

MINISTRY OF INDUSTRY
THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

THE STUDY ON
QUALITY AND PRODUCTIVITY
IMPROVEMENT
(KAIZEN)
IN THE FEDERAL DEMOCRATIC
REPUBLIC OF ETHIOPIA

FINAL REPORT
(SUMMARY)

JUNE 2011

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

GLOBAL DEVELOPMENT &
MANAGEMENT CONSULTANTS INC.

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LIST OF ABBREVIATIONS

3S	Three S: Sort; Set-in-order; Shine (First three S's of 5S)
5S	Five S: Sort; Set-in-order; Shine; Standardise; Sustain
AAU	Addis Ababa University
ADLI	Agricultural Development-Led Industrialisation
AGR	Agro-Processing (sub-sector)
BME	Basic Metal and Engineering (sub-sector)
BPR	Business Process Reengineering
CHM	Chemical (sub-sector)
CSA	Central Statistic Agency
ecbp	Engineering Capacity Building Programme
E.C.	Ethiopian Calendar
EDRI	Ethiopian Development and Research Institute
EIS	Ethiopian Industrial Standard
EKI	Ethiopian KAIZEN Institute
ES	Ethiopian Standards
FDRE	Federal Democratic Republic of Ethiopia
FeMSEDA	Federal Micro and Small Enterprises Development Agency
GDP	Gross Domestic Product
GRIPS	National Graduate Institute for Policy Studies
GTP	Growth and Transformation Plan
GVP	Gross Value of Production
HLF	High Level Forum
HR	Human Resources
IE	Industrial Engineering
IEO	Industrial Extension Officer
ISDIC	International Standard Industrial Classification of All Economic Activities
ISO	International Organisation for Standardisation
JICA	Japan International Cooperation Agency
KU	KAIZEN Unit (A unit of MOI)
KYT	Kiken Yochi Training (Hazard-prediction training)
LTH	Leather (sub-sector)
LITI	Leather Industry Development Institute
MIDI	Metal Industry Development Institute
MDGs	Millennium Development Goals
MLCs	Medium and Large Companies

M/M	Minutes of meeting
MOE	Ministry of Education
MOI	Ministry of Industry
MOT	Ministry of Trade
MOTI	Ministry of Trade and Industry
MoUDC	Ministry of Urban Development and Construction
MSE	Micro and Small Enterprises
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PDCA	Plan, Do, Check and Act
P.L.C. (or PLC or plc)	Private Limited Company
PP	Pilot project
QC	Quality Control
QCC	QC Circle
QCD	Quality, Cost, and Delivery
QMS	Quality Management System
QPM Sheet	Qualitative Performance Monitoring Sheet
QSAE	Quality and Standard Agency of Ethiopia
ReMSEDA	Regional Micro and Small Enterprises Development Agency
S.C. (or SC or sc)	Share Company
SDPRP	Sustainable Development and Poverty Reduction Program
S/W	Scope of Work
SME	Small and Medium Enterprises
SQC	Statistical Quality Control
TICAD	Tokyo International Conference for African Development
TIDI	Textile Industry Development Institute
TPM	Total Productive Maintenance
TRA-KZN	Training in KAIZEN
TQC	Total Quality Control
TQM	Total Quality Management
TXT	Textile (sub-sector)
TVET	Technical Vocational Education and Training

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The Study on Quality and Productivity Improvement (KAIZEN) in the Federal Democratic Republic of Ethiopia Final Report

Executive Summary

1. Profile of the Study

The Study on Quality and Productivity Improvement (KAIZEN) in the Federal Democratic Republic of Ethiopia is a technical cooperation for development planning jointly undertaken by Japan International Cooperation Agency (JICA) and Ministry of Industry (MOI) of the Government of Ethiopia. The Study focused on the KAIZEN practice, an effective means of quality and productivity improvement, which had been verified not only in Japan but also in many countries, particularly in East Asian countries. The Study was implemented in accordance with the Scope of Work signed by JICA and MOI on June 4, 2009.

1) Objectives:

- (1) Formulate a national plan to enhance activity on quality and productivity improvement (KAIZEN) for Ethiopian enterprises in the industrial sector.
- (2) Formulate a manual which can be used for quality and productivity improvement activity (KAIZEN).
- (3) Transfer relevant skills and techniques to the staff members of the KAIZEN Unit of the Ministry of Industry (MOI).

The national plan in (1) has been re-defined by JICA and MOI that it shall comprise the three components of (i) dissemination, (ii) institutionalisation, and (iii) national movement, and that this Study shall formulate the dissemination component of the national plan.

2) Organisation for the Study:

KAIZEN Unit (KU) was established by MOI on the side of Ethiopia, while the JICA study team was organised to undertake the Study activities in the series of six activity periods in Ethiopia. The two groups formed KAIZEN Project Unit as the Study's implementation organisation.

3) Study implementation strategy:

To accomplish the objectives, the Study implementation strategy was to focus on the pilot project required in the Scope of Work and to make the most of the experiences and findings of the pilot project for the formulation of the Study's final outputs.

4) Study period:

October 2009 – May 2011

2. Pilot Project – Designing & Implementing KAIZEN Guidance with Pilot Companies

The pilot project was undertaken in order to:

- (1) Develop and establish a KAIZEN guidance method and its implementation programme for Ethiopian manufacturing companies.
- (2) Conduct the KAIZEN guidance activities with the pilot companies (on-site diagnosis and guidance, in-company self-exercise as well as group training).
- (3) Develop a manual of the KAIZEN guidance method and activities by documenting the accomplishments with (1) and (2).
- (4) Transfer relevant skills and techniques to the KU members, primarily in the process of (2) and secondarily in the process of (1) and (3).

2.1 Defining KAIZEN Concepts

The definition of KAIZEN for the purpose of this Study and its pilot project was articulated in the perspective of the goal of promoting adaptation and dissemination of KAIZEN for quality and productivity improvement in the Ethiopian manufacturing sector.

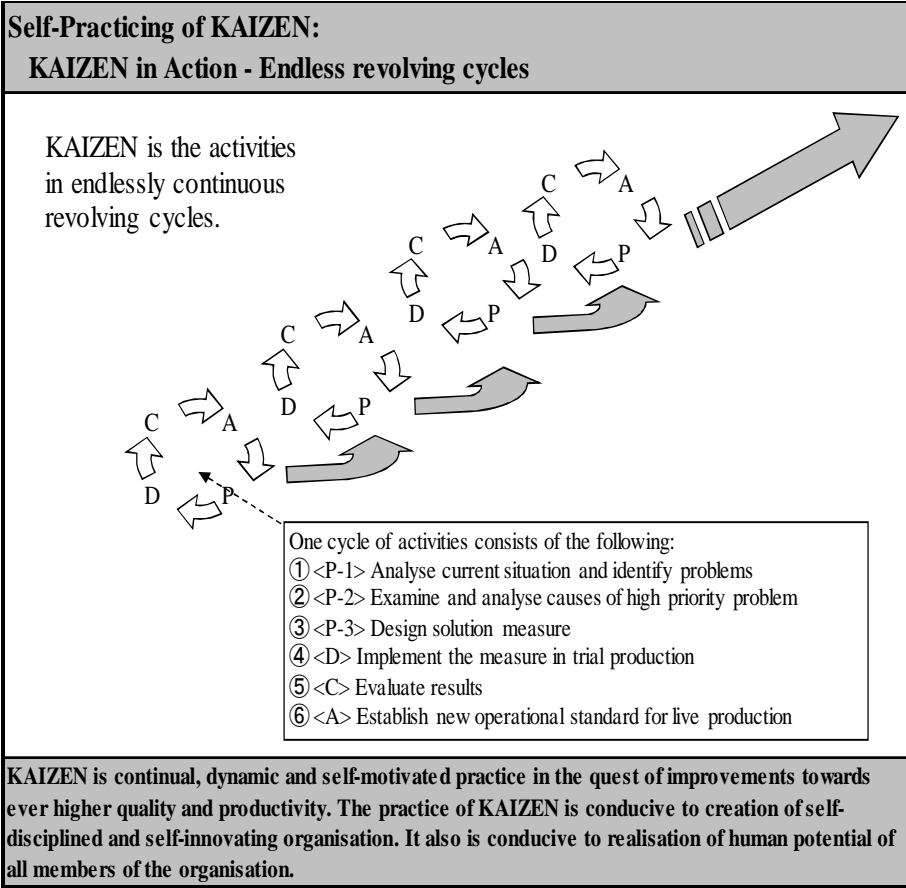
<Definition of KAIZEN>

KAIZEN is a system of continual undertaking by an organisation to improve its business activities and processes with the goal to always improve quality of products and services so that the organisation can meet full customer satisfaction. KAIZEN can be built in and run with an integrated and company-wide approach through the collaboration of all the levels of the organisation that are top management, middle managers and front-line employees. Commitment, genuine participation and motivation of all the three actors are critical factors. KAIZEN normally places the foremost importance in improvements at the front-line workplaces as the foundation of all the improvement efforts.

KAIZEN encompasses all the areas that are related to quality, cost, and delivery, whose simultaneous improvements are essential in achieving customer satisfaction and success of the organisation. KAIZEN, as undertaken by an organisation, involves continual, dynamic and self-disciplined practice in the quest of improvement towards ever higher quality and productivity. In this perspective, the practice of KAIZEN is conducive to creation of a corporate culture in which the organisation's members are endogenously self-motivated to work together to continually self-innovate and improve their organisation. It also promotes the realisation of human potentials of all members of the organisation.

KAIZEN is continual undertaking. As Figure-S1 shows, KAIZEN is a dynamic activity in revolving cycles of PDCA, or Plan, Do, Check and Action. Each one of the KAIZEN cycles has its steps from the start to the end in the PDCA process. Once a new improvement becomes a new standard, the next

cycle is set up to seek further improvement. KAIZEN is a continual challenge towards ever higher-level improvement, cycle by cycle, without an end.

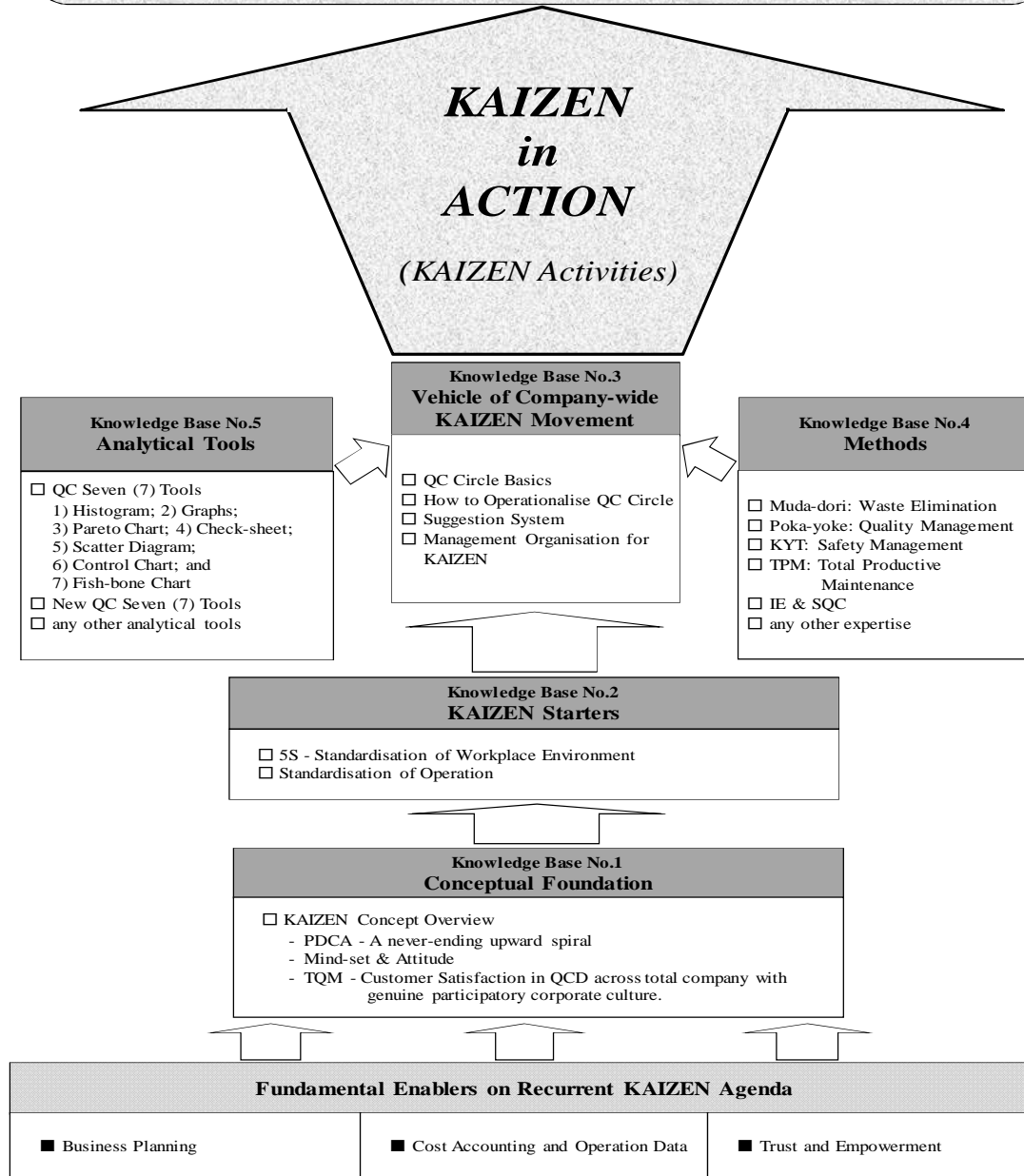


Source: JICA study team; KAIZEN Manual

Figure-S1: KAIZEN in Action – Endless Revolving Cycles

When major knowledge pieces related to KAIZEN are put together as shown in the diagram on the right, the first three knowledge bases: (i) Conceptual Foundation, (ii) KAIZEN Starters and (iii) Vehicle of Company-wide Movement are the building- blocks to construct the main pillar of knowledge, which is associated with developing capability to self-organise KAIZEN within a company. Once the main pillar is in place, starting KAIZEN activities is recommended. Knowledge of (iv) Methods and (v) Analytical Tools can be learned over time. KAIZEN is not a set of static knowledge, but dynamic activities in revolving cycles of PDCA. Learning by doing and self-learning are important elements in developing KAIZEN’s capability. Practitioners of KAIZEN will continue to learn and expand knowledge and skills as they face their challenges towards ever higher-level improvement, cycle by cycle.

**KAIZEN Corporate Culture:
An organisation equipped with self-motivated endogenous and
continual improvement**



Source: JICA study team; KAIZEN Manual

Figure-S2: KAIZEN Tree: A System of Knowledge in Action

At the base of the KAIZEN Tree's trunk, are Fundamental Enablers on Recurrent KAIZEN Agenda, which include Business Planning, Cost Accounting and Operation Data, and Trust and Empowerment, which are expected to be present at least in a basic form at companies wishing to introduce KAIZEN. These management capabilities, if not fully established, are required to be developed in sync with the

advancement of the companies' KAIZEN activities. They are, therefore, given a position of on-going capacity development agenda of company management.

2.2 Designing KAIZEN Guidance – Scope and Methods

The scope and methods of KAIZEN guidance was designed and refined in the pilot project.

1) Scope of KAIZEN guidance: Self-organising Process of KAIZEN



Source: JICA study team

Figure S3: Two Phases of KAIZEN Activities

In order for KAIZEN to be undertaken continuously in endless revolving cycles, companies wishing to introduce KAIZEN into their organisations need an intensive phase of preparing themselves to start KAIZEN activity by themselves. In the pilot project, this phase is called “Self-organising process of KAIZEN.” After this phase comes the phase of “Self-practicing of KAIZEN” where the continual and dynamic undertaking of KAIZEN activities in revolving PDCA cycles take place.

In view of the critical importance of the initial phase of Self-organisation for the companies to build the KAIZEN framework in their organisations, it was determined that the KAIZEN guidance for the pilot companies should focus on assisting the companies' Self-organising process of KAIZEN, in other words, helping their learning of basic knowledge, experiments of basic activities at their workplace and institutionalisation of management framework.

2) Focus on KAIZEN at the workplace

The KAIZEN guidance was designed to focus on KAIZEN at the workplace or workplace KAIZEN. KAIZEN at the workplace is the foundation of improvement efforts at KAIZEN-practicing companies. A success in KAIZEN results in higher morale at the workplace, in general. This reinforces the momentum of KAIZEN activities at the workplace. This in turn makes continued development of KAIZEN activities at the company all the more likely. Thus KAIZEN at the workplace is the key to the entry to the self-practicing phase in which the endless revolving activities of KAIZEN should develop. For this reason, the KAIZEN guidance focuses on the company's self-organisation for KAIZEN at the workplace.

3) Standardised uniform KAIZEN guidance programme

The KAIZEN guidance programme was designed in accordance with the above scope and focus, i.e., directly dealing with the self-organisation phase with a focus on KAIZEN at the workplace. The KAIZEN guidance programme thus designed consists of six definitive guidance steps as shown in Table-S1, and was structured in a standardised approach that allowed common application to all the

pilot companies. The standardised approach also allowed creation of a manual based on which any KAIZEN consultants would be able to conduct the KAIZEN guidance.

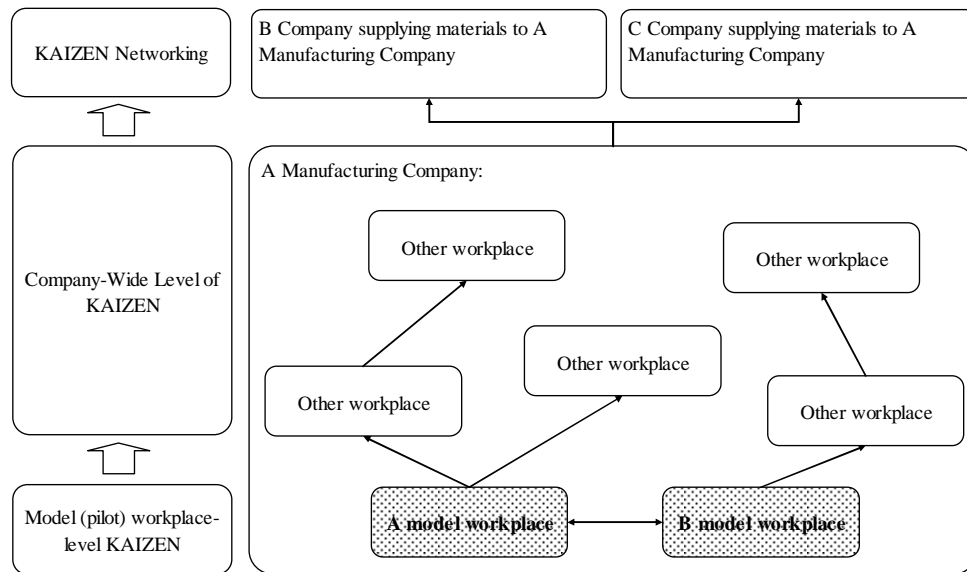
Table-S1: KAIZEN Guidance Programme (2nd Group of Pilot Companies)

Session #	Step	Session Agenda (Theme / Action)	Format
1	Step-1: Understanding Overview of KAIZEN	Overview of KAIZEN	Seminar: Group training
2	Step-2: Understanding Standardisation of Workplace & Operation	5S – Standardisation of Workplace Environment	
3		Operation Standard & Time Study	
4		Elimination of Waste (MUDA)	
5	Step-3:	Organising ‘Sort’ activity	On-site guidance at company
6	Implementing KAIZEN Activities at the company	Understanding ‘3S’ activities in Elimination of MUDA	
7		Standardising Operations at Selected Workplace	
8	Step-4:	How to Organize QC Circles; What is QC Story?	Seminar: Group training
9	Understanding Overview of QCC	What is QCC Presentation Meeting?; How are QC 7 Tools utilised?	
10	Step-5:	Conducting QCC Meeting	On-site guidance at company
11	Organising QCC Activities at the Company	Conducting QCC Presentation Meeting	
12		Step-6: Preparatory work for Company-wide KAIZEN activities	

Source: JICA study team; KAIZEN Manual

4) Model workplace approach and company-wide expansion of KAIZEN activities

The KAIZEN guidance uses ‘model workplace’ approach. The KAIZEN activities under the guidance are conducted in two model workplaces chosen by each company. Building on the success at the model workplaces, the activities are expected to be expanded to company-wide KAIZEN activities. In the extension of the company-wide practice of KAIZEN, companies may move into further quality assurance activities to be extended to suppliers forming a KAIZEN networking in their supply chain.



Source: JICA study team; KAIZEN Manual

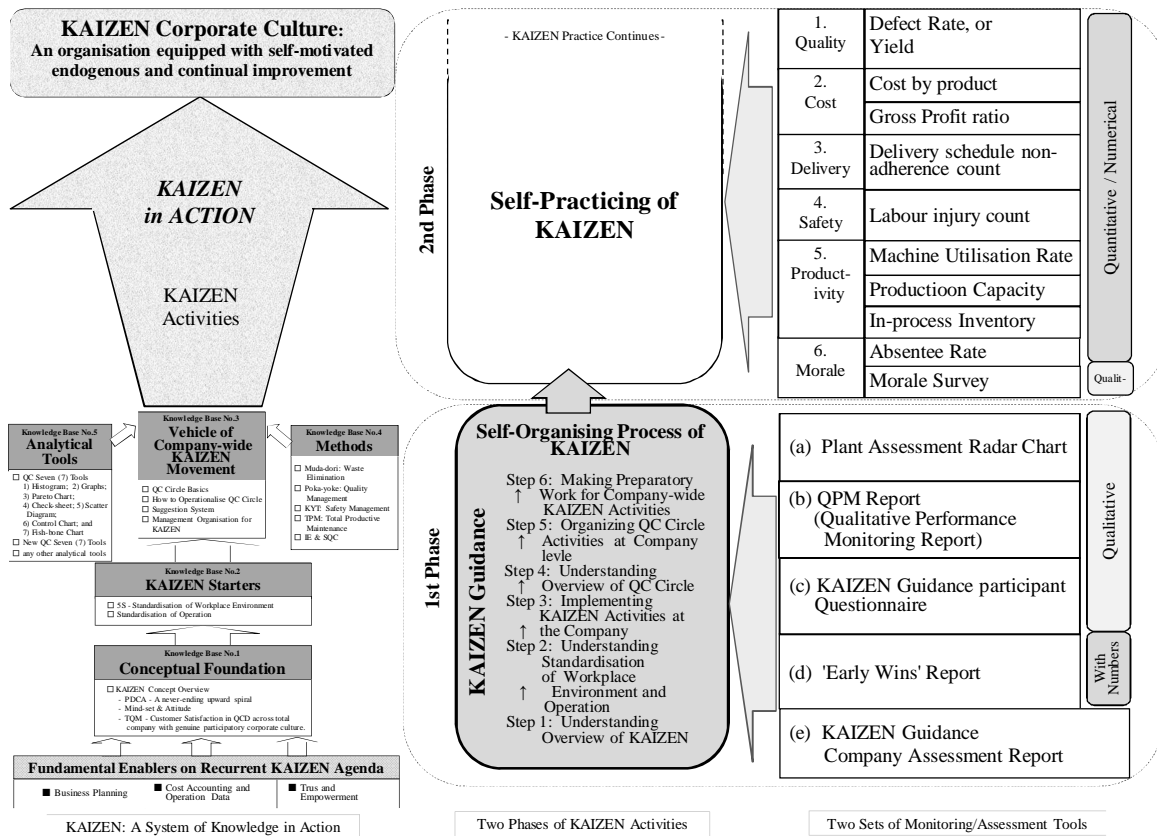
Figure-S4: Company-Based Dissemination of KAIZEN

2.3 Methods of Assessment of KAIZEN Activities

The assessment methods developed in the pilot project correspond to the two phases of KAIZEN activities, and therefore two separate sets of tools were designed.

For the activities of the KAIZWEN guidance that addresses the phase of the companies' self-organising process, the assessment method focuses on the companies' self-organisation achievements. The purpose of the assessment is in part for mid-course progress review and in major part for overall review of the companies' activities in the entire KAIZEN guidance period and their preparedness for the next phase as the result.

In the self-practicing phase, the companies' overall goal of KAIZEN activities at the company management level will centre on the improvements in quality and productivity of the company operation. The monitoring and assessment of the self-practicing KAIZEN activities should be a part of the companies' own business review process.



Source: JICA study team; KAIZEN Manual

Figure-S5: Two phases of KAIZEN Activities and Corresponding Monitoring/Assessment

At the bottom right of Figure-S5, the monitoring / assessment tools for the first phase are shown. They are for the activities of the self-organising process under the KAIZEN guidance and include five reports, (a) through (e).

(a) Plant Assessment Radar Chart: Mid-course progress assessment by consultants of standardisation of workplace environment and standardisation of operation.

(b) Qualitative Performance Monitoring Report (QPM Report): Overall assessment by consultants of the company's performances in each of the 6 steps of the KAIZEN guidance. Although the QPM report's assessment is all qualitative, it uses objective criteria for each of the achievement targets of all the steps.

(c) KAIZEN Guidance Participants' Questionnaire: Questionnaire for key personnel of the companies done twice at the entry and exit of the KAIZEN guidance. Measures progress in acquisition of knowledge / skills and change in attitude.

(d) 'Early Wins' Report: This report collects from the companies their early successes of achieving actual improvements and benefits. Though such improvements and benefits as the result of the exercises done under guidance are generally expected, improvements and benefits at this phase are not an indicator of success of the guidance or success of the companies' self-organisation for their own KAIZEN.

(e) KAIZEN Guidance Company Assessment Report: Overall assessment of each company's progress of self-organisation and the prospect of the KAIZEN activity development going forward.

There are another set of tools shown at the upper right of Figure-S5, (1) ~ (6) that are recommended for monitoring / assessment of the KAIZEN activities in the self-practicing phase. They are the basic indicators for management of production, and are to be extensively used in the management process of individual manufacturing companies.

2.4 Implementing KAIZEN Guidance with Pilot Companies

1) Pilot companies

The pilot companies, i.e., the companies that participated in the pilot project activities, were selected at the initial phase of the Study. Thirty companies were selected prior to the start of the pilot project from medium/large enterprise industry. The selected companies are from five sub-sectors, namely, (i) agro-processing, (ii) chemical, (iii) metal, (iv) leather, and (v) textile. Due to subsequent withdrawals of two companies from the pilot project activities, the number of companies that participated in the KAIZEN guidance activities was twenty-eight.

The pilot companies were divided into two groups in accordance with the pilot project implementation schedule in which the project activities were conducted in sequence with the first group activities in the first half of the Phase 2 and the second group in the latter half.

2) KAIZEN guidance implementation

The pilot project's KAIZEN guidance activities with the pilot companies were conducted during January - December 2010 with some follow-up and assessment activities till February 2011.

In the January – March 2010 period, the guidance activities started with the management-diagnosis approach. With the pilot project team's extensive reviews of the initial experiences with the pilot companies, major revisions were made to the KAIZEN guidance approach. As a result, the basic form of the KAIZEN guidance concept and methodology presented in 2.1 and 2.2 were designed in the intervening period of April – June before the start of the activity period in July. The revised methodology with the workplace KAIZEN approach at its core was applied to the first group from July through September with some follow-up activities thereafter. With additional improvements added to the guidance method, the second group guidance activities were conducted in the October – December 2010 period with some follow-up till February 2011.

After the revised KAIZEN guidance was put in place in July 2010, the guidance methodology was reviewed and further improved based on the pilot project experiences. The further improved KAIZEN guidance programme that was used in the second group guidance is shown in the previous section 2.2 (3) Standardised uniform KAIZEN guidance programme. The assessment of the KAIZEN guidance activities of the pilot companies are summarised in 2.5.

3) Training in Japan

In May 2009 JICA implemented two concurrent training programmes in Japan for this Study for the pilot company managers and the KU members. The programmes, one in the Chubu area (Nagoya) and the other one in the Osaka area, were both for two weeks with various factory visits with on-site presentations together with class room lectures and discussions.

The participants from the pilot companies received significant impact from this programme in Japan. Some participants reported they gained great confidence in KAIZEN because they found the same tools and methods in the factory in Japan as being introduced at their factory in Ethiopia as part of their KAIZEN efforts. Others obtained a clear image of how they should promote the KAIZEN activities in their factory. It was observed that the KAIZEN core members who participated in the training became strong promoters of KAIZEN activities of the pilot project in many pilot companies. The results of the training in Japan for the pilot company managers greatly helped the progress of the pilot project activities both in the first and second group companies.

2.5 Assessment of Pilot Companies' Activities under KAIZEN Guidance and Capacity Building

At the end of the pilot project activities, assessment was done for all the 28 KAIZEN guidance-participating companies in terms of their activities under the guidance using the 5 tools explained earlier in 2.3, i.e., (a) through (d) and the overall assessment of (e) KAIZEN Guidance Company Assessment.

Table-S2 below is a summary of the overall assessment of KAIZEN Guidance Assessment Report, in terms of its overall rating of the companies. The overall rating relates to the possibility of each company to become a company who continuously practices KAIZEN and as the result realises achievements that significantly excel other companies in terms of quality / productivity improvement ("model KAIZEN company").

The grading is given in this report in five levels.

Grade 5: High possibility to be a KAIZEN model company

Grade 4: Good possibility to be a KAIZEN model company

Grade 3: Some possibility to be a KAIZEN model company

Grade 2: Low possibility to be a KAIZEN model company

Grade 1: No possibility to be a KAIZEN model company

Table-S2: Assessment Grade Point Distribution by Sub-Sector

Sub-Sector		<i>Grade</i>					Total No. Of Companies
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	
Sub-Sector	Metal	1	2	2	2	1	8
	Textile	1	1	1	1	1	5
	Agro-Processing	1	2	1	1	1	6
	Chemical		1	2		3	6
	Leather	1		2			3
Total occurrences		4	6	8	4	6	28

Source: JICA study team

Following is a brief summary of the overall assessment.

1) Of the 28 companies who participated in the pilot project KAIZEN guidance, six companies are rated grade 5 and four companies are rated grade 4. These ten companies have high or good possibility to be KAIZEN model companies, i.e., high or good possibility to become capable of continuously practicing KAIZEN with a result of realising achievements that significantly excel other companies in terms of quality / productivity improvement. These 10 companies can now graduate from the self-organising process to proceed to self-practicing of KAIZEN. They are expected to start KAIZEN to accumulate tangible improvements in quality and productivity on a continual basis.

The key success factors identified with respect to companies graded at 5 and 4 are: (1) management's positive attitude towards KAIZEN that indicates management's commitment; and (2) good management-employee relationship revealed in management's appreciation of communication with employees and employee training, which indicate trust and empowerment being ingrained in the management practice. In addition to these, another important factor for success is the absence of disruptive management conditions, such as shortage of operating capital or difficulty in procurement of materials, which would cause suspension of ordinary company operation.

2) In the middle of the grading spectrum are eight companies graded at 3, i.e., some possibility to become capable of continuously practice KAIZEN. These 8 companies have potential to be a successful KAIZEN-practicing company but they will need significant efforts to reach that status or additional outside guidance and assistance. In one example, three months after the pilot project ended, the JICA study team learned that one of the 3-graded companies resumed KAIZEN activities with good management support after the company restarted normal operation following resolution of their cash shortage and procurement problems. The company was graded at 3 based on their inability to practice KAIZEN activities due to the prolonged operation suspension, but after the problem

resolution the company appears to be back on track in KAIZEN activities. They could be graded at 4 or even better, should the assessment have been done at this time.

3) On the other hand, six companies are rated grade 2 and three companies are rated grade 1. The factors behind them are: (1) lack of management commitment to KAIZEN as revealed by personnel changes that neglect the KAIZEN efforts or by management priority on production volume and inattention to quality; and (2) management problems that jeopardise the company's operation as a viable going-concern. Many of the companies in this grading group lack the basic management capabilities in the area of Fundamental Enablers on Recurrent KAIZEN Agenda (see 3.2.1.).

2.6 The Manual

The manual produced in the pilot project is a guidebook of the KAIZEN guidance for the Ethiopian manufacturing companies. It contains: (i) conceptual foundation of KAIZEN; (ii) Methodology of the KAIZEN guidance; (iii) procedures of selection of participant companies for the KAIZEN guidance; (iv) detailed procedures of conducting the KAIZEN guidance; (v) methodology of monitoring and assessment of KAIZEN activities; (vi) training materials of the KAIZEN guidance; (vii) training materials used in the KAIZEN guidance; and (viii) forms, questionnaires, and report formats used in the KAIZEN guidance. With these contents, the manual is an operating guidebook that helps any KAIZEN consultants to become capable of conducting the KAIZEN guidance for medium/large companies in the manufacturing sector in Ethiopia.

During its long drafting period, the draft manual was put to test use by the pilot project team. The KU members actively contributed to the formulation and refinement of the manual with feedback information and ideas for improvement. The draft manual contents were also used in the in-house training of the KU members.

The manual is now known as *Ethiopia KAIZEN Manual*. It is already being actively used by KU. It is expected that in future new editions will be produced where warranted, in particular, a customised edition for MSEs and some sector-specific versions to address differences in the unique types of production in certain industry sub-sectors.

The summary contents of the manual are shown below in order to provide its overview.

Summary Contents of Ethiopia KAIZEN Manual

Introduction: Getting involved in KAIZEN

Chapter 1: Familiarising with the Basic KAIZEN Knowledge and Process

1.1. What is KAIZEN all about?

- Defining KAIZEN
- Five guiding principles of KAIZEN
- Focused scope of KAIZEN
- Imperative attribute to KAIZEN

1.2. KAIZEN in Comparison to other methods of improving business operations

1.3. KAIZEN consultant in human resources management

Chapter 2:	Making Basic Preparation for the KAIZEN Guidance
	2.1. Selecting manufacturing companies
	2.2. Conducting reconnaissance survey
	2.3. Contracting with companies
Chapter 3:	Guiding and Counselling Companies through the KAIZEN Guidance
Step 1	Understanding of overview of KAIZEN
Step 2	Understanding standardisation of workplace environment and operation - 5S - Operation Standard and Time Study - Elimination of Waste (Muda)
Step 3	Implementing KAIZEN activities at the company - Organising 'Sort' activity - Undertaking '3S' activities in elimination of Muda
Step 4	Understanding overview of QC Circle - How to organise QCC; What is QC story? - What is QCC presentation; How are QC 7 tools used?
Step 5	Organising QCC activities at the company - Conducting QCC meeting - Conducting QCC presentation meeting
Step 6	Preparatory work for company-wide KAIZEN activities
Chapter 4:	Monitoring and Assessment of the KAIZEN Guidance
	4.1. Two phases of KAIZEN activity as target of monitoring and assessment
	4.2. Monitoring and assessment method for KAIZEN guidance activities (Self-organising process phase)
	4.3. Basic indicators for management of production applying for KAIZEN activities (Self-practicing phase)
	4.4. Procedures for monitoring of KAIZEN guidance activities
Chapter 5:	Knowledge-based Materials to be used for the KAIZEN Guidance (Training Materials Nos. 1 – 17)
Appendices:	(1) Forms; (2) Questionnaires; (3) Report formats; (4) List of reference materials in KAIZEN Library

In addition, as supplementary materials to the manual, a set of audio-visual materials was produced. The materials, which are now called KAIZEN Visual Guide, in the Study, were completed in June 2011, and are expected to be used in conjunction with the manual in the future KAIZEN guidance activities as well as in introductory dissemination events.

2.7 Lessons Learnt from the Pilot Project

There have been a number of lessons learnt during the course of the pilot project. They include issues of: obstacles in relation to establishing standards or rules within a company; limitation in the use of business planning; availability of cost accounting and operation data; problems related to trust and empowerment within company organisation; and issues related to quality-conscious mind-set. These issues require careful considerations for future capacity building plans for the manufacturing industry.

As discussed earlier, the revision to the pilot project's approach was the first major lesson learnt in the Study. It resulted in the revised KAIZEN guidance methodology with the workplace KAIZEN approach at its core. The KAIZEN guidance implemented under this methodology proved to be clearly

effective for the pilot companies. The workplace KAIZEN approach, when it takes root in a company successfully, is expected to call for further improvement in the management framework. In this respect, the following agenda should be also given consideration in order for KAIZEN in Ethiopia to further develop and contribute to strengthening of the manufacturing sector.

(1) Along with promoting KAIZEN at workplaces and creating the organisational capability to continue KAIZEN itself, the KAIZEN-practicing companies should enhance their capability to collect and manage data that are required for management of production so that the requisite indicators are correctly calculated and made available timely to the users within the organisations.

(2) Utilising such indicators, the KAIZEN-practicing companies should establish the practice of setting objectives and establishing plans. These apply not only to the company's KAIZEN activity planning, but also to the company's overall business planning and production planning that enhance management of their business with the plan-do-check-action discipline.

(3) At a KAIZEN-practicing company, the roles and responsibilities of managerial functions of all departments of the company should be clearly defined for each function and its responsible manager. Each department should set its objectives, establish its plan, and maintain its requisite data and indicators to review its results against the objectives and the plan. There should be institutional framework to ensure proper management in the company such as a regular management meeting system. Overall, self-disciplined management capability in all the organisations within the company should be established.

(4) As the management capability is upgraded, technology capacity and skill capacity within the company will be required. In order to accomplish these, the company needs to have the spirit of challenge for innovation. It also needs to nurture an enabling environment at the workplace level to effectively respond to new technologies on an on-going basis. This requires a system at the workplace level to capture the front-line worker' skill levels accurately and a training system to improve and upgrade the employees' skills.

The KAIZEN guidance established in the pilot project is effective in providing the basis for laying the foundation of KAIZEN culture of collaboration of top management, middle managers and front-line employees based on the workplace KAIZEN. The agenda ahead summarised above belong to the area of what the KAIZEN guidance methodology categorised as *Fundamental Enablers for Recurrent KAIZEN Agenda*. Working on these agenda is critical for KAIZEN to sustain and grow in the Ethiopian companies.

In order to facilitate the private companies' own effort of acquiring and enhancing these capabilities, public assistance may be considered, such as providing training in coordination with the KAIZEN dissemination programmes and possibly a publicly recognised system of business management consultants.

3. Capacity Development of KAIZEN Unit

Transfer of relevant skills and techniques to the members of KAIZEN Unit (KU) is one of the three objectives of the study as defined by the Scope of Work.

3.1 Four Avenues of Capacity Development of KU

In the pursuit of the objective of KAIZEN Unit capacity development, four avenues were utilised in the implementation of this Study: (i) On-the-job training: (ii) In-house training: (iii) Self-learning: (iv) Training Programmes in Japan.

1) On-the-job training

On-the-job training, which took place in conjunction with the pilot project's company visits for on-site guidance and their related activities before and after the visits, was the most crucial avenue of technical transfer. The training was done in 3 sub-teams separately through the guidance activities led by the JICA study team members on-site at the companies and through the process of preparing reports on the visits and discussions at the project office. The JICA study team and the KU members spent on these activities four days out of five every week when the JICA team is in Ethiopia. In addition, the KU members' company visits for follow-up guidance done independently during the periods of the JICA study team's absence presented excellent training opportunity.

2) In-house training

In-house training programmes were arranged as a focused opportunity in a group-training format in which all the KU members were asked to attend. The in-house training was conducted in close coordination with on-the-job training. The in-house training started with lecture sessions by the JICA study team members. In the latter half of the study period, the training evolved to be dominated more by the KU members as presenters. It involved practice presentations of the seminar materials by the KU members using the draft manual of the KAIZEN guidance.

3) Self-learning

Practice of self-learning is an integral part of KAIZEN culture that values highly self-initiated proactive actions. Self-learning by the KU members has served as one of the fundamental elements in the acquisition of KAIZEN knowledge and skills. The KU members were proactively engaged in this form of activity in association with the on-the-job training and the in-house training.

4) Training programmes in Japan

JICA implemented two programmes of training in Japan for the Study in the spring of 2010. A two-week programme was conducted in May for KAIZEN practitioners involving the KU members and the pilot company managers. By seeing actual workplaces and processes at factories, the KU members acquired clear image of what a standardised workplace looks like, how it functions, and how KAIZEN activities are conducted in real life. This solidified the common ground between the JICA

study team members and the KU members, and gave confidence to the KU members as a KAIZEN consultant. Another programme for higher level counterpart officials was conducted in April with a focus on the area of KAIZEN-related policy issues including industrial policies and support programmes for small and medium companies. With the enhanced grasp of KAIZEN and its roles in various industrial support systems in Japan, This programme had a positive impact. The project leadership of the KU head became further more effective. The initial preparation for institutionalisation of KAIZEN on the Ethiopian side was accelerated in conjunction with the visit to Japan.

3.2 Assessment of Capacity Development of KU

The overall arrangements of capacity development for the KU members were very effective with the combination of the training programmes in Japan and training opportunities in the pilot project's activities. The table below shows *Draft Matrix on the Stratification of KAIZEN Professionals* contained in the KAIZEN manual. The matrix includes five levels of KAIZEN professionals from Level I (*Junior KAIZEN Consultant*) up to Level V (*Senior KAIZEN Consultant*). It was a fair observation that the KU members had been at a level before Level I at the very beginning of the pilot project of this study. As of May 2011, after the implementation of a post-pilot project supplementary guidance programme done independently by the KU members in March – April, about two thirds of the KU members (5 – 6 members) can be graded at Level III ('KAIZEN Consultant') and other members at Level II ('Assistant KAIZEN Consultant'). Definitive descriptions for the levels are given in the table below. The KU members, all of whom are capable of playing significant roles in the KAIZEN guidance sessions, are now solidly on track to develop themselves towards further higher levels of KAIZEN consultants.

Table-S3: Draft Matrix on Stratification of KAIZEN Professionals

Level	Competence	Level of Knowledge and Skills	Assignment
I	Competent to conduct KAIZEN activities for yourself	<ul style="list-style-type: none"> - fresh person with no experiences - acquired basic knowledge and skills on TQM/QCC/5S/QC seven tools - competent to make at least two case analysis 	- Junior KAIZEN Consultant
II	Competent to guide KAIZEN activities	<ul style="list-style-type: none"> - 2-year experience - acquired advanced and applied knowledge and skills on TQM/QCC/5S/QC seven tools - competent to present at least 5 case studies of KAIZEN for training purpose. 	- Assistant KAIZEN Consultant
III	Competent to provide consultancy services on KAIZEN	<ul style="list-style-type: none"> - 4-year experience - acquired relevant knowledge and skills for KAIZEN in addition to TQM/QCC/5S/QC 7 tools - acquired other knowledge and skills on industrial business engineering (financial management, human resources management etc.) - competent to prepare case materials for training exercises - Experiences of consultancy services in KAIZEN for at least 5 companies by his/herself in 2-year service 	- KAIZEN Consultant

IV	Competent to provide consultancy services on KAIZEN	- 6-year experience - Including all of above - Experiences of consultancy services in KAIZEN for 15 companies by his/herself in 4-year service.	- Senior KAIZEN Consultant
V	Competent to provide consultancy services on KAIZEN	- 8-year and more experiences - Including all of above - Experiences of consultancy services in KAIZEN for at least 30 companies by his/herself in 6-year service	- Lead KAIZEN Consultant

Source: JICA study team; KAIZEN Manual

3.3 Lessons from Capacity Development of KU

1) Standardised uniform KAIZEN guidance:

One of the most distinct features that made the efficient technology transfer to KU possible was the establishment of the standardised uniform programme of KAIZEN guidance which was structured with systematised coherency. In the perspective of the individual KU member, the basic methods and skills required in the standardised KAIZEN guidance being presented with clarity was much easier to master. Also in the team perspective, the common guidance methodology applied to all the sectors made it easy for all the KU members to share their experiences and learn from each other across their sector teams. In the pilot project’s sequential implementation schedule of the two groups, the standardised uniform guidance approach provided the KU members with the same exercise opportunities twice in different test grounds.

In conclusion, the standardised approach in the KAIZEN guidance methodology should be maintained going forward. This approach makes training of trainers more efficient. The combination of the standardised guidance method and the actual company guidance in more than one groups conducted in sequence creates excellent opportunities for training for the trainee consultants.

2) The manual:

The manual draft that described the standardised methods and programme of the KAIZEN guidance was copied and shared among all the KU members from the time the initial zero draft took. This contributed greatly to the learning process of the KU members by thoroughly reading and digesting the contents of the manual. In the dissemination phase of KAIZEN in Ethiopia, trainee consultants will always benefit from having a well-structured and standardised manual. They also will benefit from participating in the process of customisation of the manual when such opportunities arise.

3) Accumulation of independent guidance experiences:

There were many occasions in the pilot project for the KU members to independently conduct company visits for on-site guidance during the periods of the JICA team’s absence in Ethiopia. The early attempts were mostly follow-up activities of the previous guidance sessions. Towards the end of the Study period, however, the KU members as a team formulated and implemented a special KAIZEN guidance programme independently. Such experiences proved to be extremely important in accelerating the progress of capacity development of the KU members. It is recommended that

experiences in such independent guidance activities be repeated many times to promote the development of the capacity of the KU members. Accumulation of such experiences of guidance done independently is a vital element in the consultant training.

4. KAIZEN Dissemination Plan

4.1 Dissemination Plan as One of Three Components of KAIZEN National Plan

The dissemination plan formulated in this Study is one of the three components of the KAIZEN national plan in accordance with agreement between JICA and MOI. The other two components of KAIZEN institutionalisation and KAIZEN national movement are to be handled outside the scope of the Study under the coordination of JICA.

4.2 Relevant Elements for Formulation of KAIZEN Dissemination Plan

1) Synchronisation with national development framework and implementation strategy

(1) Growth and Transformation Plan as the guiding framework

Ethiopia’s five-year development plan, the Growth and Transformation Plan (GTP), provides a guiding framework of national development plan in Ethiopia. In this regard, synchronisation with the framework and contents of the GTP is crucial. In the GTP, to attain continued rapid growth of the economy, the industrial sector and the agricultural sector are highly emphasised as driving forces and the industrial sector in particular is envisaged to be strengthened to take up a leading position in the overall national economy at the end of GTP implementation in terms of the sector’s contribution to employment generation, import substitution and foreign exchange earnings. The GTP continues to place emphasis on enhancement of implementing capacity of all the sectors, especially of the industrial development sector. It is crucial to pursue this enhancement through the mobilisation of new management tools appropriate for the change of the popular mind-set. KAIZEN has been recognised as one of the instruments and expected to serve this objective.

Cognizant of this, the KAIZEN dissemination plan is formulated for the same time horizon of the GTP, that is, five-year term from September 2010 to August 2015.

(2) Two highlighted strategies in relation with KAIZEN’s dissemination

The GTP articulates two main aspects of industrial development: (1) MSEs development and (2) medium and large industry development. In order to strategically accelerate the pace of industrial development, currently two main strategies are formulated as substantial components of the GTP implementation.

- (i) MSEs Development Implementation Strategy
- (ii) Strategy for Development of Medium Industries producing construction sector material

The table below broadly indicates the following elements; (a) national institutional arrangement: (b) main potential disseminator (who disseminate); (c) broad category of end target (to whom KAIZEN is disseminated); (d) main sub-sectors of industries (which products are to be prioritised and where dissemination should be prioritised).

Table-S4 : Two Main Strategies in the Framework of GTP in relation to KAIZEN Dissemination

No.	National Strategy	Main Institutional Arrangement	Main Disseminators	End Target	Main Sub-sectors of industries
1	MSEs Development Implementation Strategy	National Council Chaired by MoUDC Co-chaired by MoI Members including National Bank with regional, zonal, woreda and Kebele council	TVET Teacher (Industrial Extension Officer)	MSEs	All the sub-sectors in five (5) main groups; manufacturing, agri-business; construction; trade, and service.
2	Import Substitution Implementation Strategy	Coordinated by MoI Members including MoUDC, Ministry of Water and Energy	MoI's experts (KAIZEN Consultant)	Medium and Large Companies	Supporting industries for construction mainly consisting of cement industry, metal industry and electric accessories plastic, ceramic and related industries; Domestic-resources based Industries (Agro-processing; leather* and textile*)

Source: JICA study team

It is understood from the above strategies that TVET teachers are designated to be Industrial Extension Officers who are responsible for providing MSEs with management consultancy services including KAIZEN, while experts of MOI are mandated to discharge their duties to do the same for medium and large companies.

(3) Other relevant national industrial development implementation strategies and related ideas

In addition to the above two strategies, the export promotion national plan continues to serve as an integral part of the GTP to increase foreign currency earnings. Yet it is officially decided that benchmarking method is firstly applied to these medium and large companies categorised into two sub-sectors of industry: leather sub-sector and textile sub-sector. After the benchmarking is completed, KAIZEN would be implemented to ensure continuity of quality and productivity improvement gained through benchmarking.

2) Customisation of KAIZEN Manual and its Organisation

The present KAIZEN Manual is the first edition of its kind which was developed by the Study based on the pilot companies categorised into medium and large companies in five sub-sectors.

In the implementation of the GTP in the next five years, KAIZEN’s target will be expanded to include different types of business organisations such as micro and small enterprises as well as different sub-sectors of medium and large companies. For the purpose of nation-wide dissemination across different conditions of business operation and different types of production, the manual needs to be

modified in order to accommodate identified different conditions based on the first edition's basic methodology.

Also, effective KAIZEN guidance needs the enhancement of operationalization of the manual. To achieve this, it is of vital importance to accumulate experiences in guidance. Such accumulated experiences are expected to be compiled in the form of case studies, and it is crucial to effectively use cases for KAIZEN dissemination. To achieve this, a systematically organised approach is critical. This requires performing continually the whole process of a cycle to select companies with preliminary visits, to implement the KAIZEN guidance at companies during which relevant information is collected and analysed, to monitor and assess outcomes of the guidance, and to evaluate the effectiveness of the guidance relative to the individual companies for the next guidance cycle. Through the continued performance of the process cycles, empirical knowledge from different circumstances is collected, which is crucial for effective dissemination of KAIZEN to companies with varying conditions. This makes it possible to accumulate such empirical knowledge as institutional memory.

For the effective nation-wide dissemination of KAIZEN, appropriate human resources are needed to undertake the duties described above. They are experts equipped with consulting capability for customised application. In order to allow them to accumulate the empirical knowledge over a long term, the experts need to be specialised in KAIZEN and to be assigned on a full time basis. At the initial stage nine experts, who were assigned for KU are expected to take the key role in the KAIZEN dissemination. They had experiences in the whole process of the KAIZEN guidance, through which they were equipped with consulting capability of customised application of the KAIZEN method.

With regards to the demand for KAIZEN guidance, potential demands are huge based on the available statistical numbers. There are more than 2,000 medium and large companies and numerous micro and small enterprises with their numbers ranging from 43,400 to nearly one million according to CSA's statistics. On the other hand, under the current capacity of providing the guidance of the nine experts, which is based on the pilot project arrangement of one team consisting of three experts guiding on average five companies in three months, it would take more than 60 years to reach only the presently existing medium and large companies. One can easily understand an urgent need to increase the number of the qualified experts.

3) Modalities to approach companies

Considering the present operation capacity of KAIZEN guidance consultancy and limitation of database of capturing the growing number of enterprises, the suggested approach is a modality to develop model companies. Through such approach many companies can refer to and learn from one of the model companies, i.e., the ones that can demonstrate best practices after having participated in the KAIZEN guidance. It is also suggested that those companies who are selected to be model companies should take social responsibility to disseminate KAIZEN into their supplier companies. In this way it is expected that the pace of KAIZEN dissemination can be accelerated.

According to the CSA Large and Medium Scale Manufacturing Industries Survey (2009), medium and large companies are not equally distributed in terms of geography. 51.21% of medium and large companies are found in Addis Ababa, followed by Oromia Regional State (15.38%), Tigray Regional State (10.81%) and Amhara Regional State (9.42%). It may be estimated that a geographical distribution of MSEs is in a similar pattern of concentration. For effective and efficient dissemination of KAIZEN, geographical locations of companies as well as clustering companies by types of products should be taken into account.

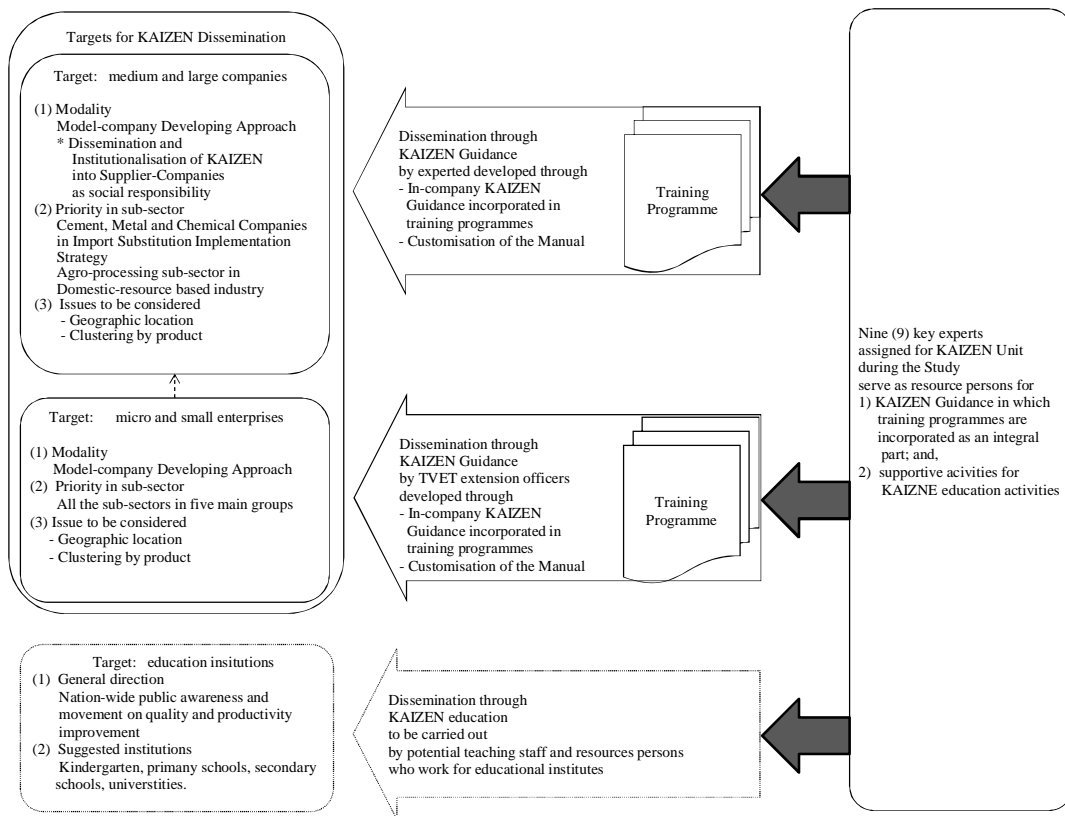
4) KAIZEN Education for KAIZEN National Movement

A need for effective nation-wide KAIZEN dissemination has been continually discussed and expressed by numerous Ethiopian government officials with a sense of urgency to do so in combination with a notion that 'quality is culture and setting of social minds'. This perspective with particular emphasis on the role of education was reiterated by the representatives of academic institutions and pilot companies in National KAIZEN Seminar held on 3 May 2011. The comments expressed in the seminar included: (a) need for people in educational institutions from kindergarten to university to create society's quality-conscious attitudes; (b) importance of cooperative efforts of government officials, academicians, private sector's top managers, union leaders and workers; (c) need for alignment of the involvement of education institutions with three stages of awareness, action and ownership in KAIZEN institutionalisation.

Based on this discussion, education institutions are expected to play an important role in the broad framework for KAIZEN dissemination.

5) Basic Framework for KAIZEN Dissemination

Figure 35 is presented to conceptualise the above discussions in the form of illustrative framework. The framework was attempted to illustrate KAIZEN dissemination approach to medium and large companies by experts and to micro and small enterprises by TVET extension officers, both of whom are to be developed through In-Company Guidance to be incorporated in training programmes as well as in creation of customised manual for new sectors where applicable.



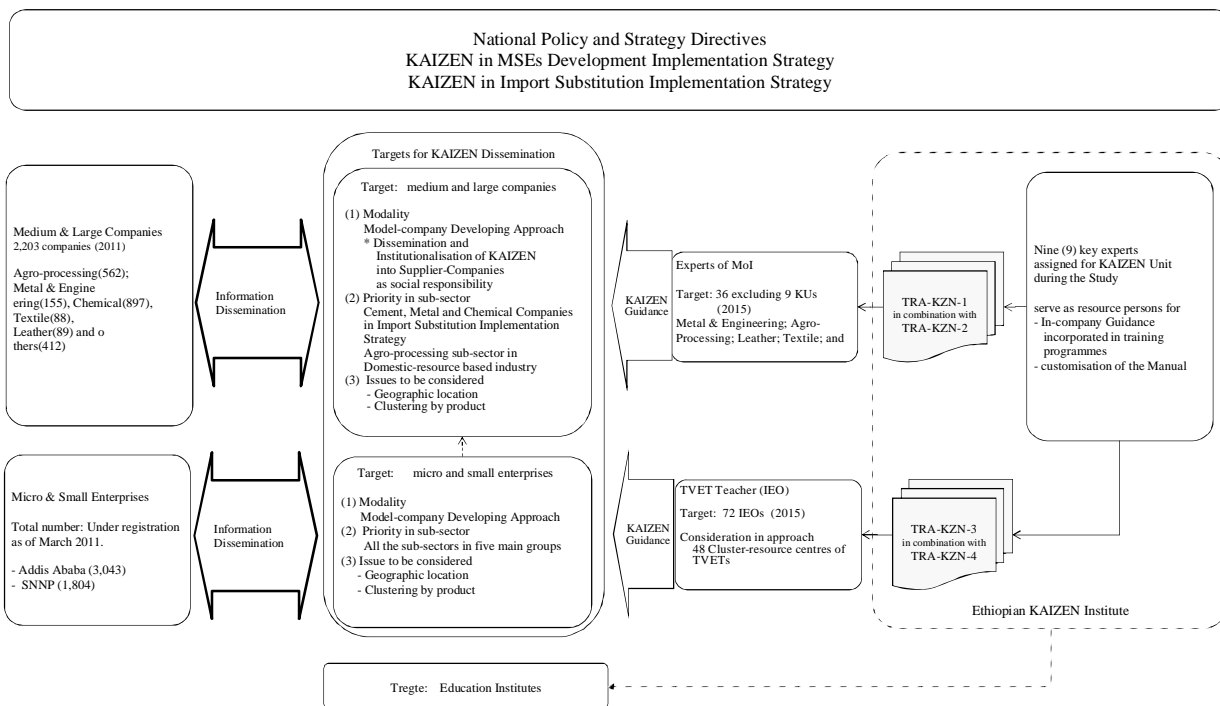
Source: JICA study team

Figure-S6: Basic KAIZEN Dissemination Approach to Companies

4.3 Proposed Dissemination Plan

The proposed plan for KAIZEN dissemination consists of three segments: (1) human resources development; (2) information dissemination; and (3) relevant institutional issues for dissemination.

Figure S7 is to show the framework of the proposed dissemination plan.



Source: JICA study team

Figure S7: Illustrative Diagram of Framework of Dissemination Plan

1) Human Resources Development

Of the three areas of the human resources component, namely, training programmes, national KAIZEN consultancy examination, and preparation for additional training, this component focuses first on the training programmes for human resources development to increase the number of the experts equipped with KAIZEN consulting capability. However, the training programmes are designed to involve In-company KAIZEN guidance, through which MOI's experts or TVET extension officers will be trained as trainee KAIZEN consultants, while the key KAIZEN-related personnel of the companies participating in the programme are given guidance on their companies' self-organising process of KAIZEN. In short, during the plan period, 36 new MOI's experts and 72 TVET teachers are to be developed as driving forces for KAIZEN dissemination, while 120 medium and large companies and 180 micro and small enterprises are planned for KAIZEN consultancy services to be guided through their self-organising process of KAIZEN. Out of these targeted companies, remarkable model companies bearing outstanding outcomes from KAIZEN are expected as many as possible in order to serve as live reference cases for other companies and as dissemination agents for related companies in their supply chains.

(1) Proposed Training Programmes

Based on experiences through the implementation of the Study, the table below shows proposed training programmes for dissemination of KAIZEN.

Table S5: List of Proposed Training Programmes

Target in Company	No.	Main Training Programme for Dissemination of KAIZEN Guidance	Main Target		
			MOI Experts	TVET Teachers	Company Top-mgt
Medium and large	TRA-KZN-1	Comprehensive and Practical Training Programme in KAIZEN for Medium and Large Companies (MLCs)	●		
	TRA-KZN-2	Exercise-oriented Training Programme in KAIZEN for MLCs	●		
MSEs	TRA-KZN-3	Comprehensive and Practical Training Programme in KAIZEN for MSEs		●	
	TRA-KZN-4	Exercise-oriented Training Programme for MSEs		●	
-	TRA-KZN-5	Introductory Training Workshop on KAIZEN		○	●

Note:

- 1) Periodical performance assessment on the proposed training programmes shall be conducted. As a result, necessary revision of training programmes shall be made.
- 2) Any other necessary training programmes including training in data management and business planning shall be formulated during the period of the forthcoming five-year.

Source: JICA study team

A few attributes of the respective training programmes are presented in Table-S6.

Table-S6: Main Attributes of the Respective Training Programmes

No.	Duration	Main Attributes	Main Purposes
TRA-KZN-1	3 months x 2 (6 months in total)	<ul style="list-style-type: none"> • Comprehensive on Workplace KAIZEN • Practical • Involvement of company 	<ol style="list-style-type: none"> 1) To provide a venue for developing a model company to be equipped with KAIZEN corporate culture 2) To develop KAIZEN consultants
TRA-KZN-2	9 working days	<ul style="list-style-type: none"> • Comprehensive on Workplace KAIZEN • Practical 	<ol style="list-style-type: none"> 1) To provide participants with relevant operation knowledge on KAIZEN 2) To develop KAIZEN consultants
TRA-KZN-3	1.5 months	<ul style="list-style-type: none"> • 5S specific • Practical • Involvement of company 	<ol style="list-style-type: none"> 1) To provide a venue for developing a model MSE to be equipped with KAIZEN starters(5S: standardisation of workplace environments) 2) To develop TVET industrial extension officers
TRA-KZN-4	4 working days	<ul style="list-style-type: none"> • 5S specific • Practical 	<ol style="list-style-type: none"> 1) To provide participants with relevant operation knowledge on KAIZEN starters (5S: standardisation of workplace environments) 2) To develop TVET industrial extension officers
TRA-KZN-5	2 working days	<ul style="list-style-type: none"> • Basic • Practical 	<ol style="list-style-type: none"> 1) To provide participants with basic session on KAIZEN 2) To expose busy top-management or managers or employees to KAIZEN basic exercises

Source: JICA study team

Two aspects of attributes should be noted.

- (i) Two training programmes, i.e., TRA-KZN-1 and TRA-KZN-3, are intended to involve In-company KAIZEN Guidance through which not only MOI's experts but also top-management, middle managers and employees of a company shall be exposed to actual self-organising process of KAIZEN as learning process. For a long-term, these courses are expected to contribute towards building up a large pool of model companies with KAIZEN corporate culture.
- (ii) Training programmes for TVET teachers are intended to focus on KAIZEN starters of 5S for

the coming five-year.

(2) Formulating National Examination for Standardisation of KAIZEN Consulting Services

In theory, effective and continual dissemination of KAIZEN requires standard quality of consultancy services.

A consultant, in order to be recognised as qualified consultant, shall be equipped with a variety of knowledge, skills and attitudes that certainly requires in conducting consultancy services in order to meet satisfaction of clients, i.e., companies, in the context of improvement of product quality and productivity of manufacturing. These required knowledge, skills and attitudes need to be acquired in a short period of time, but it is difficult to resist the fact that these requirements for consultancy services are normally acquired not at once but over a long period of time with strong, continual and committed involvement in KAIZEN. Thus, it is understood that a quality of consultancy services shall depend upon the grade of consultants.

In light of the above view, a draft matrix was prepared in an attempt to classify consultants, who are involved in KAIZEN dissemination, in accordance with levels of competences, technologies and skills as well as depth and width of knowledge. For details see *Draft Matrix on Stratification of KAIZEN Consultants* in 3.2 .

It is of significant importance to establish relevant examination and certification system in order to ensure the required standards of quality of KAIZEN consulting services. During the next five years, it is suggested that such system should be formulated with a reference to the existing examination and certification systems.

(3) Preparation of additional training programmes

The above proposed training programmes are formulated emphasising on dissemination of KAIZEN at workplaces in companies. In order to make KAIZEN Guidance at workplace to be expanded into company-wide KAIZEN activities, enhancement of three areas of management capabilities, which are identified as *Fundamental Enablers on Recurrent KAIZEN Agenda* in the manual, are crucial. These areas of management capabilities are (i) business planning capability, (ii) cost accounting and operation data management, and (iii) trust and empowerment management. They may not be built up overnight. Nevertheless, a KAIZEN-practicing company needs to have basic aptitudes in those three areas of capabilities. Moreover, a KAIZEN-practicing company is expected to develop and upgrade them in step with the advancement of KAIZEN at workplaces.

In this regard, during the next five years, the following activities are suggested to be conducted; (i) development of conceptual framework and guidance; (ii) conduct of consultative meetings with relevant stakeholders; (iii) conduct of situation analysis; (iv) preparation of operation guideline for improvement of data planning and management, business plan formulation and management; and roles of executives and managers in trust building through empowerment of employees; and (v) establishment and conduct monitoring and assessment.

2) Information Dissemination for KAIZEN Forum and Networking

(1) Creating KAIZEN Month (January)

As mentioned earlier in 2.1, KAIZEN is defined as a system of continual undertaking by an organisation to improve its business activities and processes with the goal to always improve quality of products and services so that the organisation can meet full customer satisfaction. KAIZEN, as undertaken by an organisation, involves continual, dynamic and self-disciplined practice in the quest of improvements towards ever higher quality and productivity. In this perspective, the practice of KAIZEN is conducive to creation of a corporate culture in which the organisation's members are endogenously self-motivated to work together to continually self-innovate and improve their organisation.

The next quest lies in how to continually bring up such self-managed system of organisations in nation-wide scale of operation. Awareness creation campaigns on KAIZEN on the regular basis may stimulate discussions on quality and enable KAIZEN activities to take root and grow in a company.

In such context, many countries including Japan have set up a designated month regularly in a year called as 'the month for quality' or 'quality month' by all the stakeholders and actors including public and private agencies, companies as well as other social fabrics including even local communities. The primary purpose of the quality month (or KAIZEN month) is to raise awareness of top-management, middle managers and front-line employees on the significance of quality and productivity, customers' satisfaction in terms of quality-costs-timely delivery, employees' satisfaction, and other related issues. In the case of Japan, in such a designated month, various types of seminar and forum on KAIZEN are organised while nation-wide QCC presentation meetings are held. In addition to this, individual companies may produce companies' own posters or pamphlets on KAIZEN, make catch-phrases or slogans necessary for disseminating the core idea related to KAIZEN, company-wide QCC presentation seminars with its own awarding system and the like. The establishment of such KAIZEN month is expected to serve as important tool for nation-wide dissemination of KAIZEN.

Cognisant of the importance as above, a series of consultative meetings in the Study suggested two main criteria to choose a month. Two criteria were; (i) a month that follows harvest when people generally share a joyful atmosphere with a sense of unity ; and (ii) a month which is relatively free from traditional and religious events that occupy people's minds and social calendar. Accordingly, the month of 'Tir' (January) is suggested to serve as the designated month for public awareness on quality and productivity or KAIZEN.

(2) Establishing KAIZEN Award

Needless to say, award system contributes dissemination of a particular idea, KAIZEN in this plan, through enhancement of people's motivation and incentive as well as public awareness building.

In reference to existing experiences prevailing in the country on awarding systems, it is suggested that the intended institution of KAIZEN, which is expected to serve as the centre of excellence on KAIZEN, will take the initiative to prepare for a KAIZEN award system. It will include undertakings

to: set up an organising committee; to develop criteria to choose the best practices of KAIZEN or QCC activities of companies; to formulate organisational mechanism to select companies or QCCs under clear criteria as well as to make public announcement that ensures transparency; and finally to run the execution of the process of awarding.

(3) Constructing Platform through Website

In order to disseminate KAIZEN, various types of venues, which provides as many as stakeholders with opportunities to exchange experiences and views, should be established and maintained. One of such venues is a Website on KAIZEN in Ethiopia. It is expected that the intended KAIZEN institute will prepare the Website on Ethiopian KAIZEN in order to effectively and efficiently facilitate processes of interactions among stakeholders concerned on KAIZEN. Even such Website is expected to serve as marketing channels through which foreign companies and people could have access to individual companies that practice KAIZEN as well as public agencies involved in dissemination of KAIZEN in Ethiopia.

3) Enabling Environment for KAIZEN Dissemination

(1) Fostering Quality-conscious Mind-set

In the Study's pilot project activities, the majority of the managers and employees of the pilot companies were active and enthusiastic participants in the KAIZEN activities. However, there were a few unfortunate cases where the KAIZEN activities faltered because the company management did not care about quality as their priority was placed on production volume. One of the reasons for the insensitivity towards quality observed at times in the manufacturing industry is related to situation of quality standards in which quality is not effectively required in operating a manufacturing company. Such situation may come from either of the following: (1) there is no quality standards for products, therefore for the producer has no need to worry about the quality level of products; (2) there is no effective requirement for products to be certified for quality; or (3) there is no requirement for the certification to be disclosed to the public or prospective buyers. In general, the manufacturing sector will not pay attention to quality unless all the three are in place.

Based on the observations in the pilot project activities, the three areas related to quality standards are discussed below for future policy consideration.

- **Making quality standards effective**

It is recommended that quality standard grading of products of agriculture and mining industries be established. It is obvious that the products of the primary industries have quality variation. This very fact makes it necessary to establish a system of quality grading based on ingredients by a public institution. Quality of agricultural products is in many cases a quality issue of raw materials for the manufacturing industry. At the same time, the need for quality standards is equally applicable to manufacturing products, and therefore all manufacturing products should be subject to quality standards.

- **Certification of quality**

Establishing a quality grading alone is not enough for the grading to be useful. A mechanism to let producers to get their products graded is needed. Certification should be part of the grading system. Certification for agricultural products typically relies on testing of real products. Certification for industrial products whose quality variation is small is based on auditing done periodically on the production processes to determine if the target quality can be assured. Grading of agricultural products is determined normally by appearance and ingredients. In some cases, tasting test is added. Tasting test requires comparative tasting with comparable products and the blind tasting format.

- **Public disclosure of product quality: Creating environment for quality improvement**

When a quality grade is given to a product, the price for the product is determined according to the grade. The higher the grade, the higher the price, and the lower the grade, the lower the price. Therefore, the products' uses are determined according to the grades. Where the consumers can see the product's quality relative to standards, the consumers make their purchase decisions relative to quality. Where products are selected on the buyers' side, producers are incentivised to be quality-conscious. In such environment, improvement of quality of products is inevitable, and will be continuous.

In studying the above issues of quality standards, certification and public disclosure, a collaborative work system between the intended KAIZEN institute and Ethiopian Quality and Standard Authority needs to be considered, especially in relation to the ninety technical committees that have been established so far. The awareness building on Ethiopian Standards should be promoted as an integral part of KAIZEN dissemination.

(2) Keeping Competition Functioning

The pilot project's experiences mentioned earlier are related also to market situations where demands of products are much higher than volume of supply. This is another reason for the insensitivity towards quality. In the sellers' market which is expected to continue for an extended period of time, management on the sellers' side tends to lose interest in quality improvement. Companies are even tempted to ship sub-par quality products to the customers when there are not many viable choices on the buyers' side but to take whatever is available from the seller they have contracted.

Competition should be the rule of the game in the domain of business. However, not everyone is the strong players but there are weak ones such as a start-up. A market where a small number of strong players dominate the market crowding out the weak ones is not a competitive market that can optimise the use of resources. In order to nurture a strong industrial sector, vigorous mechanism needs to function to remove obstacles to competitive environment in the marketplace and to eliminate unfair trade practices, so that competition functions properly in the business sector. Elimination of unfair trade practices may include an undertaking to remove unfair contractual practices to make business contract practice more standardised. Elimination of cartel-like behaviours needs to be rigorous. Obstructing practices to bar new entrants by the existing players also need to be addressed.

The marketplace should be where those with great ideas and with relentless endeavours to produce better products and sell more of them will eventually succeed. KAIZEN is for those who try to do their best to innovate themselves to be successful eventually.

(3) Organising National Consultative Meeting for Building Enabling Environment

In order for KAIZEN to be effectively disseminated, it is critically important that an enabling environment is in place that supports KAIZEN activities by the intended KAIZEN institute, TVET, medium and large companies, micro and small enterprises and any other relevant stakeholders in KAIZEN. The enabling environment for dissemination of KAIZEN involves various aspects of such external issues as technical standards established by Ethiopian Standards, competition policies, taxation systems, availability of hard currencies for purchasing materials from abroad, pricing mechanisms of domestic products like wheat for agro-processing industry and others.

To tackle such issues, it is suggested that at the federal level a mechanism to hold periodical consultative meetings for improving enabling environment for KAIZEN should be established.

4.4 Proposed Plan of Actions

Taking the above discussions into consideration, Table-S7 presents the outline of a proposed plan of actions for the coming five years in synchronisation with the planning horizon of the GTP. It should be noted that the proposed plan of actions is subject to periodical revisions based on the results of review and monitoring to be conducted by the Ministry of Industry.

Table S7: Proposed Plan of Actions

Source: JICA Study Team

Category	No	National Development Programme										Target				
		Main Programmes										Company	Expert			
		2002	2003 E.C.	2004 E.C.	2005 E.C.	2006 E.C.	2007 E.C.	2008 E.C.	2009 E.C.	2010	2011	2012	2013	2014	2015	
Programme for MLCs	1	Pilot Project for the formulation of standard approach to KAIZEN														
	1-1	Verification study in the first group of 15 medium and large companies														
	1-2	Verification study in the second group of 15 medium and large companies														
	2	The first customisation exercise through the follow-up activities														
	3	Comprehensive and Practical Training Programme in KAIZEN for MLCs														
	3-1	Conducting In-company Training (1a)														
	3-2	Conducting In-company Training (1b)														
	3-3	Conducting In-company Training (2a)														
Programme for MSEs	4	Preliminary Study for Customisation in MSEs														
	5	The first exercise-oriented Training Programme for IEOs														
	6	Comprehensive and Practical Training Programme in KAIZEN for MSEs														
	6-1	Conducting In-company Training -1														
	6-2	Conducting In-company Training -2														
	6-3	Conducting In-company Training -3														
	6-4	Conducting In-company Training -4														
	7	Any other programmes including Data Management and Business Planning														
Net	8	KAIZEN Award Programme														
Total												328	45	120		
Total excluding targets obtained during the Study (No. of company in 1-1& 1-2 & No. of experts in 1&2 and 4&5)												300	36	72		

Abbreviation

Cat.: Category; MLCs: Medium and Large Companies; MSEs: Micro and Small Enterprises; Gen: General; Adv: Advanced; Net: Networking; IEO: Industrial Extension Officer (Designated TVET Teachers); E.C.: Ethiopian Calendar

Remarks

1) Total number of company includes 28 companies in Phase-1, 120 medium and large companies; and 180 micro and small enterprises.

2) Total number of MLCs experts includes the number of KAIZEN Unit members in Phase-1

Technical Note:

1) Team formation for MLCs: 6 members per team (three experienced experts and three fresh-persons), 3 teams per year; 5 companies per three months per team

2) Team formation for MSEs: 3 members per team (one Mid expert plus two IEOs), 9 teams per year; 5 companies per one and half months per team

3) any other programmes may include any preparatory works to select companies, any works to revise manuals or to develop training materials, and the like.

Coloured or shadowed

Time tentatively allocated for training programmes

Time flexibly allocated for any formulations of new programmes, any preparatory works and others

Light yellow: Break period of academic institutes including TVET

Light green: the month of Tr (February) designated for KAIZEN month

5. Conclusion

5.1 National KAIZEN Seminar (May 3, 2011)

JICA study team and KU held National KAIZEN Seminar on May 3, 2011 in order to present this Study's outcomes to the Ethiopian government officials and representatives of public and private institutions that were stakeholders of KAIZEN dissemination in Ethiopia. The objectives of the seminar were to gain understanding of those invited on results of the pilot project, KAIZEN guidance methodologies and Dissemination Plan, and to collect feedback comments to be reviewed for the purpose of finalisation of the Final Report of the Study.

As the result of the presentations and the discussion that followed, the officials and stakeholders came to share a basic understanding of the KAIZEN methodologies and the proposed Dissemination Plan, and favourable opinions were voiced. In this context, in view of the recognition of quality improvement as culture of a nation or a society and therefore a need for a movement of quality improvement through KAIZEN, a suggestion was made from a participant from the academic circle that curriculums on KAIZEN be included in the education system in the country in consideration with human resources development of the next generation. This point was corroborated by other participants including participants from two companies that had participated in the pilot project.

The comments on the Dissemination Plan (Draft/Final Report), both those raised at the seminar as above and others collected after the seminar, were given consideration by the JICA study team in the finalisation process of this Final Report.

5.2 TVET Seminar (KAIZEN Study Seminar: April 30 – May 1, 2011)

For the purpose of obtaining preliminary insight in terms of KAIZEN dissemination to micro and small enterprises sector, an exercise-oriented training seminar was held for two days (April 30 to May 1) for the deans of the TVET schools (53schools) and other TVET-related officials to introduce the KAIZEN guidance methodology. This seminar was intended to help the key TVET personnel better understand KAIZEN and to help KU start preparation for providing assistance to TVET in including KAIZEN in their training programme for micro and small enterprises.

At the conclusion of the seminar, the deans expressed favourable opinions on the exercise experienced in the seminar, and understood the KAIZEN guidance methodology. Their feedback on the manual was also positive. Overall, the TVET participants were able to gain good understanding of KAIZEN and its guidance methods that this Study established, and the KU side was able to have a good insight for collaboration with TVET for the customisation of the KAIZEN manual for the MSE sector.

5.3 Conclusion: Some Thoughts for the Future

1) Objectives of the Study accomplished

The three objectives of the Study (National plan – dissemination plan; Manual; Capacity development of KU) have been successfully accomplished.

2) Further capacity development of KU members

The decisive factor for the success of the Study was the strong leadership provided by the capable leader together with the excellent team of the nine KU members on the side of the Ethiopian side. All KU members are now capable of developing themselves further as KAIZEN consultants. In order to enhance the excellence of the KU members as KAIZEN consultants, the key word going forward is exposure to actual workplace experiences. It is critically important that KU secures ways in which the KU members expose themselves to actual workplace situations as much as possible in order to experience KAIZEN activities in solving actual problems in the workplaces.

3) Future expansion of KAIZEN guidance methodology

The KAIZEN guidance methodology established in the pilot project focuses on “workplace KAIZEN”. By focusing on “workplace KAIZEN”, the pilot project was able to formulate a standardised, common methodology of KAIZEN guidance. Standardisation of the guidance method in this way was possible because every company has substantial needs for “workplace KAIZEN” and because “workplace KAIZEN” is the basis and the common ground of all KAIZEN activities.

The workplace KAIZEN-based guidance methodology established by the pilot project is not the only method available. In the future KAIZEN development in Ethiopia, the present KAIZEN guidance method should be expanded in two ways. One is expansion in the entry paths to KAIZEN activities for wider scope of industry sectors by way of customisation for MSEs and possibly for areas of unique types of production. The other is enhancement in providing support for management capabilities in association with the advancement of KAIZEN activities, which are the *Fundamental Enablers on Recurrent KAIZEN Agenda*.

4) Dissemination of KAIZEN activities

The KAIZEN Guidance methodology of this Study was able to provide a road-map for individual companies from an entry point to company-wide expansion. One domain of measures for KAIZEN expansion is institutionalisation. However, institutionalisation alone will not work without regard to the human factor. It is the men and women in the organisations who actually work and execute what the organisations are supposed to deliver. An organisation should manage its human resources in alignment with the organisation activity goals and should create a motivated workforce. Workplace KAIZEN is in part an answer to improving employee motivation. However, challenges will lie ahead in terms of changes in more basic parts of mind-set and attitude that are deeply rooted in the societal norms or culture. They may include collaborative teamwork spirit that promotes collaboration in creating rules, respecting and observing the rules and improving the rules. The issues in relation to mind-set and attitude may be pursued in the context of a national movement.

5) What is expected of the next project

In relation to what was accomplished in this Study, the following are what the KU members and their newly assigned colleagues will be expected to do in the next KAIZEN cooperation project.

- The KU members who have acquired knowledge and skills of KAIZEN so far in this Study are expected to continue their activities in order to become the teachers in the training of teachers.. To do this, KU should organise itself to enable the KU members to have workplace experiences always and accumulate them, and at the same time to become capable of developing new tools and methods that are needed in the workplaces they help.
- Including the manual and the audio-visual materials, KAIZEN handbooks should be developed that are easy to use by all Ethiopian industries to introduce KAIZEN to their enterprises.
- A management KAIZEN guidance framework should be developed to support companies with their capabilities in the area of *Fundamental Enablers on KAIZEN Agenda*.
- KAIZEN promotion framework with collaboration with relevant organisations should be established based on the KAIZEN institutional framework.
- Participation in KAIZEN National Movement

There are many agenda for the next step of KAIZEN dissemination. The JICA study team members all believe that the KU members will rise to the challenge and deliver solid results as the core members of the new organisation in the dissemination phase of KAIZEN in Ethiopia.