

Chapter 7

Promoting *Kaizen* in Africa: 10-Years of Experience of Japanese Cooperation in Tunisia and Ethiopia



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7.1 Introduction

The Japan International Cooperation Agency (JICA) started a quality and productivity improvement project (hereinafter referred to as ‘the *Kaizen* Project’) in Tunisia in 2006, the first *Kaizen* Project in Africa. After three years, the third *Kaizen* Project in Africa began in Ethiopia in 2009. Since then, JICA has been expanding its development cooperation to *Kaizen* in Africa to contribute to the continent’s industrial development. In June 2022, South Africa became the ninth country to receive JICA’s cooperation for *Kaizen* Project. These projects have been initiated based on bilateral agreements between Japan and African governments, and now, more countries are integrated under the multilateral framework of the Africa Kaizen Initiative (AKI)¹ in collaboration with the African Union Development Agency-the New Partnership for Africa’s Development (AUDA-NEPAD) and the Pan-African Productivity Association (PAPA) [18].

Because *Kaizen* is the Japanese bottom-up participatory approach to quality and productivity improvement, it is vitally important for each African country to customize the original Japanese model in such a way suitable to local conditions when development cooperation is provided by Japan. Tunisia and Ethiopia have implemented *Kaizen* Projects three times, assisted by JICA, over a period of nearly

¹ The Africa Kaizen Initiative (AKI) was announced by Japanese Prime Minister Abe and the New Partnership for Africa’s Development (NEPAD) at the Sixth Tokyo International Conference on African Development (TICAD VI) held in Nairobi, the capital of Kenya, in August 2016. AKI aims to improve the quality and productivity of factories in Africa through the introduction of *Kaizen*. In April 2017, AKI was officially launched with the joint sponsorship of JICA and the NEPAD.

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10 years. Their experiences show differences and similarities in *Kaizen* implementation in the two countries and illuminate the implications and challenges for future sustainable development of *Kaizen*.

The objectives of this chapter are to review achievements of the JICA-supported *Kaizen* Projects for Tunisia and Ethiopia over a period of 10 years and analyze: (i) how Japan-born *Kaizen* was introduced and disseminated in different institutional settings, reflecting local conditions; and (ii) what are their implications and challenges of promoting *Kaizen* sustainably.

The chapter is organized as follows. First, the introductory section defines the term ‘achievement’ as used in this chapter. Section 2 describes the history of JICA development cooperation in Tunisia and Ethiopia over the last 10 years. Section 3 compares the achievements of *Kaizen* Projects in both countries, and Sect. 4 draws lessons and implications from the comparison and identifies further challenges. Section 5 concludes the chapter.²

In both Tunisia and Ethiopia, most local enterprises participating in *Kaizen* Projects enjoyed positive results such as improvements in quality and productivity, reduced costs, and/or shorter delivery times. What do these achievements signify for their future businesses? Their significance for the future lies not simply in 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 or consultants who can provide technical guidance and service on *Kaizen* for customers (private and public enterprises). There is also a question of whether or not a mechanism has been established to continually train managers and workers in *Kaizen*.

The term ‘achievement’ in this chapter is used not simply to mean a result but to indicate something with potential for sustainable development of *Kaizen* (especially after the completion of JICA cooperation). Here, achievements that enable this form of sustainable development are classified into three pillars. The first pillar 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 pillar is the establishment of a mechanism, organization, and system to make such activities concrete. The third pillar is the existence of developed and accumulated capacity to make such mechanisms, organizations, and systems functional. The ‘capacity’ is divided into three levels: individual, organizational, and network levels. Specifically, capacity here is conceptualized as the ability to learn, modify or customize, and disseminate *Kaizen* from the perspective of technology transfer [24]. All pillars are formed by reflecting local conditions, that is, political, economic,

² It should be noted that the author compared the achievements over 10 years of JICA-supported *Kaizen* Projects in Tunisia and Ethiopia, based on the materials and statistical data obtained by the end of the project period in each country. The end of JICA project is December 2021 in Tunisia and July 2020 in Ethiopia, respectively. If situations that affected *Kaizen* dissemination activities have occurred since then (for example, changes in the political and social environment, administrative organization), explanatory notes will be provided.

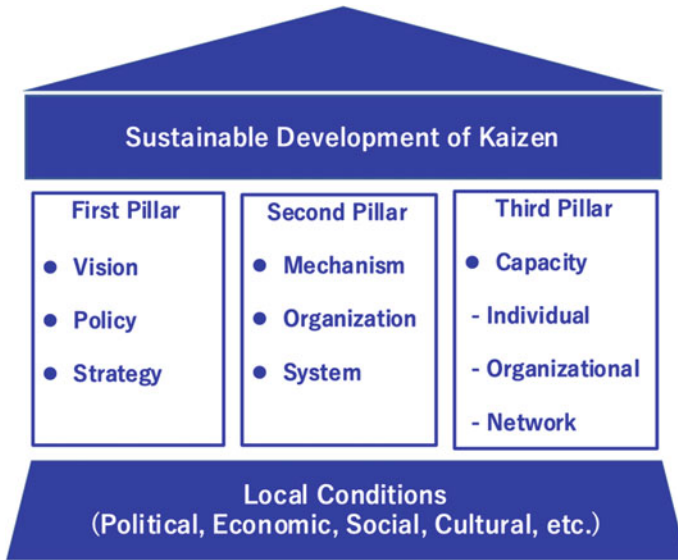


Fig. 7.1 Three pillars for sustainable development of *Kaizen* (Source Created by the author)

social, or cultural conditions. The basic understanding of the author is that sustainable development of *Kaizen* is feasible only when all of these three pillars are present side by side. Thus, this chapter uses the three pillars as a framework of comparative analysis. Figure 7.1 shows an image of the above description.

A supplementary explanation is given regarding the relationship between the three pillars and the ‘local conditions’ in Fig. 7.1. The local conditions can either provide a positive foundation of support for these pillars as, or they could affect the pillars negatively, breaking them down. For example, ‘customization’ and ‘translative adaptation’³ are cases in which the local conditions are adapted or accepted when foreign technologies and knowledge are introduced in recipient countries through donor-funded projects. But, internal conflicts, political upheaval, or the COVID-19 pandemic are cases which cannot be controlled by the projects and negatively affect their achievements or pillars.

³ ‘Translative adaptation’ is a term invented by a cultural anthropologist Prof. Keiji Maegawa, and is the basic concept that runs through this volume. For more details, see Chap. 1 of this volume and Jin and Ohno [18]. In this chapter, ‘translative adaptation’ is treated as synonymous with customization.

7.2 History and Key Features of JICA Cooperation in Tunisia and Ethiopia

JICA cooperation for the *Kaizen* Projects in Tunisia and Ethiopia consists of three stages (Table 7.1). The total project period of these three stages is roughly 10 years in both countries.

JICA's first-stage cooperation for Tunisia and Ethiopia can be described as pilot projects. The results confirmed that the concept and methods of *Kaizen* were not only effective for quality and productivity improvement of enterprises in both countries but also transferable [22, 25, 26, pp. 152–153], resulting in the governments of both countries making a request to Japan for second-stage cooperation. *Kaizen* can be classified into basic, intermediate, and advanced levels according to the degree of challenge [35, p. 77].⁴ The second-stage cooperation aimed at fostering human resources capable of providing training, guidance, and consulting services for enterprises using basic *Kaizen* ways of thinking and methods. The third-stage cooperation aimed at fostering human resources capable of providing guidance on intermediate and partially advanced-level *Kaizen*.

The objective of the first *Kaizen* Project supported by JICA in Tunisia was to conduct a fact-finding survey of companies in the country, introduce Japan-born *Kaizen* methods and ways of thinking to selected pilot companies, and confirm their effectiveness. Based on the results, it aimed to formulate an action plan with an implementation system for the project. In Tunisia, the core organization to receive JICA cooperation (counterpart organization) has been the Management Unit of the National Program of Quality Promotion (*Unité de Gestion du Program National de Promotion de la Qualité*: UGPO) of the Ministry of Industry and SMEs (*Ministere de l'Industrie de PME*: MIPME). The UGPO 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.

During the period of JICA's second-stage *Kaizen* Project, the Jasmine 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 in order to explore a concrete plan to upgrade the UGPO from a time-bound to a permanent organization. In January 2016, the MIPME 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 [15].

⁴ Basic *Kaizen* mainly deals with problems which can be solved through a bottom-up approach from the production floor. In the case of advanced *Kaizen*, problem-solving that solely relies on the production floor is difficult and guidance from the top management or a higher department is essential [11, p. 65].

Table 7.1 History of JICA cooperation for *Kaizen* Projects in Tunisia and Ethiopia

JICA cooperation	Tunisia Project title/Duration/C/P	Ethiopia Project title/Duration/C/P
First stage	The Study on the Master Plan for Quality/Productivity Improvement Period: August 2006–July 2008 C/P: UGPQ, CETIME, CTAA	The Study on Quality/Productivity Improvement Period: October 2009–May 2011 C/P: KU
Second stage	The Project for Quality/ Productivity Improvement (Phase I) Period: September 2009–March 2013 C/P: UGPQ, CETIME, PACKTEC	The Project for Capacity Building for Dissemination for Quality/Productivity Improvement (<i>Kaizen</i>) Period: November 2011–October 2014 C/P: EKI, TVET
Third stage	The Project for Quality/ Productivity Improvement (Phase II) Period: January 2016–December 2021 C/P: UGPQP, CETIME, CETTEX, CTC	The Project on Capacity Building for <i>Kaizen</i> Implementation for Quality and Productivity Improvement and Competitiveness Enhancement Period: July 2015–July 2020 C/P: EKI

Source Elaborated by the author based on various JICA reports on the *Kaizen* projects in Tunisia and Ethiopia

Notes 1. C/P: Counterpart agency to receive JICA's cooperation; 2. In 2016, UGPQ (Tunisia) was renamed to UGPQP; 3. In 2022 (after the termination of the third stage of JICA cooperation), EKI (Ethiopia) was renamed to KEC (Kaizen Excellence Center); 4. Although the Project Design Matrix (PDM) of the third-stage cooperation for Tunisia lists the UGPQP and three national technical centers⁵ (CETIME, CETTEX, and CTC) as the principal target organizations, an additional five technical centers received technology transfer (through training and guidance) in consideration of the need to widely disseminate *Kaizen* [15]; 5. The author participated in the first stage (2006–2008) of the *Kaizen* Project for Tunisia and the second stage (2011–2014) of the *Kaizen* Project for Ethiopia

⁵ In Tunisia, there are eight national technical centers under the Ministry of Industry: 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).

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 third-stage cooperation after this change uses the term ‘UGPQP’ or ‘UGPQ/UGPQP’ depending on the particular context.

Since its establishment, the UGPQ/UGPQP has always been a time-bound organization, despite the above organizational changes. It has acted as the window and the coordinator for JICA-supported projects and dealt with individual projects using suitable consultants loaned from the 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.

In Ethiopia, the JICA-supported *Kaizen* Project started in 2009, in response to a strong request from then Ethiopian Prime Minister Meles Zenawi. The objective was to establish a system of sustainable dissemination of *Kaizen* for private enterprises, focusing on selected pilot enterprises. 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 (2009–2011). During this period, the government of Ethiopia confirmed the effectiveness and adaptability of *Kaizen* concepts and methods for the country and prior to the commencement of second-stage cooperation (2011–2014) expanded and reorganized the KU into the Ethiopian Kaizen Institute (EKI), an independent organization disseminating *Kaizen* in Ethiopia [26].

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 final year of the third stage of *Kaizen* Project), the EKI had as many as 154 staff, including the Director General and other senior staff members, 109 of whom are *Kaizen* consultants [13, p. 3]. 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 and 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, and so on)⁶ 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, the supervising ministry was changed to the Ministry of Public Service and Human Resource Development (MoPSHRD) in October 2015 to disseminate *Kaizen* to the public service sector in addition to the manufacturing sector. Afterwards the MoPSHRD was renamed the Civil Service

⁶ Metal Industry Development Institute (MIDI), Textile Industry Development Institute (TIDI), Leather Industry Development Institute (LIDI), and others of the Ministry of Industry (MOI). These ‘institutes’ were renamed to ‘centers’ and reorganized into the Manufacturing Industry Development Institute in April 2022 [4].

Commission (CSC) under the direct control of the Prime Minister's Office in October 2018 [13].

Generally, for a project to be implemented as designed, it is desirable to avoid events that cannot be controlled by the project team during the implementation process. But multiple events of this type occurred in Tunisia, including the Jasmine Revolution (2010–2011), the repeated reorganization of the Ministry supervising UGPQP, the repeated change of Minister, and so on. In the year before the scheduled final year, the COVID-19 pandemic tore around the globe. Due to such unexpected events, it was decided to extend the completion of the third-stage *Kaizen* Project for Tunisia from July 2020 to the end of 2021.

Ethiopia also faced an unexpected political change. The Oromo protest happened during the period of the third-stage cooperation, and the Prime Minister changed in 2018. However, the negative impact on the *Kaizen* Project was limited even though the supervisory authority of EKI was changed from the MoPSHRD to the CSC.⁷

In 2020, the third-stage *Kaizen* Project entered its final year in Ethiopia. The negative impact of COVID-19 resulted in the early departure for Japan of the JICA expert team in March 2020. However, because the planned activities under the third-stage project in Ethiopia had almost been completed, the pandemic had limited effects on the project. 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.

7.3 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 context of the three achievement pillars conceptualized in the introduction section: (i) formulation of vision, policy, and strategy; (ii) establishment of mechanism, organization, and system; and (iii) development and accumulation of capacity. It also analyzes differences and similarities how the two countries have realized such achievements, giving attention to respective local conditions.

⁷ After the completion of JICA-supported project in July 2020, the supervisory authority was further changed from CSC to MOI, and Ethiopian Kaizen Institute (EKI) was renamed as Kaizen Excellence Center (KEC) in 2022.

7.3.1 Formulation of 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), an industrial plan prepared by the Ministry in charge of the industrial sector. ‘Productivity improvement’ in addition to quality improvement has been recognized as an important pillar of Tunisia’s industrial policy in this APP. The National Productivity Promotion Committee (NPPC) was established on 24 March, 2021 to promote productivity improvement in Tunisia (Decree of the MIEM).⁸ One of the important tasks of the Committee is to formulate policy for promoting productivity within private companies as well as public organizations.

Ethiopia has the Growth and Transformation Plan II (GTP II: 2015/2016–2019/2020). GTP II places emphasis on quality/productivity improvements and the enhancement of competitiveness as the keys to achieve economic transformation, with *Kaizen* considered the principal tool to achieve them [2, 31].⁹ As of February 2020 when the author visited Ethiopia, 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, the JICA-supported *Kaizen* Project materialized, and the EKI was established in October 2011 as the core organization for disseminating *Kaizen*.¹⁰ ‘The Policy Dialogue on Industrial Development of Ethiopia’ assisted by JICA had a positive impact on that decision (see Chap. 5).¹¹

During the period of JICA-supported projects, EKI developed a unique model for *Kaizen* dissemination in Ethiopia by learning from successful experiences and approaches adopted in Japan and other countries and adapting them to the country-specific context. This Ethiopian approach is named as the TIISO model consisting of five stages: testing, institutionalizing, implementing, sustaining, and ownership [26]. The TIISO model became one of the tools included in Ethiopia’s strategy to disseminate *Kaizen*.

⁸ Proclaimed by *Journal Officiel de la République Tunisienne*, April 2, 2021.

⁹ ‘The Ethiopian government adopted *Kaizen* as an exemplary approach and tool for growth and development’ [2].

¹⁰ 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 [3, 17, 26, 31, 34].

¹¹ The Policy Dialogue on Industrial Development of Ethiopia started in 2009 in response to a request by the late Prime Minister Meles (GRIPS 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). GRIPS Professor Izumi Ohno who participated in this industrial policy dialogue 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’ [31, p. 20].

7.3.2 *Establishment of Mechanism, Organization, and System*

Both countries have made efforts to create and consolidate the mechanisms, organizations, and systems for the dissemination of *Kaizen*. Below is a comparison between Tunisia and Ethiopia that takes into consideration such efforts as: (i) national-level body and system, counterpart organization for JICA cooperation, and the principal collaborating organizations; (ii) human resources development system; (iii) qualification certification system; (iv) *Kaizen* dissemination system for enterprises; (v) awards scheme; (vi) collaboration with private associations; and (vii) collaboration with universities and higher education institutions.

7.3.2.1 National-Level Body and Counterpart Organization for JICA Cooperation

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 in Tunisia and Ethiopia.

In Tunisia, the NPPC is a ministerial-level national body to promote productivity improvement. Although the NPPC focuses on productivity, it is understood as a national level organization responsible for disseminating *Kaizen*, since it carries out activities such as operating the *Kaizen* trainer qualification system and formulating policy to promote productivity. The committee members are ministries responsible for industry, economy and finance, higher education and scientific research, and professional training institutes; private associations; labor unions; and other knowledgeable persons. This membership is relevant to the *Kaizen* network discussed later in this chapter. The counterpart organizations for JICA cooperation are the UGPQ/UGPQP in collaboration with national technical centers under the jurisdiction of the same ministry.

In Ethiopia, the National *Kaizen* Council (NKC) was established in 2013 by Prime Minister Hailemariam Desalegn, with the EKI serving as the secretariat. The chairman of this Council is the Prime Minister.¹² The Council discusses the future vision for the dissemination of *Kaizen* and the direction for a national movement [26]. The counterpart organization for JICA cooperation was the KU in the first stage, and then the EKI beginning in the second-stage project.

There are two major differences between Tunisia and Ethiopia in regard to the organizational aspects of JICA cooperation. First, the UGPQ/UGPQP and the national technical centers have received training on *Kaizen* as a group of counterpart organizations, while the KU/EKI has been the core organization for such training in

¹² Under the administration of Prime Minister Abiy Ahmed, NKC has not met in recent years. Separately, the Ethiopia Tamirt Movement was launched by the Prime Minister in May 2022, and the Ethiopia Tamirt National Council has been established, chaired by the Minister of Industry. *Kaizen* promotion is regarded as part of this national movement [5].

Ethiopia even though TVET was added in the second stage of cooperation. Simply put, the organizational structure to receive JICA cooperation is ‘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 will be discussed in Sect. 7.4.3.

The second 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.¹³ The reason for the transfer to CSC is that the Ethiopian government has a policy of spreading *Kaizen* to the general public beyond the industrial sector. The idea of spreading the concept of *Kaizen* to the private and industrial sectors as well as the public sector is also seen in Tunisia from the membership of the NPPC, as mentioned above.

7.3.2.2 Human Resources Development System

Tunisia and Ethiopia have established *Kaizen*-related human resources development systems through JICA cooperation. The basic framework for human resources development is a combination of theoretical training (classroom training: CRT) and practical training (in-company training: ICT) with emphasis being placed on ICT. Practical training means that the trainees attempt to apply theories of *Kaizen* 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,’ which takes a ‘learning-by-doing approach’ or an ‘experience-based approach.’

In Tunisia, human resources development includes training using a simulated production line in addition to CRT and ICT. The training with the simulated production line 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. This training method was developed by the counterparts themselves after training in Japan. Tunisia is the only country using such a method for human resources development among the nine African countries where JICA’s *Kaizen* Projects are implemented [15].

The principal human resources development program in Tunisia is the Training of Trainers (ToT) Program, which consists of three-levels that take four years to complete: *Kaizen* Basic Trainer (BT), *Kaizen* Advanced Trainer (AT), and *Kaizen* Master Trainer (MT). The program is also designed 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 [13, p. 17].

Similarly, in Ethiopia, the basic training framework consists of CRT and ICT. The human resources development concerning *Kaizen* in Ethiopia can be classified

¹³ The supervisory body of EKI was changed to MOI from CSC in 2022 [4].

into three-levels: basic, intermediate, and advanced. Basic-level and intermediate-level *Kaizen* were transferred to EKI consultants by the JICA expert team during the second- and third-stage cooperation periods, respectively. The standard duration of an intermediate level *Kaizen* program in Ethiopia is one month for CRT and seven months for ICT.

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. 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. Tunisia aims to train *Kaizen* trainers¹⁴ while Ethiopia emphasizes the training of *Kaizen* consultants.¹⁵ This difference relates to the name of the qualification in the qualification certification system of each country.

What is the difference between the training of *Kaizen* trainers and the training of *Kaizen* consultants? The aim of human resources development in the *Kaizen* Project is to develop people who can solve the problems related to production management (such as quality improvement, productivity improvement, cost reduction, and delivery time decreases) that companies face. In this respect, even if there is a difference of the emphasis of training between the two countries, i.e., development as a consultant or development as a trainer, it is assumed that trained personnel are more or less proficient in both cases. 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 [13].

How about the similarity in human resources development between Tunisia and Ethiopia? As explained, the contents of the training were reviewed, modified, or customized in their own ways based on what they had initially learned from the JICA expert team. This is one example of how the two countries have tackled customization, reflecting local situations.

7.3.2.3 Qualification Certification System

As described above, the qualification title differs between Tunisia (Trainer) and Ethiopia (Consultant). The qualification certification system in Tunisia was introduced during JICA's third-stage cooperation, and three types of qualification are certified: *Kaizen* Basic Trainer (BT), *Kaizen* Advanced Trainer (AT), and *Kaizen* Master Trainer (MT). In February 2020 when the author visited Tunisia, there was

¹⁴ 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' [15, p. 28].

¹⁵ The training of a consultant focuses on problem identification and problem solutions discovered by themselves.

an ongoing process to formulate a ministerial ordinance to have these qualifications certified by the government (MIPME) [15]. The ministerial decree was issued on 24 March, 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: Basic-level Consultant (BC), Intermediate-level Consultant (IC), and Advanced-level Consultant (AC); but the current qualification holders are either BC or IC [13].

7.3.2.4 *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. However, the human resources capable of making this system function are limited both qualitatively and quantitatively, and it is difficult to fully meet the needs of private enterprises. It is essential for trainers and consultants to build up their practical experience in the coming years.

The case of EKI's approach to spread *Kaizen* to enterprises can be seen as one example of 'customization.' The top management of EKI was very interested in promoting *Kaizen* through small group activities and planned to disseminate *Kaizen* through the formation of the *Kaizen* Promotion Team (KPT) that integrated the activities of the Japanese 5S Committee, QC Circles, TPM, and Cross-Functional Teams step-by-step [26, p. 174]. This approach was designed during JICA's first *Kaizen* Project (2009–2011) and was actively promoted in the second-stage cooperation (2011–2014), not only in private enterprises but also in state-owned enterprises.

The number of KPTs is increasing every year and currently has reached over 20,000. It is said that Ethiopia has a long history of small group activities culture. People in rural areas work together in teams in their agricultural fields. In urban areas, there are different voluntary self-help groups and associations to help each other. For instance, a coffee ceremony in any community is a group event. In the ceremony, all talks are about business, local security, and the exchange of information. It seems that due to such societal culture, a form of small group activity is more acceptable among Ethiopians.¹⁶

¹⁶ Information provided by former Director General of EKI, Getahun Tadesse Mekonen, the co-author of Chap. 4 of this volume.

7.3.2.5 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 or demand for *Kaizen* on the part of those enterprises that have not yet introduced it. When the author visited Tunisia in February 2020, the MIPME was in the process of formulating a ministerial decree to establish a *Kaizen* Awards Scheme during the third-stage cooperation.¹⁷ The decree regarding the Awards Scheme was issued on 24 March, 2021 with the establishment of the NPPC. In Ethiopia, the National *Kaizen* Awards Scheme was established in 2011.

It is said that each country's Awards Scheme was established with reference to the Deming Prize, founded by the Union of Japanese Scientists and Engineers (JUSE) in 1951, the Japan Quality Award, founded by the Japan Productivity Center (JPC) in 1995, and the Malcom Baldrige National Quality Award, founded by the National Institute of Standards and Technology (NIST) within the US Department of Commerce in 1987.

7.3.2.6 Collaboration 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 catch-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 associations, such as industrial, management, and consulting associations, are fostered and developed. Collaboration between the core organization (at present public body) and private associations are essential for the long-term dissemination and development of *Kaizen*.

Large-scale private associations in Tunisia are the Tunisian Confederation of Industry, Trade and Handicrafts (*Union Tunisienne de l'Industrie, du Commerce et de l'Artisanat*: UTICA)¹⁸ and the Confederation of Citizen Enterprises of Tunisia (*Confederation des Entreprises Citoyenne de Tunisie*: CONECT),¹⁹ both of which are members of the Joint Coordinating Committee (JCC) for the third-stage *Kaizen* Project of JICA. The UGPQP collaborates with these two bodies to jointly host

¹⁷ In 2008 during the period of JICA's first-stage cooperation in Tunisia, 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 2010–2011 [15].

¹⁸ 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 [15].

¹⁹ The CONECT is an association of enterprise managers in diverse business fields, including the public sector and foreign subsidiaries, in Tunisia [15].

seminars and dispatches lecturers to seminars organized by them. 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 collaborative relationship has emerged between the EKI and private associations other than the Ethiopian Industrial Engineers Association (EIEA). EIEA is entrusted to conduct part of the work related to the CARS examination. However, in Ethiopia, private associations like UTICA and CONECT in Tunisia are not yet developed. Based on the above, the collaboration between the public sector (UGPQP) and private sector appears to be relatively more advanced in Tunisia.

7.3.2.7 Collaboration With Universities and Higher Education Institutions

Universities and higher education institutions can play a significant role in industrial development. According to 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 resource development [16, 19, 20, 21, 24].

In Tunisia, the government, especially the MIPME, emphasizes academic–industrial collaboration in its industrial policy [15]. During JICA's third-stage cooperation, a dissemination and enlightenment seminar on quality and 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 involved not only *Kaizen* theories but also practical training using a simulated production line.

The University of Tunis has a Higher National Engineering School (*Ecole Nationale Supérieure d'Ingenieur 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 chains.²⁰ The ENSIT has a strong interest in *Kaizen* and hopes therefore to strengthen its collaboration 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

²⁰ Based on ENSIT's brochure introducing its curriculum.

introduced at the same university in October 2018 during the third stage of JICA cooperation [13].²¹

7.3.3 *Development and Accumulation of Capacities*

The ‘mechanism, organization, and system (the second pillar)’ for the future dissemination of *Kaizen* in Tunisia and Ethiopia can be regarded as a device to materialize the ‘vision, policy, and strategy (the first pillar)’ for the future of *Kaizen*. What is required as the next pillar is the capacity to make these devices actually function. The term ‘capacity’ (the third pillar), as explained in the introduction of this chapter, is subdivided into individual, organizational, and network capacity.

Individual capacity means the capacity of individual trainers or consultants engaged in the work to disseminate *Kaizen*. Organizational capacity means the capacity of a core organization to disseminate *Kaizen* and to operate the organization itself.²² In addition, the ability of the core organization to function as a center of excellence in neighbouring countries where *Kaizen* has not yet spread can be also considered organizational capacity. Network capacity means the capacity generated by a network with other members being related organizations and bodies, associations, universities, and so on. For the sustainable dissemination and development of *Kaizen*, a network to ensure linkage and cooperation among related organizations and bodies, especially an industry-government-academic network, is essential [24]. As such, the relationship between these three levels involves the organizational level capacity to make up for the limitation of individual level capacity, and the network level capacity to make up for the limitation of the organizational level capacity.

JICA defines ‘capacity’ as ‘the ability of developing countries to deal with development issues on their own’ [8, p. 5], and conceptualizes ‘capacity development’ as ‘the process of improving the problem-solving capacity of developing countries as a whole at multiple levels, including individuals, organizations, and societies’ [8, p. 1].²³ It can be said that ‘individual, organization, and society’ roughly correspond to the three levels of ‘individual, organization, and network’ capacity mentioned in this chapter. But, strictly speaking, JICA’s definition of ‘society’ is a broader concept than ‘network’ used here.

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

²¹ As of June 2022, neither the master’s course or the PhD course is operating due to internal conflict that broke out in November 2020 in Ethiopia.

²² The operation of an organization includes the operation and management of training programs, qualification systems, awards schemes, and the gathering and analysis of information and data.

²³ Hosono et al. [7] refers to the widely cited definition of ‘capacity’ from OECD/DAC [29], which is the ability of people, organizations, and society as a whole to manage their affairs successfully. UNDP [37] also discusses ‘capacity development’ at three levels: individuals, organizations, and society.

participants (Table 7.2), the number of those who have completed training, or the number of people who have obtained a qualification.

In the case of Tunisia, individual capacity is represented by the number of qualified persons in the different stages of cooperation with JICA (Table 7.3). Most of them belong to UGPQP and national technical centers, so their individual capacities consist of part of the organizational capacity.

The next topic is the capacity of a core organization for the dissemination of *Kaizen* in Tunisia. While the UGPQ/UGPQP is the core organization, it has been a time-bound organization with its status renewed every five years. During JICA's third-stage cooperation period, the staff members consist of a limited number of full-time UGPQP employees and Master Trainers temporally transferred from national technical centers. The UGPQP has been receiving JICA cooperation to train personnel (MT, AT, and BT) with the national technical centers. It has also established a system to improve such activities as organizational capacity, since the UGPQP has been engaged in training and technical guidance for enterprises using trained personnel.

In addition to managing training and guidance for enterprises, the operation of the UGPQP includes managing qualification systems, award schemes, and various events and also the gathering and analysis of information and data. Therefore, the manpower of the administration department must be increased since a greater number of such activities are planned in the coming years.

As the core organization of *Kaizen* dissemination, UGPQP has another capacity that has been accumulated over the past decade. It has the function of a center of excellence that shares Tunisia's experience of *Kaizen* dissemination with neighbouring countries, especially French-speaking African countries. This capability may be

Table 7.2 Numbers of trainees and participating companies for all stage projects in Tunisia and Ethiopia

Project Stage and Period	Tunisia (T)		Ethiopia (E)	
First-stage Project T: 2006–2008 E: 2009–2011	Trainees	15	Trainees	10
	Companies	29	Companies	30
Second-stage Project T: 2009–2013 E: 2011–2014	Trainees	24	Trainees EKI	57
	Companies	50	Companies TVET	131
			Companies LM	51
			Companies MSE	129
Third-stage Project T: 2016–2021 E: 2015–2020	Trainees (Holders) (under training)	45 43	Trainees	83
	Companies	81	Companies LM	38

Source Elaborated by the author based on JICA Project Reports.

Abbreviations T = Tunisia, E = Ethiopia, EKI = Ethiopian Kaizen Institute, TVET = Technical and Vocational Education and Training, LM = Large and Medium Enterprises, MSE = Micro and Small Enterprises, Holders = Qualification Certification Holders

Note This table excludes the number of participants from companies, that is, executive managers, factory managers, and workers involved in *Kaizen* projects

Table 7.3 Tunisia: Numbers of *Kaizen* master trainers (MT) and *Kaizen* advanced trainers (AT) at UGPQP/technical centers/etc

	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 Company		1		1
Sub Total (2)	0	2	1	3
Total (1) + (2)	7	22	23	45

Source Prepared by the author based on the table in Kikuchi [25]

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 participating in training as of February 2020

regarded as one of the organizational capacity of UGPQP. In 2019, UGPQP conducts *Kaizen* training with participation from five French-speaking African countries.

Regarding network capacity, the UGPQ/UGPQP has so far maintained a collaborative relationship with the national technical centers as well as several private associations and universities; but these relationships will be further 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 trainees (for the first- to third-stage JICA cooperation) (Table 7.2) and qualification certification holders in the JICA's third-stage cooperation (Table 7.4). These individual capacities consist of part of the capacity of the core organization (EKI).

Let us now examine the organizational capacity of the EKI, which is the core organization for *Kaizen* dissemination 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. He skillfully managed the EKI while securing budgetary appropriation from the government and acquiring the necessary human resources. Along

Table 7.4 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
<i>Kaizen</i> 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)

Source Prepared by the author based on the Progress Report [12, 13]

- Note 1. Figures in the table are as of June 2020;
- 2. Some individuals hold multiple qualifications/levels

with its increasing manpower strength in terms of both consultants and administrative staff, the EKI has also been attempting to develop and 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 and utilize consultants, a system has already been established to continually train consultants capable of providing basic as well as intermediate-level *Kaizen* training and technical support (consultation, 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. However, the current manpower of the EKI, just like Tunisia, cannot cope with the demand for *Kaizen* from enterprises [13].

EKI, like Tunisia’s UGPQP, has accumulated capabilities as a center of excellence that can disseminate *Kaizen* to neighboring countries, based on its experience of *Kaizen* dissemination in its own country over the past 10 years. There are cases where people from neighboring countries come to visit Ethiopia’s *Kaizen* successful companies, and there are also cases where EKI consultants go to neighbouring countries to provide *Kaizen* guidance. One such example is EKI’s implementation of basic *Kaizen* training in Djibouti in 2019.

Regarding the network capacity in Ethiopia, 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 specific universities, but not yet with private sector associations, as UTICA and CONECT in Tunisia have done. In the long run, the role of the private sector is

important for the dissemination of *Kaizen*. In any case, no network with members consisting of organizations (especially, industry, government, and academia) related to the dissemination of *Kaizen* has yet been established in Ethiopia.

The capacities of the individual-level (focusing on the relation between counterparts and foreign expert team) and network-level (focusing on ‘industry, government, and academia collaboration system’) are further discussed in Sects. 7.4.5 and 7.4.6, respectively.

Regarding organizational capacity, a dynamic perspective is also important, which could include the organizational ability to self-transform. More specifically, it means that core organizations have the ability to transform their own activities and organizations in response to changes in the domestic and international economic and business environment. Singapore offers a good example. The Singaporean government established a productivity agency in the mid-1960s and launched a productivity movement in the early 1980s, with the assistance of Japan (Chap. 4). Even after the assistance from Japan concluded, the government has continued to quickly and flexibly reform its organization and systems in response to changes in the situation and the demands of the industrial sector. This attitude has not weakened even now [39].

7.4 Key Factors Affecting Sustainable Development of *Kaizen*

The previous section compared the 10-year achievements of *Kaizen* Projects in Tunisia and Ethiopia in light of three pillars and analyzed differences and similarities regarding how *Kaizen* Projects were implemented in the two countries. This section focuses on the elements of each pillar which are considered important for the future dissemination and development of *Kaizen* in respective countries and highlights lessons, implications, and challenges. The following six factors are selected for discussion. Factors (i) and (ii) are related to the first pillar, (iii) and (iv) to the second pillar, and (v) and (vi) to the third pillar.

- (i) National leaders’ commitments;
- (ii) Political and administrative stability;
- (iii) Organizational structure for dissemination and development of *Kaizen*;
- (iv) Counterpart and foreign expert team in customization;
- (v) Capacity required for an advanced level of *Kaizen*; and
- (vi) Industry-government-academia collaboration and the role of development cooperation.

7.4.1 National Leaders' Commitments

Regarding the first pillar, 'vision, policy, and strategy' reflect the commitment of the national leaders. The relevant policy documents are also concrete manifestations of them.

This can be confirmed by reviewing the 10-year results of JICA-supported *Kaizen* projects in Ethiopia. It was the late Prime Minister Meles Zenawi who enthusiastically introduced *Kaizen* from Japan, confirmed the positive results of *Kaizen* Project himself, and established the Ethiopia Kaizen Institute (EKI) as a core organization for the dissemination of *Kaizen*. The next prime minister Hailemariam Desalegn also took over the commitment of Meles, stipulated the dissemination of *Kaizen* in the national plan GTP II, and established the National Kaizen Council (NKC)²⁴ to discuss the dissemination of *Kaizen* at the prime minister and ministerial level.

The importance of leader's commitment is also pointed out by Ohno and Mekonen (see Subsect. 4.5.2 in Chap. 4; [30, 33]). They derive six factors from the experiences of successful national productivity movements in Japan and Singapore. The first factor is the national leader's commitments. The Ethiopian case described above is arguably supported by their research.

How, then, is a leader's commitment formed? In the case of Ethiopia, Prime Minister Meles originally had a strong awareness of issues and a deep understanding of *Kaizen*. It is believed that the 'Industrial Policy Dialogue' supported by JICA further strengthened his commitment to *Kaizen* (see Sect. 5.5 in Chap. 5). The case suggests that it is desirable that the implementation of development cooperation projects be accompanied by policy-level support that contributes to the formation of commitments on the part of the recipient country.

7.4.2 Political and Administrative Stability

The other lesson drawn from the comparison of the two countries in the first pillar is that situations which could not be foreseen at the outset and are beyond the control of the project, may occur and have a negative impact on the progress of the 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. Unfortunately, both of them were abolished following the Jasmine Revolution in 2011 [14, 15]. At the start of JICA's second-stage cooperation (2009–2013), the '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

²⁴ See note 12.

Revolution [14]. However, on 24 March, 2021, the NPPC was established with the purpose of promoting productivity improvement throughout the country.

Another lesson learned through the above case is that such political instability has hindered the formulation of visions, policies, and strategies for dissemination of *Kaizen*. If political and administrative instability occurs, is there any way to minimize the impact?

At present, public institutions (UGPQP and EKI) assume a central role in promoting *Kaizen* Projects in both Tunisia and Ethiopia. If the private sector (private associations, private consultants) has developed sufficiently enough to play such a role, it might be able to withstand some unexpected changes in politics and public administration. Therefore, in the long run, the government should create an environment for the private sector (private associations including consulting association) to more positively participate in learning and disseminating *Kaizen*. The private sector should also make enhanced efforts in this endeavor, rather than relying on the government.

7.4.3 Organizational Structure for *Kaizen* Dissemination and Development

The organizational structure to receive JICA cooperation differs between Tunisia and Ethiopia. More specifically, Tunisia has adopted the ‘collaborative type’ structure, compared to the ‘independent type’ adopted in Ethiopia. In Tunisia, the UGPQ/UGPQP as a core organization for *Kaizen* learning and dissemination has been a time-bound organization since its establishment in 2005, and there has been a collaborative system of the UGPQ/UGPQP with the national technical centers. 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.

It is difficult to evaluate which approach is better. This is because the industrial climate, corporate culture, and some other conditions of the two countries are different. Looking back on the achievements of the *Kaizen* Projects in both countries over the last decade, each type has its own unique achievements 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.

At the same time, in both countries, the core organization is a public institution at present. There is a question of how much public institutions should intervene in *Kaizen* activities in which many private companies are involved. From a national point of view, how to form the organizational structure is also an issue related to the basic policy of the administrative organization of the country. Therefore, it may not be realistic to discuss the organizational structure only taking into consideration the industrial climate and corporate culture of the country. Considering these matters, what type of organizational structure is appropriate for the future is an extremely challenging issue for both countries.

If JICA supports the establishment of organizational structure for *Kaizen* dissemination, the most important thing is to recognize the differences in domestic conditions of each country and take appropriate cooperation policies, with good understanding of the importance of local adaptation on the receiving side [39].

7.4.4 Counterpart and Foreign Expert Teams in Customization

This section discusses the future challenges for counterpart and foreign *Kaizen* expert teams in relation to ‘customization’ and ‘translative adaptation.’

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—the recipient of technology (the counterpart) and the party transferring the technology to the counterpart (the foreign expert team)—must have a deep understanding of the essence of the technology²⁵ and 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 foreign expert team may not have enough 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 foreign expert team improves its understanding of the circumstances of the country.

Therefore, while the counterpart should take the initiative in customizing transferred technology, the foreign *Kaizen* expert team should also endeavor to propose ideas related to ‘customization’ or ‘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 aspects of the cultural climate that insiders may not be aware of.

From the viewpoint of sustainability and ownership, the independence (‘*syutaisei*’²⁶) of ‘customization’ should be the side to whom the technology is transferred, or the counterpart. However, since the foreign expert team can gain a deeper

²⁵ Wada [38] 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.

²⁶ ‘*Syutaisei*’ is a Japanese term used in this chapter to mean having a strong will to do something and being responsible for the result.

understanding of the industrial climate, corporate culture, and local conditions of the counterpart side as the project progresses, the foreign expert team will be able to provide the counterpart with suggestions for ‘customization.’

When implementing a project, the foreign expert team will generally make their best effort to explain to counterparts as quickly as possible the essence of *Kaizen* technology and how to implement it smoothly. However, considering the above points, the foreign 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 foreign expert team should not only transfer *Kaizen* technology, but also contribute to the provision of ‘customization’ ideas and the formation of capacity and *syutaisei*²⁷ for the ‘customization’ by counterparts. How to materialize this is a challenge given to future counterparts as well as foreign expert teams.

It is important for technology recipients (counterparts) and technology providers (foreign expert teams) to have social and cultural perspectives rather than simply working from a technical perspective. To that end, it is worth considering adding a cultural anthropologist or similar expert to the project team.

7.4.5 *Capacity Required for Advanced-Level of Kaizen*

One prominent achievement of JICA cooperation related to *Kaizen* in Tunisia and Ethiopia in the last 10 years is that both countries have mastered basic as well as intermediate (and partially advanced) level *Kaizen*. 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* while making continuous efforts to further disseminate and firmly establish the *Kaizen* they have mastered so far. This section deals with the individual capacity for advanced-level *Kaizen*.

Competition between enterprises in the international market is likely to grow rather than decrease in the coming years. It will be particularly 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 the necessary more advanced *Kaizen* in the coming years? In general, the introduction of basic *Kaizen* to an enterprise does not require much technical knowledge of machinery and systems (inherent technologies) compared to the introduction of advanced technologies. Meanwhile, knowledge and experience of inherent technologies are necessary to master advanced *Kaizen* [12, 35]. In this context, technical staff of the national technical centers in

²⁷ Hashimoto [6] and Umetani [36] state that the success of Japan’s modernization and industrial development in the Meiji Restoration were achievements resulting from the Meiji government leaders having a strong ‘*syutaisei*’ (independence) and formulating modernization policies on their own. The leaders did not give ‘*oyatoi gaikokuzin* (hired foreign advisors)’ any room to claim [6, p. 41].

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* 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. Nevertheless, their practical experience regarding inherent technologies on actual production floors is limited [13]. Accordingly, for EKI consultants aspiring to learn advanced-level *Kaizen*, 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* generally addresses issues on the production floor. With the advancement of these technologies to the intermediate-level and further to the advanced-level, the relationship between *Kaizen* consultants and management deepens, and knowledge of business management becomes necessary. Those consultants currently working at the national technical centers in Tunisia have already acquired knowledge of business management to some degree.

The technical staff of the UGPQ/UGPQP and eight national technical centers in Tunisia have acquired their knowledge of business management through international cooperation from the EU, which has provided guidance since 2005 so that Tunisian enterprises can receive certification under the ISO 9000 series of international management standards.²⁸ 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* in addition to basic and intermediate-level technologies with the cooperation of JICA are in a better position to master advanced technologies than the Ethiopian consultants.

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 (2015–2020), their knowledge and experience are not always sufficient. In regard

²⁸ With EU assistance, the UGPQ aimed at certifying 600 Tunisian enterprises by 2010; 1,300 enterprises ultimately to have capacity equivalent to that required under ISO (International Organization for Standardization) and other international standards [10, 15].

to knowledge of the ISO 9000 series, EKI 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* for technical staff of industrial development institutes. However, these staff 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 of advanced *Kaizen* in the coming years are: (i) how to overcome the insufficient knowledge and experience of inherent technologies among EKI consultants; (ii) how to make technical staff of industrial development institutes learn *Kaizen* in earnest; and (iii) how to develop further collaboration between the EKI and industrial development institutes.

Regarding challenge (iii), it is not easy in reality to develop collaboration 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 technical staff prioritize such services. This means that there should be a higher-level function to coordinate the work of the EKI and industrial development institutes.²⁹

7.4.6 Industry-Government-Academia Collaboration and the Role of Development Cooperation

In terms of learning, modifying or customizing, and disseminating *Kaizen*, there is a limit to the capacity of the core organization alone. It is crucial for the core organization to form collaborative relationships with related organizations. Looking at activities in Ethiopia and Tunisia to disseminate *Kaizen* over the past 10 years, collaboration across industry, government, and academia has been critical.

When looking back at JICA's technical cooperation for the *Kaizen* Project in Ethiopia over the period of 10 years, it can be confirmed that this development cooperation has taken the roles of industry, government, and academia into consideration. JICA's cooperation for the *Kaizen* Project, 'Policy Dialogue on the Industrial Development of Ethiopia,' 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. Furthermore, the *Kaizen* Project was promoted to the level of a national development plan through industrial policy dialogue [31]. Assistance for the establishment of master's degree and PhD courses was not part of the

²⁹ In 2022, EKI and national industrial institutes are supervised by the newly established Manufacturing Industry Development Institute under the Ministry of Industry. High-level coordination among them is expected for this new institute [4].

original concept of the first-stage *Kaizen* Project; but, with a strong request made by the Ethiopian side, a master's degree course was added to the second-stage *Kaizen* Project. The PhD course was then introduced during the third-stage cooperation period.

How about the development of private associations in Ethiopia? As already mentioned, such private associations (like UTICA and CONECT in Tunisia), have not developed. In Ethiopia, the collaboration between EKI and private associations ('industry') remains weak, and there may be a long path to forming a core network across industry, government, and academia.

In contrast, over the last 10 years of JICA cooperation in Tunisia, a collaborative relationship has been created between UGPQ/UGPQP and leading industrial organizations (UTICA, CONECT) during the process of project implementation. 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 capital, but also in local universities to develop a collaborative relationship with those universities. 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. However, Tunisia has no equivalent to the Ethiopia-Japan industrial policy dialogue.

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 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, 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, labor³⁰ and educational institutions—will have to work cooperatively toward this goal. [1, pp. 131–132]

It is particularly important for the formation of a network for the dissemination of *Kaizen* to first of all consider the creation of an industry-government-academia collaboration system, which may be called 'a core network' in 'a comprehensive network.' Within this network, industry has the ability to implement approaches, the government has the ability to formulate policies, and the academia has the ability to educate and research. This collaboration creates the network ability to learn, modify

³⁰ 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 [20] and also in the similar movement in Singapore where labor unions were cooperative [32]. The labor union in Tunisia is a member of the NPPC.

or customize, and disseminate *Kaizen*, exceeding the ability of the core organization. One of the implications from JICA's 10-year *Kaizen* Projects in Tunisia and Ethiopia is that the development cooperation for *Kaizen* dissemination should lead to the formation of the core network of industrial, governmental, and academic organizations.

7.5 Conclusion

This chapter has identified three pillars as a framework to compare and analyze the 10-year achievements of JICA-supported *Kaizen* Projects in Tunisia and Ethiopia, clarifying their differences, similarities, and characteristics. The final section summarizes the future of three pillars for each country and draws implications for development cooperation.

During the 10-years of the *Kaizen* Project in Tunisia, it is presumed that the national industrial policy makers have deepened their awareness of *Kaizen* methods and ways of thinking as effective for promoting industrial development and strengthening industrial competitiveness. The NPPC, which was established in March 2021, the last year of the third-stage of JICA supported *Kaizen* Project, is considered to have been born under such a background. The main activity of NPPC is policy formulation related to quality and productivity improvement. With the birth of the NPPC, it is expected that the first pillar, which consists of 'vision, policy, and strategy' for future dissemination of *Kaizen*, will be maintained.

As for the second pillar, during the 10-year project period, several 'mechanisms, organizations, and systems' for dissemination of *Kaizen* were established in Tunisia. First, a collaborative system was built between UGPQP and eight national technical centers, and the *Kaizen* Project was promoted and implemented through this system. In addition, over the past decade, the collaborative system has developed a *Kaizen* trainers training (ToT) program, certification system, mechanisms for providing *Kaizen* training and technical services to enterprises, an award scheme, and collaborative relationships with private associations (UTICA and CONECT) and universities. So, it can be said that the foundation for the third pillar of the future has been laid, though the nature of the counterpart organization should not be overlooked. Expectations for *Kaizen* dissemination from the public and private sectors for the UGPQP may increase in the future. The issue remains whether the UGPQP should remain as a time-bound organization, or whether it should become a permanent organization. This is also a question of future organizational capacity.

Regarding the capacity in the third pillar, *Kaizen* trainers with basic and intermediate level (and some who have reached the advanced level) capacity have been developed in the last decade. However, the number of trainees is not enough to meet domestic needs, and there remains the issue of developing and accumulating individual capacity in terms of quantity and qualifications, including the training of advanced-level trainers. Expectations for expanding the UGPQP's capacity as a core organization for *Kaizen* dissemination will grow in the future. So, expanding

capacity is another issue along with the above-mentioned organizational nature. In terms of the network capacity, as mentioned in Sect. 7.4, formation of an industry-government-academia network centered on UGPQP is not so difficult a task.

The JICA supported *Kaizen* Project in Ethiopia began with a strong request from the Prime Minister of Ethiopia at that time, and EKI (now KEC) was established as a core organization for *Kaizen* dissemination in 2011. Even after the Prime Minister changed, *Kaizen* was positioned as an important tool for industrial promotion in the country's national development plan. Furthermore, the National *Kaizen* Council (NKC), chaired by the prime minister, was established in 2013. Therefore, the first pillar to form 'vision, policy, and strategy' is expected to be maintained even if the administration changes, since the effectiveness of *Kaizen* is already widely recognized not only in the industrial sector but also in hospitals, schools, and local governments. Expectations for *Kaizen* are also stated in the recent policy document "*Ethiopia Tamirt: A National Movement to Build a Manufacturing Ethiopia through an Integrated and Sustainable Approach*" announced by the Ethiopian Ministry of Industry (March 2022).³¹

Many of the 'mechanisms, organizations, and systems' that make up the second pillar have been established in the last decade and are in still the process of development. EKI (currently KEC) has established an organization and management system and has been developing both in terms of activities and personnel. In addition, like Tunisia, Ethiopia has also developed and established a *Kaizen* human resource development program, certification and registration system (CARS), mechanisms for providing training and technical services related to *Kaizen* to companies, award scheme, and collaborative relationships with universities through the establishment of *Kaizen* Master and PhD courses. However, at present, there are no private associations that EKI can cooperate with. Considering sustainable *Kaizen* dissemination, the role of private associations is important and how to develop and strengthen private associations will be an important issue for Ethiopia in the future.

Regarding the third pillar, 'capacity' development and accumulation, during the 10 years of JICA's cooperation, human resources at the basic and intermediate levels of *Kaizen* have been developed, and qualified personnel have also been trained. However, there is a shortage of consultants with the capacity to deal with such technical services for enterprises or the development of advanced-level human resources, for which there is a growing need. This is another issue for the future. It can be said that EKI's capacity as a core organization for *Kaizen* dissemination has been steadily developed and accumulated not only in the consulting department but also in the management department. As for network capacity, the first priority should be given to building a system of collaboration among industry, government, and academia. However, it seems that the formation of such a network is difficult at this stage due to underdeveloped private associations.

³¹ '*Kaizen* implementation scale-up and creating model *Kaizen* Company's initiative' is suggested to be implemented in the first phase of the *National Movement* [28].

Based on the above, one of the issues to be addressed in Ethiopia in relation to the three pillars is how to develop private associations and private consultants. This is because, from a long-term perspective, the private sector should play an important role in disseminating methods and way of thinking such as *Kaizen* for enterprises. This idea also applies to Tunisia.

Finally, development cooperation should be mindful of the three pillars. It is important for all three pillars to be in place for the sustainable development of *Kaizen*. Based on the achievements of the *Kaizen* Projects in both Tunisia and Ethiopia over the past decade, this idea is more or less plausible, even if the three pillars have not been yet fully in place in the two countries. Therefore, the development cooperation that supports the *Kaizen* Projects should, from the very beginning, work together with recipient countries to draw up a picture of their own three pillars for each country and provide guidelines for their realization.

References

1. Dertouzos ML, Lester RK, Solow RM (1989) *Made in America: regaining the productive edge*. The MIT Press, Massachusetts. Translated by N Yoda (1990) as *Made in America: comparison of American, Japanese and European industries for the revival of America* (In Japanese). Soshisha Publishing, Tokyo
2. EKI (Ethiopian Kaizen Institute) (2019) *Proceedings of research and companies best practices sharing and panel discussions on Kaizen implementation & dissemination*. EKI, Addis Ababa
3. GRIPS Development Forum (2016) *Records of Ethiopia-Japan industrial policy dialogue vol. I: policy dialogue and research in Ethiopia*. GRIPS, Tokyo. https://www.grips.ac.jp/forum-e/pdf_e16/Records_VolI.pdf
4. GRIPS Development Forum (2022) *Ethiopia-Japan industrial policy dialogue: 36th Ethiopia mission report* (In Japanese). GRIPS, Tokyo
5. GRIPS Development Forum (2023) *Ethiopia-Japan industrial policy dialogue: 38th Ethiopia mission report* (In Japanese). GRIPS, Tokyo
6. Hashimoto H (2008) *Oyatoi gaikokuzin [Hired foreign advisors] and policy advisors for developing countries*. In *A study on Japanese long-term policy advisors for developing countries* (In Japanese). International Institute for Advanced Studies, Kyoto, pp 5–10
7. Hosono, A, Honda S, Sato M, Ono M (2011) *Inside the black box of capacity development*. In: Kharas H, Makino K, Jung W (eds) *Catalyzing development: a new vision for aid*. Brookings Institution Press, Washington, DC, 179–201
8. JICA (Japan International Cooperation Agency) (2006) *Capacity development* (In Japanese). JICA, Tokyo
9. 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). JICA, Tokyo
10. 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*. JICA, Tokyo
11. JICA (Japan International Cooperation Agency), and JDS (Japan Development Service) (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*. JICA, Tokyo
12. JICA (Japan International Cooperation Agency), JDS (Japan Development Service), and JPC (Japan Productivity Center) (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. JICA, Tokyo
13. JICA (Japan International Cooperation Agency), JDS (Japan Development Service), and JPC (Japan Productivity Center) (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. JICA, Tokyo
 14. JICA (Japan International Cooperation Agency), and JPC (Japan Productivity Center) (2013) Final report of project on quality/productivity improvement in the Republic of Tunisia. JICA, Tokyo
 15. JICA (Japan International Cooperation Agency), and JPC (Japan Productivity Center) (2020) Progress report (V) of project on quality/productivity improvement in the Republic of Tunisia (Phase II) JICA, Tokyo
 16. JIIE (Japan Institute of Industrial Engineering) (2010) History and prospect of IE: 50 years of JIIE (In Japanese). JIIE, Tokyo
 17. Jin K (2018) Role of Kaizen in Japan's overseas development cooperation. In: Otsuka K, Jin K, Sonobe T (eds) Applying the Kaizen in Africa: a new avenue for industrial development. Palgrave Macmillan, Switzerland, pp 31–68
 18. Jin K, Ohno I (2022) Overview: technology transfer for quality and productivity improvement in Africa and its implications for translative adaptation. In: Jin K, Ohno I (eds) Promoting quality and productivity improvement/Kaizen in Africa. Research project-Japanese experiences of industrial development and development cooperation: analysis of translative adaptation processes. Volume II. JICA Ogata Sadako Research Institute for Peace and Development, Tokyo, 1–33. https://www.jica.go.jp/jica-ri/publication/booksandreports/20220210_02.html
 19. JMA (Japan Management Association). 2010. The DNA of JMA group (dictionary/history) (In Japanese). JMA, Tokyo
 20. JPC-SED (Japan Productivity Center for Socio-Economic Development) (2005) History of 50 years of productivity movement (published in Japanese: Seisansei undō gozyūnensi). JPC-SED, Tokyo
 21. JUSE (Union of Japanese Scientists and Engineers). 1997. Fifty years history of JUSE. JUSE, Tokyo
 22. Kikuchi T. (2008) The quality and productivity improvement project in Tunisia: a comparison of Japanese and EU approaches. In: GRIPS Development Forum (ed) Diversity and complementarity in development aid: East Asian lessons for African growth. GRIPS, Tokyo, 183–204
 23. Kikuchi T (2011) The roles of private organizations in the introduction, development and diffusion of production management technology in Japan. In: JICA and GRIPS Development Forum (eds) Kaizen national movement: a study of quality and productivity improvement in Asia and Africa. GRIPS Development Forum, Tokyo, 23–47 (Original paper was published in the Bulletin of the Graduate School of International Cooperation Studies No. 4, 2011, Takushoku University)
 24. Kikuchi T (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
 25. Kikuchi T (2022) A comparative study of Kaizen projects comparative study of Kaizen projects in Tunisia and Ethiopia. In: Jin K, Ohno I (eds) Promoting quality/productivity improvement in Africa. JICA Ogata Sadako Research Institute for Peace and Development, Tokyo, 119–163
 26. Mekonen GT (2018) *Kaizen* as policy instrument: the case of Ethiopia. In: Otsuka K, Jin K, Sonobe T (eds) Applying the Kaizen in Africa: a new avenue for industrial development. Palgrave Macmillan, Switzerland, 151–198 https://doi.org/10.1007/978-3-319-91400-8_5
 27. MOI (Ethiopian Ministry of Industry) (2021) Manufacturing industry movement plan: concept note
 28. MOI (Ethiopian Ministry of Industry) (2022) Ethiopia Tamirt: a national movement to build a manufacturing Ethiopia through an integrated and sustainable an approach. Unpublished manuscript. June 11, 2022. Microsoft Word document

29. OECD/DAC (Organisation for Economic Co-operation and Development, Development Assistance Committee) (2006) *The challenge of capacity development: working toward good practice*. OECD, Paris
30. Ohno I (2011) Overview: national movements and the synthesis of selected country experiences. In: JICA and GRIPS Development Forum (eds) *Kaizen national movement: a study of quality and productivity improvement in Asia and Africa*. GRIPS Development Forum, Tokyo, 1–22
31. Ohno I (2018) Industrial policy and Kaizen: a perspective from Japan-Ethiopia industrial policy dialogue. *J Int Dev Stud* 27(2):13–26
32. Ohno I, Kitaw D (2011). Productivity movement in Singapore. In: JICA and GRIPS Development Forum (eds) *Kaizen national movement: a study of quality and productivity improvement in Asia and Africa*. GRIPS Development Forum, Tokyo, 49–68
33. Ohno I, Mekonen GT (2022) National movements for quality and productivity improvement in Japan and Singapore: from a perspective of translative adaptation. In: *Promoting quality and productivity improvement/Kaizen in Africa*. JICA Ogata Sadako Research Institute for Peace and Development, Tokyo, 35–76. https://www.jica.go.jp/jica-ri/publication/booksandreports/20220210_02.html
34. Ohno K (2013) *How to formulate industrial policy: learning best practices in Asia* [Sangyō seisaku no tukurikata]. Yuhikaku, Tokyo
35. Sugimoto S (2018) *Kaizen in practice*. In: Otsuka K, Jin K, Sonobe T (eds) *Applying the Kaizen in Africa: a new avenue for industrial development*. Palgrave Macmillan, Switzerland, pp 69–110
36. Umetani N (1968) 1979. *Hired foreign advisor 1: Overview* [Oyatoi gaikokujin 1: Gaiyou]. Kajima Institute Publishing, Tokyo
37. UNDP (United Nations Development Programme) (2002) *Developing capacity through technical cooperation, country experience*. UNDP, New York
38. Wada M (2008) Technology transfer and policy support. In: *Nipponzin tyōkiseisaku advisoron* [The theory of Japanese long-term policy advisor]. International Institute for Advanced Studies, Kyoto 123–140
39. Yanagihara T, Kuroda K, Kikuchi T (2018) The formation and evolution of the support system for productivity/quality improvement: Japan, Singapore, Tunisia. *J Int Dev Stud* 27(2):85–104

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