessary advanced *Kaizen* technologies in the coming years? In general, the introduction of basic *Kaizen* technologies to an enterprise does not require much technical knowledge of machinery and systems (inherent technologies) compared to the introduction of advanced technologies. Meanwhile, a knowledge and experience of inherent technologies are necessary to master advanced *Kaizen* technologies (JICA et al. 2016; Sugimoto 2018). In this context, consultants (or engineers) at the national technical centers in Tunisia have acquired knowledge and experience through their essential work in providing technical services to enterprises.

In Ethiopia, many consultants of the EKI are the graduates of an engineering course and were employed by the EKI immediately after graduation. Thus, even though they have subsequently built up their experience of applying basic *Kaizen* technologies to the production floors of enterprises, they lack sufficient practical knowledge and experience regarding manufacturing as well as operating technologies involving machinery. During the training on intermediate-level *Kaizen* theories (CRT) in the third-stage of cooperation, the trainees (EKI consultants) made study visits to industrial development institutes (MIDI, TIDI, and LIDI) to strengthen their knowledge of inherent technologies in addition to having classroom lectures on such technologies (Table 4.4). Nevertheless, their practical experience regarding inherent technologies at actual production floors is limited (JICA et al. 2020). Accordingly, for EKI consultants aspiring to learn advanced-level *Kaizen* technologies, how they acquire practical knowledge of inherent technologies will be an unavoidable issue in the coming years.

This narrative suggests that the participation of national technical centers throughout the three stages of JICA cooperation in collaboration with the UGPQ/UGPQP in Tunisia has been very advantageous. The consultants at the UGPQP and national technical centers have another advantage compared to the Ethiopian consultants. Basic *Kaizen* technologies generally have their basis at the production floor. With the advancement of these technologies to the intermediate-level and further to the advanced-level, their relationship with management increases, and knowledge of

business management becomes necessary.[44] Those consultants currently working at the national technical centers in Tunisia have already acquired knowledge of business management to some degree.

The consultants of the UGPQ/UGPQP and eight national technical centers in Tunisia have acquired their knowledge of business management through international cooperation by the EU. This has been providing them with guidance since 2005 so that Tunisian enterprises can receive certification under the ISO 9000 series of international management standards.[45] The ISO 9000 series of standards aims at promoting the quality management of enterprises and these Tunisian consultants do have knowledge of business management within the scope of such standards. Based on this, it can be said that the Tunisian consultants who have acquired some of the advanced-level *Kaizen* technologies in addition to basic and intermediate-level technologies with the cooperation of JICA are in a better position than the Ethiopian ones to master advanced technologies as the next step.

In Ethiopia, while EKI consultants have acquired some knowledge and experience of inherent technologies through practical work at enterprises and study visits to national industrial development institutes during the third-stage cooperation period, their knowledge and experience are not always sufficient. In regard to knowledge of the ISO 9000 series, these consultants study quality management during the CRT but their training does not extend to providing practical guidance for enterprises based on the ISO 9000 series.

During JICA's third-stage cooperation, EKI consultants provided training on basic *Kaizen* technologies for engineers of industrial development institutes; but these engineers still lack sufficient experience required to provide guidance for enterprises on their own even though national industrial development institutes in Ethiopia are corresponding organizations to the national technical centers in Tunisia. The major challenges faced by Ethiopia regarding the learning and dissemination of

[44] Basic *Kaizen* mainly deals with problems which can be solved by a bottom-up approach from the production floor. In the case of advanced *Kaizen*, problem-solving solely relying on the production floor is difficult and guidance from the top management or a higher department is essential (JICA et al. 2016, 65).

[45] With EU assistance, the UGPQ aimed at certifying 600 Tunisian enterprises by 2010 and 1,300 enterprises ultimately to have capacity equivalent to that required under ISO (International Organization for Standardization) and other international standards (JICA and JDS 2008; JICA and JPC 2020).

advanced *Kaizen* technologies in the coming years are: (i) how to overcome the insufficient knowledge and experience of inherent technologies among EKI consultants; (ii) how to make engineers of industrial development institutes learn these technologies in earnest; and (iii) how to develop collaboration between the EKI and industrial development institutes.

In regard to challenge (iii), it is not easy in reality to develop collaboration and cooperation between the EKI and industrial development institutes. Each industrial development institute has its own essential work (especially fee-charging services for the private sector) and its engineers prioritize such services. Another problem is that the EKI and industrial development institutes are under the jurisdiction of different government offices (as of June 2020). While the EKI reports to the CSC, it is the MoI that oversees industrial development institutes. Accordingly, it can be assumed that arrangement of a collaborative relationship between the EKI and industrial development institutes will not always be easy. This means that there should be a higher-level function to coordinate the work of the EKI and industrial development institutes.

6. Implications for Industrial Development Cooperation

It has become clear that in the process of comparing Tunisia and Ethiopia it is necessary to remember the experience of Japan from which a message can be derived. This message is about desirable ways for future technical cooperation in the industrial sector.

As Ohno and Mekonen explain in detail in Chapter 2, it must be noted that collaboration involving industry, government, and academia has formed the background for the development of *Kaizen*. The Japanese experience suggests a desirable path for technical cooperation in industrial fields. Firstly, there can be technical cooperation for the formation (networking) of collaboration/cooperation among various organizations of different levels along with cooperation for each level of industry, government, and academia, i.e. industry level, policy level, and university (higher education) level.

When looking back at JICA's technical cooperation for the *Kaizen* project (industrial fields) in Ethiopia over the period of 10 years, it can be concluded that this technical cooperation has taken the roles of industry, government, and academia into consideration. Cooperation for the *Kaizen*

project 'Policy Dialogue on the Industrial Development of Ethiopia,'[46] and the establishment of master's degree and PhD courses corresponds to the levels of industry, policy (government), and university (academia) respectively. Both the Policy Dialogue on the Industrial Development of Ethiopia and the *Kaizen* project (first-stage cooperation) were assisted by JICA and simultaneously commenced in 2009. Meanwhile, assistance for the establishment of master's degree and PhD courses was not part of the original concept of the first-stage *Kaizen* project; but, with a strong request made by the Ethiopian side, a master degree course was added to the second-stage *Kaizen* project. The PhD course was then introduced during the third-stage cooperation period. Assistance at the university level (introduction of these courses) started later than cooperation at the policy level (Policy Dialogue on the Industrial Development of Ethiopia) and cooperation at the industrial level (*Kaizen* project). While it is too early to assess the achievements of this cooperation, it is still reasonable to expect future synergy effects from cooperation at these three levels.

In contrast, JICA cooperation for Tunisia in the last 10 years has been confined to the *Kaizen* project at the industrial level even though an effort to develop an industry-government-academia collaboration was made within the framework of that project. A series of such projects are exact examples of cooperation at the industrial level and have resulted in various achievements including 'change of mindset' in the participating enterprises. In addition, a collaborative relationship has been created with leading industrial organizations (UTICA, CONECT) during the process of project implementation.

At the policy level, the JICA expert team and counterpart team made joint recommendations for the Annual Performance Plan (APP) of the Ministry of Industry. As a result, productivity improvement in addition to quality improvement came to be recognized as an important pillar of Tunisia's industrial policy after 2019.[47] At the university level, the JICA expert team and UGPQP conducted seminars for some universities, for instance, seminars for teachers and students not only with universities in Tunis, the

[46] The Policy Dialogue on the Industrial Development of Ethiopia is a joint scheme of JICA and GRIPS (National Graduate Institute for Policy Studies), Tokyo dealing with policies involving the Prime Minister and minister-class personnel in Ethiopia. It consists of three phases: First Phase (June 2009 to May 2011), Second Phase (January 2012 to October 2015), and Third Phase (January 2017 to March 2022).

[47] Information from members of JICA expert team for the third stage of cooperation.

capital, but also in local universities to develop a collaborative relationship with those universities. However, Tunisia has no equivalent to the policy dialogue on the industrial development of Ethiopia. In Ethiopia, a deep understanding of *Kaizen* and strong willingness to introduce *Kaizen* on the part of the Prime Minister as well as policy makers provided the opportunity for the introduction of the *Kaizen* project. The significance of the *Kaizen* project was subsequently promoted to the level of a national development plan through the Policy Dialogue on the Industrial Development of Ethiopia (Ohno 2018).

This history does not mean that political leaders in Tunisia have not been proactive in regard to the *Kaizen* project. In 2008 during JICA's first-stage cooperation, Tunisia launched the *Kaizen* Awards scheme targeting those enterprises with prominent *Kaizen* achievements and awarded the First Grand Prix of the President for the Improvement of Quality and Innovation. An annual *Kaizen* Week in March was introduced with the intention of elevating quality and productivity improvement to a national movement (JICA and JPC 2020). Unfortunately, both of these were abolished following the Jasmine Revolution in 2011 (JICA and JPC 2013). At the start of the JICA's second cooperation period (2009-13), an 'Advisory Committee on Productivity' consisting of knowledgeable persons was in place as a body directly controlled by the President to examine a national strategy for productivity improvement. This committee, too, was abandoned following the Jasmine Revolution (JICA and JPC 2013). However, on March 24, 2021, the NPPC was established with the purpose of promoting productivity improvement throughout the country. The activities of the Committee include qualification certificate system, awarding scheme, and so on, in addition to policy formulation on productivity.

Either way, the process of attempting to compare the achievements of the *Kaizen* Projects in Tunisia and Ethiopia reminds us of the experience of Japan (Kikuchi 2011) and reconfirms the importance of industry-government-academic collaboration. This line of thought is strengthened by a study by the Massachusetts Institute of Technology (MIT). In the second half of the 1980s, the MIT published a book (*Made in America: Regaining the Productive Edge*) which compiled the findings of a two-year study aimed at restoring American industries. This study involved interviews with senior members of some 200 enterprises plus labor unions, etc. in the US, Japan, and Europe. The subsequent policy recommendation based on detailed

data produced by the study contains the following sentence:

> […] for the United States to succeed in building and sustaining an economy with high productivity growth, all sectors – business, government, labor[48] and educational institutions – will have to work cooperatively toward this goal. (Dertouzos et al. 1989, 131-32)

In sum, it is desirable that industrial development cooperation should consider not only cooperation at the industry, government (policy), and academic (university) levels separately, but also cooperation designed to promote collaboration between various organizations, bodies, associations, universities, and so on at each level. In other words, desirable cooperation should lead to the formation of a network made up of industrial, governmental, and academic organizations. What is important here is 'to recognize the different domestic conditions and circumstances of each country and to adopt cooperation policies to suit such conditions' (Yanagihara et al. 2018). This is also the perspective of 'translative adaptation,' which is the keyword of this research project (see Chapter 1).

7. Conclusions

To conclude this chapter the author would like to touch on two matters which are important for implementation of a *Kaizen* project.

7.1. Environment for Kaizen implementation in two countries

The achievements of the *Kaizen* projects in Tunisia and Ethiopia over a period of 10 years suggest that there has been much effort and cooperation by those directly or indirectly involved under their given environments and conditions. For a project to be implemented as designed it is desirable that events which cannot be controlled by the project team do not occur during the project implementation process. But multiple events of this type occurred in Tunisia. The typical events were the Jasmine Revolution

[48] In this policy recommendation, emphasis is placed on cooperation with labor unions. The participation of labor unions was important in the post-war productivity movement in Japan (JPC-SED 2005) and also in the similar movement in Singapore where labor unions were cooperative (Ohno and Kitaw 2011). The labor union in Tunisia is a member of the NPPC.

in 2010-11, the repeated reorganization of the Ministry supervising UGPQP, the repeated change of Minister, and so on. In the year before the scheduled final year (2020), the global COVID-19 pandemic has been raging, almost like another attack on Tunisia after its series of misfortunes. Due to the above-mentioned unexpected events and pandemic in Tunisia, it was decided to extend the completion of the third-stage *Kaizen* project from July 2020 to July 2021.[49]

There was also an unexpected political change in Ethiopia. The Oromo protest happened during the period of the third-stage cooperation, and the prime minister changed in 2018. However, any negative impact on the *Kaizen* project was limited even though the supervisory authority was also changed from the MoPSHRD to the CSC.

In 2020 the third-stage *Kaizen* project entered its final year in Ethiopia. The negative impact of COVID-19 resulted in the early departure of the JICA expert team in March 2020. However, the planned activities under the third-stage project in Ethiopia have almost been completed, and it is said that it has been little affected by the pandemic. Ethiopia has been fortunate that no events beyond the control of the project team occurred in the 10-year period, unlike in Tunisia. Accordingly, it can be concluded that the environment for the implementation of the *Kaizen* Projects in the last 10 years has sometimes been tougher for Tunisia than for Ethiopia.

7.2. Challenge for the JICA expert team

In Section 4, the author discussed what would be the challenges for Tunisia and Ethiopia if they aim to learn and disseminate more advanced-level *Kaizen* technology in the future. And in Section 5, the author discussed what would be the implications for JICA to support recipient countries with *Kaizen* projects in the future. However, there was no discussion about how a JICA expert team that participates in such a project should implement that project together with counterpart organizations. This section discusses the future challenges for JICA expert teams in relation to 'customization' and from the perspective of 'translative adaptation.'

For whom or what is the customization made? Needless to say, it is to disseminate the technology widely and sustainably in the destination

[49] Finally the termination of the project has been postponed to the end of 2021.

of the technology transfer (the recipient country). For this purpose, it is important to modify and adapt the technology to local needs based on industrial climate, corporate culture, and local conditions. The modification and adaptation are called 'customization' at the production site ('*gemba*') of the *Kaizen* project, and 'translative adaptation' from a cultural anthropological point of view (Maegawa 2000, 2004).

A crucially important condition for successful customization is that the technology to be transferred is well-adapted to the industrial climate, corporate culture, and local conditions of the recipient country. Accordingly, two sides—one which is the recipient of technology transfer (the counterpart) and the other which transfers the technology to the counterpart (the JICA expert team)—must have a deep understanding of the essence of the technology[50] and a good understanding of the circumstances of the country to which the technology is being transferred.

However, it is unlikely that both sides will be in such a state from the beginning. Usually, at the beginning of technology transfer (or in the first-stage of a project), the counterpart may not have sufficient knowledge or information about the technology or may not have it at all. On the other hand, the JICA expert team may not have sufficient knowledge and information about the industrial climate, corporate culture, and local conditions of the recipient country. However, as the project progresses, the counterpart who receives the training deepens their understanding of the technology, while the JICA expert team improves its understanding of the circumstances of the country.

Therefore, while the counterpart should take the initiative in customizing transferred technology, the *Kaizen* expert team should also endeavor to propose ideas on 'customization' or ideas on 'translative adaptation' when the counterpart does not. It is often said that 'Even if you seem to know yourself well, sometimes you may not be aware of it by yourself.' Regarding 'customization,' it seems that even if the counterpart is familiar with the industrial climate of their own country or their own corporate culture, it is apparent that there are some points that they do not notice from the inside.

[50] Wada (2008) emphasizes the importance of understanding the essence of the technology to be transferred, taking the experience of Japan's Meiji Restoration and Japan's economic development after the World War II as examples.

From the viewpoint of sustainability and ownership, the independence ('*shutaisei*'[51]) of 'customization' should be the side to whom the technology is transferred, or the counterpart. However, since the JICA expert team can gain a deeper understanding of the industrial climate, corporate culture, and local conditions of the counterpart side as the project progresses, the JICA expert team will be able to provide the counterpart with the idea of 'customization.'

When implementing a project, JICA experts will generally do their utmost to get their counterparts to understand the essence of *Kaizen* technology as soon as possible and to use it smoothly even though they have 'customization' in mind. However, considering the above points, the JICA expert team should proceed with the transfer of the technology together with their counterparts on the premise of 'customization' from the beginning of the project. Therefore, the JICA expert team should not only transfer *Kaizen* technology, but also contribute to the provision of 'customization' ideas and the formation of capacity and independence for the 'customization' of counterparts. How to materialize this is a challenge given to future JICA expert teams. The useful suggestions may be in the 'translative adaptation' approach that takes particular note of the relationship between the technology recipients (counterparts) and technology providers (JICA expert teams) from a social and cultural perspective rather than simply working from a technical perspective.

[51] *Shutaisei* is a Japanese term used in this chapter to mean having a strong will to do something and being responsible for the result.

References

Crainer, Stuart, and Des Dearlove. 2001. *Financial Times Handbook of Management*, 2nd ed. New York: Pearson Education.

Dertouzos, Michael L., Richard K. Lester, and Robert M. Solow. 1989. *Made in America: Regaining the Productive Edge.* Massachusetts: The MIT Press. Translated by Naoya Yoda (1990) as *Made in America: Comparison of American, Japanese and European Industries for the Revival of America*. Tokyo: Soshisha.

EKI (Ethiopian Kaizen Institute). 2019. *Proceedings of Research and Companies Best Practices Sharing and Panel Discussions on Kaizen Implementation & Dissemination.* Addis Ababa: EKI.

GRIPS Development Forum. 2016. *Collection of Dialogues on Industrial Policy of Ethiopia: Policy Dialogue and Policy Adjustment in Ethiopia* (I). [In Japanese.] Tokyo: GRIPS.

Hosono, Akio. 2018. 'Kaizen, Learning and Quality of Growth: Insights of from Experiences of International Cooperation.' *Journal of International Development Studies* 27(2): 27-40.

Hosono, Akio, John Page, and Go Shimada, eds. 2020. *Workers, Managers and Productivity: Kaizen in Developing Countries.* Singapore: Palgrave Macmillan.

JICA (Japan International Cooperation Agency). 2017. *The Detailed Planning Survey for Project on KAIZEN Technical Assistance Network for Global Opportunities* (KAIZEN TANGO). Tokyo: JICA.

JICA (Japan International Cooperation Agency), and GRIPS Development Forum. 2011. *Intellectual Partnership for Development of Africa: Policy Dialogue on Industrial Development between Japan and Ethiopia.* [In Japanese.] Tokyo: JICA.

JICA (Japan International Cooperation Agency), and JDS (Japan Development Service). 2008. *Final Report (Digest Version) of the Study on the Master Plan for Quality/Productivity Improvement in the Republic of Tunisia.* Tokyo: JICA.

JICA (Japan International Cooperation Agency), JDS (Japan Development Service), and JPC (Japan Productivity Center). 2016. *Progress Report (I) of The Project on Capacity Development for KAIZEN Implementation for Quality and Productivity Improvement and competitiveness Enhancement in the Federal Democratic Republic of Ethiopia.* Tokyo: JICA.

——. 2019. *Progress Report (IV) of the Project on Capacity Development for KAIZEN Implementation for Quality and Productivity Improvement and Competitiveness Enhancement in the Federal Democratic Republic of*

Ethiopia. Tokyo: JICA.

——. 2020. *Final Report of the Project on Capacity Development for KAIZEN Implementation for Quality and Productivity Improvement and Competitiveness Enhancement in the Federal Democratic Republic of Ethiopia.* Tokyo: JICA.

JICA (Japan International Cooperation Agency), and JPC (Japan Productivity Center). 2013. *Final Report of Project on Quality/ Productivity Improvement in the Republic of Tunisia.* Tokyo: JICA.

——. 2020. *Progress Report (V) of Project on Quality/Productivity Improvement in the Republic of Tunisia (Phase II).* Tokyo: JICA.

JICA (Japan International Cooperation Agency), and SAIESU. 2000. *Study Report of the Study on Plan for Mechanical and Electrical Industry in Tunisia (1999-2000).* Tokyo: JICA.

JIIE (Japan Institute of Industrial Engineering). 2010. *History and Prospect of IE: 50 Years of JIIE.* [In Japanese.] Tokyo: JIIE.

JMA (Japan Management Association). 2010. *The DNA of JMA Group (Dictionary/History).* [In Japanese.] Tokyo: JMA.

JPC-SED (Japan Productivity Center for Socio-Economic Development). 2005. *The History of Productivity Movement 1955-2005.* [In Japanese.] Tokyo: JPC-SED.

Jin, Kimiaki. 2018. "Role of Kaizen in Japan's Overseas Development Cooperation." In *Applying the Kaizen in Africa: A New Avenue for Industrial Development*, edited by Keijiro Otsuka, Kimiaki Jin, and Tetsushi Sonobe, 31-68. Switzerland: Palgrave Macmillan.

——. 2020. "Kaizen Promotion in Ethiopia: A Role of the Government and Change of Mindset of People." In *Workers, Managers and Productivity: Kaizen in Developing Countries*, edited by Akio Hosono, John Page, and Go Shimada. 89-115. Singapore: Palgrave Macmillan.

JUSE (Union of Japanese Scientists and Engineers). 1997. *Fifty Years History of JUSE.* Tokyo: JUSE.

Kikuchi, Tsuyoshi. 2008. "The Quality and Productivity Improvement Project in Tunisia: A Comparison of Japanese and EU Approaches." In *Diversity and Complementarity in Development Aid: East Asian Lessons for African Growth*, edited by GRIPS Development Forum. 183-204. Tokyo: GRIPS.

——. 2010. "A Study of Building a Model for Industrial Technology Transfer." *Journal of Development Engineering* 16.

——. 2011. "The Role of Private Organizations in the Introduction, Development and Diffusion of Production Management Technology in Japan." In *Kaizen National Movement: A Study of Quality and*

Productivity Improvement in Asia and Africa, edited by JICA and GRIPS Development Forum, 23-48. Tokyo: JICA

——. 2014. *The Study on the Intermediary Type of Technology Transfer: Building of Three Stage Model and its Application to Development Cooperation.* PhD diss., Graduate School of International Cooperation Studies, Takushoku University.

Kikuchi, Tsuyoshi, and Momoko Suzuki. 2018. "Kaizen and Standardization." In *Applying the Kaizen in Africa: A New Avenue for Industrial Development*, edited by Keijiro Otsuka, Kimiaki Jin, and Tetsushi Sonobe, 111-49. London: Palgrave Macmillan.

Maegawa, Keiji. 2000. *Anthropology of Development: From Cultural Articulation to Translative Adaptation.* [In Japanese.] Tokyo: Shinyosha.

——. 2004. *Anthropology of Glocalization: International Culture, Development, and Immigration.* [In Japanese.] Tokyo: Shinyosha.

Mekonen, Getahun Tadesse. 2018. "Kaizen as Policy Instrument: The Case of Ethiopia." In *Applying the Kaizen in Africa: A New Avenue for Industrial Development*, edited by Keijiro Otsuka, Kimiaki Jin, and Tetsushi Sonobe, 151-98. London: Palgrave Macmillan.

Ohno, Izumi. 2018. "Industrial Policy and Kaizen: A Perspective from Japan-Ethiopia Industrial Policy Dialogue." *Journal of International Development Studies* 27(2): 13-26.

Ohno, Izumi, and Daniel Kitaw. 2011. "Productivity Movement in Singapore." In *Kaizen National Movement: A Study of Quality and Productivity Improvement in Asia and Africa*, edited by the JICA and GRIPS Development Forum. 49-68. Tokyo: JICA.

Ohno, Kenichi. 2013. *How to Formulate Industrial Policy: Learning Best Practices in Asia* [Sangyo seisaku no tukurikata]. Tokyo: Yuhikaku.

Ohno, Taiichi. (1978) 2014. *Toyota Production Method: Aiming for Scale-Down Management* [Toyota seisan hōsiki datu keizai no kibo wo mezasite]. Tokyo: Diamond.

Osada, Hiroshi, Akira Uchida, and Makito Nagashima. (1996) 2005. *Strategic Policy Management in the TQM Era* [TQM zidai no senryaku teki hōsin kanri]. Tokyo: JUSE.

Otsuka, Keijiro, Kimiaki Jin, and Tetsushi Sonobe, eds. 2018. *Applying the Kaizen in Africa: A New Avenue for Industrial Development.* Singapore: Palgrave Macmillan.

QC Circle Headquarters. (1970) 2012. *Basics of QC Circle Activities: QC Circle Platform.* Tokyo: Union of Japanese Scientists and Engineers (JUSE).

Shimada, Go. 2018. "Achievements and Future Issues in Kaizen Research

for Industrial Development: Deriving Policy Implications from Interdisciplinary Approach." *Journal of International Development Studies* 27(2): 1-11.

Stiglitz, Joseph E., and Bruce C. Greenwald. 2015. *Creating a Learning Society.* Reprint. New York: Columbia University Press. Translated by Chiharu Iwamoto under the supervision of Shiro Yabushita in 2017 as *Productivity Increasing Society*. Tokyo: Toyo Keizai.

Sugimoto, Seiji. 2018. "Kaizen in Practice." In *Applying the Kaizen in Africa: A New Avenue for Industrial Development*, edited by Keijiro Otsuka, Kimiaki Jin, and Tetsushi Sonobe, 69-110. London: Palgrave Macmillan.

Wada, Masatake. 2008. "Technology Transfer and Policy Support." In *Nippon zin tyōki seisaku advisor ron* [The theory of Japanese long-term policy advisor]. Kyoto: International Institute for Advanced Studies.

Yamada, Shoko, and Izumi Ohno. 2021. *Industrial Human Resources Development in Developing Countries* [Tozyōkoku no sangyō zinzai ikusei]. Tokyo: Nippon Hyoron Shinsha.

Yanagihara, Toru, Kazumitsu Kuroda, and Tsuyoshi Kikuchi. 2018. "The Formation and Evolution of the Support System for Productivity/ Quality Improvement: Japan, Singapore, Tunisia." *Journal of International Development Studies* 27(2): 85-104.